

PUBLIC INTERVENTION AND INDUSTRIAL RESTRUCTURING IN CHINA, INDIA AND REPUBLIC OF KOREA

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International Labour Organisation
Asian Employment Programme (ARTEP)
NEW DELHI

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First published March 1987

ISBN 92-2-105774-7

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Preface

The present monograph forms part of an attempt by an ARTEP to make a special study of industrial restructuring and employment generation in three countries of Asia, namely: India, Peoples Republic of China and Republic of Korea. It focuses attention in the role of public intervention through government policies and expenditure in stimulating industrial restructuring and income/employment growth within the above countries.

The responsibility for opinions expressed in the monograph rests with the author and its circulation does not constitute an endorsement of those opinions by the International Labour Organisation. ARTEP has brought out this volume with the specific intention of promoting debate and dissemination of views among our constituents on crucial aspects of policy making and formulation of alternative strategies for generating employment and incomes in the developing countries of Asia.

New Delhi
March 1987

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Introduction

Bringing about appropriate structural change in the economy is almost universally regarded as an important goal of government policy in the modern world. In this era of global recession, stress on structural change has been an especially prominent feature of policy pronouncements of governments and inter-governmental organisations such as the International Bank for Reconstruction and Development (the World Bank), the International Monetary Fund and the United Nations Industrial Development Organisation (UNIDO).¹ Appropriate structural adjustment to changes in world trade patterns, technologies and market opportunities is seen as a potent method of dealing with actual or threatening recession, and the slowing down of economic growth caused by the recession at home and abroad.

Although there is agreement about the necessity of appropriate structural change or adjustment, there is little consensus about what would be the content of desirable structural adjustment or about the means of bringing that about. For some economists and policy-makers, appropriateness means taking advantage of market conditions at home and abroad, and in particular, in a global context, changing the relative earnings of agents of production and the relative prices of products produced to fit into the pattern of global comparative advantage. In this case, the policy-makers would have the producers adjust their production levels in accordance with the dictates of a market liberated from heavy-handed interference by regulatory agencies.

However, as economists have come to recognise more and more, markets are complex organisations, bound not just by short-term, arm's-length contracts between buyers and sellers, but also by ties of custom, long-term arrangements, by 'implicit contracts' between employers and workers, customers and suppliers² and even perhaps between regulatory agencies and firms. In some cases, a regular process of consultation between public agencies and producing firms and judicious intervention by public agencies can be part of the characteristics of a well-functioning market.

The present study enquires into the rationale of public intervention to bring about structural change in some of the larger economies of developing Asia. The three countries taken as subjects of intensive study, China, India and South Korea, have large economies by standards of developing economies. Their economic performance has been better than the average—in fact, in the cases of China and South Korea, outstanding—in a period of global slump and economic crisis. Ostensibly the three countries embody very different philosophies in the design of their political structures. However, all three have governments which intervene regularly in the economic process. The objectives of their intervention are not the same and the environment in which they intervene is not the same either.

The economic entities which are both objects of and participants in, this process of public intervention look quite different in the three countries. For example, in South Korea nine General Trading Corporations control a major portion of the industrial and wholesale or foreign trade activities of the country. In China, large

1. See, for example, UNIDO: *Industry in the 1980s: Structural Change and Interdependence* (United Nations, New York, 1985)

2. For a survey of 'implicit contract' theory, see S. Rosen: 'Implicit Contracts: A Survey', *Journal of Economic Literature*, vol. 23, September 1985.

state enterprises dominate modern manufacturing. In India, a number of public and large private enterprises control most of the modern manufacturing activities. But in all these countries, large enterprises are surrounded by small-scale enterprises, many of them family-run enterprises. In China, one major objective of current government policy is to encourage the development of collective enterprises and individual or family enterprises outside the state sector. It has been reported that employment and even output in these enterprises have been expanding faster than in state enterprises.³ In India, the government has long maintained a series of regulatory, fiscal and monetary measures (in the shape of commercial bank loans at differential rates of interest) designed to favour small-scale and cottage enterprises in particular sectors of the economy. Recent moves to soften some of the measures restricting investment or production by large-scale enterprises, including those designated as having some degree of monopoly power, have given rise to fears of widespread unemployment because of the collapse of small-scale enterprises. In some cases, the government has reversed some of the policies. In other cases, the government expects the effects of a more competitive environment to pay off in the long run by raising productivity, weeding out weak units and improving the working of markets. In South Korea, the government has schemes of favouring small-scale enterprises generally organised under a cooperative umbrella, but without really denting the growth of the general trading companies which are regarded as the spearheads of economic growth. Although there are attempts to link up large and small enterprises in a stable long-term relationship, subcontracting relations between big customers and small suppliers of the kind that grew up in Japan are rather thin on the ground both in India and South Korea.⁴

The case of relations between large and small enterprises illustrates that the functioning of markets and the shaping of the competitive environment have been regarded as legitimate concerns of government activity. The creation of new opportunities for trade and investment has also been seen as part of the agenda of action of interventionist government, although it is true that government action, any more than private activity, has not always attained the objective that it aims at. This is very well illustrated by the attitudes and policies of the three governments concerned in the area of foreign trade and investment.

As is well known from earlier studies, the South Korean government has generally regarded the penetration of foreign markets as a main instrument of economic growth and induction of domestic economic efficiency. What is, however, less well appreciated is that the government in collaboration with large conglomerates has sought to create specific centres of investment which could act as the generators of an export drive overseas. In other words, the government and business firms in South Korea (or, even more dramatically, in such countries as Japan and West Germany) have sought to *create* the pattern of comparative advantage they hope to benefit from. Such a strategy does not always pay off and does not pay soon enough: the car makers of South Korea had to wait quite a number of years before they became exporters on a significant scale. The South Korean conglomerates may also have suffered as a result

3 Robert Delfs: 'The Economy: Collective Efforts are Overwhelming State Enterprise', *Far Eastern Economic Review*, 20 March 1986.

4 There have been complaints that the highly successful South Korean *chaebols* or large conglomerates are not as efficient as they appear to be and that they have shown little regard for the fates of small enterprises which depend on them for their business. See, for example, Shim Jae Hoon: 'Time Runs out for the Conglomerates', *Far Eastern Economic Review*, 12 December 1985.

of global glut in the field of semiconductors where they invested heavily for a time. But the fact remains that the successes of South Korea in the export market were not achieved by passively adjusting to new trends in the market, but by anticipating them and investing daringly to find an inner track in the race of gaining new ('dynamic') comparative advantage.

The aim of penetrating foreign markets is not always best attained by running to take advantage of any opportunities for using cheap labour that seem to be tempting. As many earlier studies done by economists working under the auspices of the ILO(ARTEP) have demonstrated, many of the export processing zones created by governments in Asia have turned out to be 'sweatshops in the sun'. They have also proved to be rather vulnerable to changes in the sourcing strategies of multinational companies in response to changes in technology and the strengthening of protectionism in major OECD countries, led by the U.S.A.⁵ In India, the Santa Cruz Electronic Export Processing Zone (SEEPZ) has turned in a disappointing performance in the wake of liberalisation in government import policy that made it less profitable for firms to shift their operation to the SEEPZ. The special economic zones of Shenzhen and Hainan Island in China apparently turned out to be spearheads of import of goods into the country much more than magnets of inward foreign investment or launching pads for expanding exports. China's success in the field of exports was bound 'up more with the success of her general strategy of economic development than with any single-minded export-led strategy of industrialisation.

Strategies of brisk investment and development with the help of foreign technology have had attendant risks. South Korea's foreign debt has gone on mounting over the years. China's liberalisation measures led to a massive inflow of consumer durables—TV sets, VTRs and motor vehicles—and led to a trade deficit estimated at between US \$ 7.6 billion and US \$ 13.7 billion in 1985.⁶ Indian measures at import liberalisation have also led to larger imports, and with slow-growing exports to a large trade deficit in 1985-86, and an overall deterioration in the balance of payments situation.⁷

This sketchy discussion is enough to indicate that 'freeing of markets', 'opening up the economy', 'exploiting comparative advantage' are not a simple matter of deregulation in any developing economy. Nor are short-run or once-for-all measures to bring about some desirable change likely to be enough to ensure the functioning of markets and other institutions so as to cope with abrupt changes in market conditions and technology.

As has been noted by many observers of the amazingly flexible Japanese economy, adjustment to external and internal changes has to be positive, and involve long-range planning by the government, firms and R&D organisations.⁸ Other countries trying to emulate Japan, and keep up with the technological challenges posed by that country, have to design policies ensuring both macroeconomic balance, and microeconomic flexibility, including the wide diffusion of desirable technical changes.

5 See, for example, J. Clad: 'Penang Road to Growth on Shifting Foundation', *Far Eastern Economic Review*, 19, September 1985.

6. Louis do Rosario: 'The Cars-and-TVs Nightmare that Dented Reserves', *Far Eastern Economic Review*, 20 March, 1986.

7 Government of India: *Economic Survey 1985-86* (New Delhi, 1986) Chapter 8.

8 Cf. A.M. Anderson: *Science and Technology in Japan* (London, Macmillan, 1984).

In some cases, for example, the creation of markets for cars in poor LDCs, the measures to ensure the necessary degree of concentration of incomes in a few hands will militate against the spread of techniques and products to the major fraction of the population. Policy makers trying to bring about structural changes need to be aware of such conflicts between means to achieve several desirable ends. It also needs to be stressed that the pattern Of income distribution and the state of employment have very significant implications for the prospects of bringing about structural change of a particular kind.

It is hoped that a comparative study of the industrial restructuring strategies adopted by China, India and South Korea will help us better to understand the power and limits of public intervention as well as the efficacy and limitations of market process in bringing about structural changes in a world fraught with uncertainty and unpredictable change.

A Conceptual Framework for Discussing Structural Change in Industry

1.1 The Meaning of Economic Structures and Structural Change

The Shorter Oxford Dictionary, third edition (1968) provides six different meanings of the word 'structure' of which the following two are relevant for the purpose of economic analysis:

3. The mutual relation of the constituent parts or elements of a whole as determining its peculiar nature or character; make, frame 1615. . . . 6. An organized body or combination of mutually connected and dependent parts of elements. Chiefly in *Biol.*, applied to components of an animal or vegetable organism, 1830.

It is comforting to know that the word 'structure' was used to denote the mutual relations of constituent parts as far back as 1615.

Obviously, an economic structure can be defined in many different ways. For our purpose, the basic elements of an economic structure will be taken to be goods and services of different kinds, and the employment provided by the production of such goods and services. Data on the structure of commodities and services yielding income to people and on the structure of occupations were collected regularly in England from the early nineteenth century onwards. In other countries, such as China, less systematic data bearing on incomes and occupations were being collected for a much longer period. However, an attempt at classifying economic structures, documenting systematic changes in them and explaining the reasons for such changes probably goes back only to the nineteenth century. One of the first social scientists to study economic structure and the reasons for changes in them was Karl Marx.

1.2 Marx's Contribution

Marx divided all production activities into two departments; viz. Department I which is concerned with production of means of production and Department II, which is exclusively concerned with production of articles of consumption.¹ With the help of this division, Marx presented a model of an expanding economy and discussed the

1. K. Marx: *Capital*, Vol. II (Moscow, Progress Publishers, 1971), chapter XXI, 'Accumulation and Reproduction on an Expanded Scale'.

difficulties a capitalist economy faces in maintaining steady growth. The distinction also enabled Marx to provide one of the earliest analyses of the role of machine-building industries in a modern economy, and of the effects of technical progress in capital and intermediate goods industries in raising productivity in industry and agriculture.² Many of the problems discussed by Marx such as the effect of capital accumulation in raising capital-intensity or of technical progress in cheapening capital or raising the productivity of labour both in agriculture and industry have come to the forefront of discussion in recent years. Marx's two department scheme has also formed the basis of the Feldman-Mahalanobis class of planning models in which capital goods are regarded as non-shiftable as between sectors.

1.3 The Fisher-Clark Hypothesis

However, the trails blazed by Marx were not followed by orthodox economists for the next six or seven decades. It is only in the 1930s that a systematic study of economic structures and their changes was undertaken by Colin Clark³ and A.G.B. Fisher.⁴ Economic activities are broadly grouped into three sectors, viz., the primary, the secondary and the tertiary sectors, the first being most directly related to land and its resources, and the third being at the greatest distance from it (though services provided at a beach resort are far more closely linked to that particular stretch of land and sea than, for example, assembly of a personal computer). The hypothesis advanced by Fisher and Clark was, briefly speaking, that with economic growth, the shares of the secondary and tertiary sectors in national income and employment would go up, and that of the primary sector would decline. On extensive testing of this hypothesis, it was found that in many less developed countries which had yet to experience much economic growth or industrialization,⁵ the tertiary sector was quite large. Where positive economic growth occurred for any length of time, the shares of both the primary and tertiary sectors in national income declined, and then the share of the tertiary sector increased again. In densely populated third world countries, while the share of the primary sector in national income has declined with economic growth, its share in employment has not declined correspondingly⁶ (this has been true of India, China, Indonesia and several other countries). It has also been found that in the period after the Second World War, in softie countries such as the UK and the USA which had industrialized, there was a relative (and sometimes an absolute) decline in the secondary sector, and the tertiary sector gained at the expense of both the primary and the secondary sectors.

2. See, in particular, Karl Marx: *Capital*, Vol. 1 (Harmondsworth, Middlesex, Penguin Books, 1976), chapter 15; idem: *Theories of Surplus Value*, Part II (Moscow, Progress Publishers, 1968), pp. 24, 59, 110, 159, 335, 479-80, 485-9, 492, 558-9, 562-3; idem: *Theories of Surplus Value*, Part III (Moscow, Progress Publishers, 1971), pp. 285, 289, 347, 349, 368, 392.
3. *The Conditions of Economic Progress* (London, Macmillan, 1940).
4. 'Economic Implications of National Progress', *International Labour Review*, 1935.
5. For definition of 'industrialization', see R.B. Sutcliffe: *Industry and Underdevelopment* (London, Addison Wealy, 1971), Chapter 2, and A.K. Bagchi: 'De-industrialization in India in the Nineteenth Century: Some Theoretical Implications', *Journal of Development Studies*, January 1976.
6. A.K. Bagchi: 'Some International Foundations of Capitalist Growth and Underdevelopment', *Economic and Political Weekly*, Special Number, August 1972.

Along with a change in the composition of the national product and in the occupational distribution of the labour force there has also occurred in most of the developed and developing countries, an increase in the percentage of income devoted to investment, and considerable shifts in the composition of the output of industry itself. In fact, in countries which are firmly on the road to industrialization, the most radical changes occur no longer in the relative shares of industry and agriculture, but in the relative shares of different types of industrial goods in the total output of the secondary sector.

1.4 Explaining Structural Change in Secondary Industry: Schumpeter, Burns and Kuznets

The Fisher-Clark hypothesis concerns changes in the aggregate structure of occupations and incomes. Attempts had already been made to explain the dynamics of change within secondary industry, more narrowly considered. In recent literature, Schumpeter's name has been often singled out as a key contributor to the analysis of innovation, and in particular of industrial innovation. The key function of the capitalist entrepreneur in pioneering innovations in finance, commerce, marketing and production processes and product varieties had already been adumbrated by Marx. However, Schumpeter, made the entrepreneur the keystone of his analysis of economic development.⁷ In his *Capitalism, Socialism and Democracy*,* Schumpeter claimed that one has to look towards modern oligopolistic giants for putting major innovations to commercial use, if not for making the major innovations in the first place. This part of Schumpeter's work, however, was not taken up for serious empirical testing until the 1960s and 1970s.

In the meanwhile, already in the 1930s Simon Kuznets and Arthur Burns were looking into the actual pattern of growth of individual industries, and finding surprising similarities in the courses of evolution of most major industries.⁹ Both of them found that production of individual industries in developed countries such as the USA often followed a logistic curve, or some path very similar to logistic. Kuznets found the following factors responsible for eventual retardation of a particular industry: the failure of input-supplying industries to grow quickly enough eventually because of bottlenecks in factor supply; limits on the funds available for expansion as the industry grows; the slackening of technical progress as the potentialities of the basic innovation triggering productivity growth near exhaustion; and finally foreign competition from producers selling similar products. Kuznets also emphasized the continual shifting of the progress frontier from one industry to another.

Arthur Burns developed the same theme of inevitable retardation in the rate of growth of particular industries, and the emergence of new industries as old ones reach

7. See, in this connection, A.K. Bagchi: 'Schumpeter: The Hedgehog Who has been taken to be a Fox', *Frontier* (Calcutta), Autumn Number, 1984.
8. London, George Allen & Unwin, 1961.
9. S. Kuznets: *Secular Movements in Production and Prices* (Boston, Houghton Mifflin, 1930); A.F. Burns: *Production Trends in the United States Since 1870* (New York: National Bureau of Economic Research, 1934). For a lucid discussion of the contributions of Burns and Kuznets, see J.S. Metcalfe and M. Gibbons: *On the Economics of Structural Change and the Evolution of Technology* (mimeo.; paper presented at the 7th Congress of the International Economic Association, Madrid, September 1983).

their saturation levels either relatively or absolutely (The distinction between 'absolute' and 'relative' saturation is brought out in section 1.5). Burns emphasized causes both on the supply side and on the demand side leading to retardation of particular industries. On the demand side, adoption of the new product by the more adventurous consumers and imitation of their consumption habits by the more herd-like consumers will lead to a rapid growth of demand. But eventually, when the product is diffused among the more receptive members of the population, the growth in demand will inevitably slacken.

On the supply side, the inelasticity of supplies of finance and of means of production will erode the effects of technical progress eventually. Innovation can postpone this process, particularly if the new product can displace a widely-used old product or its service (e.g. automobiles in the place of horse-drawn carriages), or if there are innovations in complementary or input-supplying industries. But eventually again, the seam of ideas which led to the innovation will be worked out leading to retardation.

Kuznets and Burns supported their generalizations with a considerable amount of empirical evidence. But we have to turn to some older work and to some very recent work to understand the roots of demand slackening and retardation effects stemming from the supply side.

1.5 The Contributions of Engel and Hoffmann

One crucial element in the explanation of broad patterns of structural change can be found in the pioneering work of Ernst Engel who, in 1857, formulated empirical laws regarding changes in income and expenditure on particular items of consumption.¹⁰ In particular, he found that the proportion of income spent on food declines as income increases. Brown and Deaton have observed in this connection, that"

we might extend Engel's law for food consumption, namely, that its income elasticity is less than unity, by the further proposition that the income elasticity of food consumption (and of the consumption of individual foods) declines as income increases. . . . the evidence consists partly of the fact that . . . Engel curves with declining income elasticities fit budgetary data better than curves with constant elasticities, and partly that, over time and across countries, the results of a number of budget studies display a negative association between average income and the elasticity at average income. The tendency to declining elasticity might indeed more accurately be related to the increasing level of consumption of the commodity in question than to income, since in this form the hypothesis embraces a further phenomenon, namely that many new commodities enter the market with a high income elasticity, and this elasticity declines as consumption increases, whether as the effect of increasing income, decreasing price, or simply as a trend in preferences. The hypothesis of

- 10 For a short history of consumer behaviour studies, see A. Brown and A. Deaton: 'Models of Consumer Behaviour', *Surveys of Applied Economics*, Vol. I, (Macmillan, London, 1973), Section 1.
- 11 *Ibid.*, pp. 205-6.

declining income elasticity is consistent with, but weaker than the hypothesis of a saturation level of demand, which in turn may be based on physiological or technical considerations, and which certainly seems to apply to at least a subclass of commodities. It is worth distinguishing between two variations of the saturation hypothesis, which may be called the *absolute* and *relative* saturation hypothesis respectively. The absolute hypothesis means that for the commodity in question there exists (on average for a group of consumers) a finite level of demand which is not exceeded, either as income increases indefinitely or as prices decrease indefinitely; this hypothesis reflects the fact that the marginal utility of the commodity becomes zero, or turns negative, at a finite level of consumption.

The relative saturation hypothesis on the other hand relates only to Engel curve behaviour; consumption tends to a saturation level as income increases at a given price, but the saturation level is itself a function of price. As price falls, the relative saturation level in general increases, but it may, or may not lead to an absolute saturation level.

In this discussion we have already met one element from the production side which might cause structural change, viz., fall in the cost of production of a consumer good. But a study of consumer behaviour only indicates the way the demand for, and output of, consumer goods might change, but does not say much about the relative proportions of outputs of consumer, capital and intermediate goods. Hoffmann made explicit generalizations in this respect, on the basis of his studies of industrial growth in Britain, Germany and other countries. More specifically, Hoffmann wrote.¹²

Our main argument is as follows. Whatever the relative amounts of the factors of production, whatever the location factors, whatever the state of technology, the structure of the manufacturing sector of the economy has always followed a uniform pattern. The food, textile, leather and furniture industries—which we define as "consumer goods industries"—always develop first during the process of industrialization. But the metal-working, vehicle-building, engineering and chemical industries—the "capital-goods industries"—soon develop faster than the first group. This can be seen throughout the process of industrialization. Consequently the ratio of the net output (value added) in the consumer-goods industries continually declines as compared with the net output of the capital-goods industries.

Hoffmann then goes on to trace the patterns of development of particular industries in a large number of countries undergoing industrialization. His generalization may not be valid for all countries and in all the different periods since the first industrial revolution occurred in England. Over time, the sources of energy as well as the nature of basic building materials have changed; so has the importance of different modes

12 Hoffmann: *The Growth of Industrial Economies* (Manchester, Manchester University Press, 1958), p. 2.

of communication and transportation. Wood was replaced by iron and then steel as the basic building material for machinery; now special kinds of steel, plastics, copper, aluminium, nickel are being used for building different parts of machines. Similarly, water power and coal yielded place to electricity and oil, and nuclear power has become a major source of energy in countries as diverse as Sweden, French and South Korea. Sailing boats yielded place to steam boats, horse-drawn carriages to steam locomotives, and then to diesel and electric locomotives, and railways yielded place to automobiles of all kinds as the major means of land transportation. Even in the field of consumer goods, natural fibres have yielded place to synthetic fibres as the principal material for clothing in many parts of the globe. Furthermore, the sequence of industries as posited by Hoffmann is likely to be disturbed by the system under which industrialization takes place and the speed with which it takes place. Socialist countries typically started their industrialization drive with a much greater stress on capital goods industries than the capitalist countries did at the earlier stages of their development. Countries industrializing at a fast pace typically traverse several steps in the Hoffmann sequence at the same time.¹³

In spite of all these qualifications, Hoffmann's work provides us with two important ingredients in completing at least a stylized account of structural change over time. These ingredients are (a) the rate and pattern of technical progress and (b) the rate of accumulation, which in turn influences the rate of technical progress.

1.6 Pasinetti's Synthesis

Luigi Pasinetti has presented a general model of structural change of combining the effects of technical change and changes in consumer demand with increases in income.¹⁴ It is a descriptive rather than a causal, or a planning model, but it is extremely useful in providing a framework within which the continuous emergence of new commodities, and the conditions for full employment and full capacity utilization of capital can be discussed. Two major facts provide the cornerstones of Pasinetti's construction: First, as noted above, the demand for consumer goods over time is primarily a function of real incomes of consumers rather than the prices of goods. Pasinetti assumes a generally logistic shape for the demand curves over time, claiming that 'price changes can but flatten out or steepen these relations; they cannot affect their basic shapes'.¹⁵ The second major fact Pasinetti takes as the basis of his construction is that the net effect of technical change is to increase the productivity of labour over time but that technical progress takes place at different rates in different sectors and that it results continuously in the addition of new sectors and processes to the economy.

13 H. Chenery and M. Syrquin in their *Patterns of Development 1950- 70* (Published for the World Bank by Oxford University Press, London, 1978) have continued the work of Hoffmann and S. Kuznets. Caveats raised against Hoffmann's generalizations would apply to their work also.

14 Luigi L. Pasinetti: *Structural Change and Economic Growth: A Theoretical Essay on the Dynamics of the Wealth of Nations* (Cambridge, Cambridge University Press, 1981). The basic features of the model had already been presented in L.L. Pasinetti, 'A New Theoretical Approach to the Problem of Economic Growth', *Pontificiae Academiae Scientiarum Scripta Varia*, No. 28, Vatican City, 1965. In the new formulation Pasinetti utilizes the construction of vertically integrated sectors to present the analysis in more formal terms.

15 Pasinetti: *Structural Change and Economic Growth*, p. 73.

Pasinetti uses the notion of vertically integrated sectors in order to simplify the exposition: in this construction all the inputs required for the production of a final good are supposed to be produced within a particular sector so that the usual interdependence of an input-output model is collapsed into the input requirements of a series of self-contained sectors. In this world then new commodities appear continually, are demanded in a series of spurts and then are gradually pushed aside by newer commodities, so that the newer varieties surge ahead even as the older varieties are reaching saturation levels of demand. The development of new commodities and new processes demands investment at appropriate rates. The interdependence within the economy, and the requirements of full employment of labour and full utilization of capital (which is not yet obsolete) as this dynamic pattern evolves then require certain macro-economic conditions to be satisfied. Treating households as a separate sector, it can be easily seen that for full employment to hold, the labour supplied by this sector must be exactly matched by the demand (for accumulation and current production together) generated by all the other sectors. The level of investment in the economy as a whole must be high enough to provide capital goods and materials for additions to the labour force and for those who become available for redeployment as a result of growth of productivity, which will generally be higher than the rate of growth of demand for commodities whose markets have reached saturation levels. Furthermore, new commodities must emerge at a sufficient rate to absorb the additional income that is released as a result of the peaking of demand for older commodities.

Pasinetti first of all points out the near impossibility of satisfying the full employment conditions in a free market economy. He then sets up an analogue of a planned economy in order to demonstrate the properties of a dynamic economy where full employment conditions are guaranteed under a simple rule. He does this by devising the construct of natural rates of profit. The natural rate of profit of a sector equals the sum of the rates of growth of employment and productivity in the manufacture of that particular final good. Natural prices are equal to the sum of the complete labour costs incurred in producing a unit of the final good of the sector plus a natural rate of profit. Since marginal input coefficients are constant at any particular moment of time, the payment for each sector at the level of its natural price will provide the sector with the finance that it needs for equipping the extra workers that the sector requires in the next period. Thus all sectors operate under a rule of self-financing and no capital mobility between the sectors is needed.

Many of the conditions for full employment in a dynamic context have been derived by others.¹⁶ The rule of guiding investment in terms of natural prices cannot be taken as a guide to allocation of investment, for, it would be plainly inefficient."

16 See, for example, an exposition and interpretation of the pioneering article of D. Hawkins: 'Some Conditions for Macroeconomic Stability', *Econometrica*, October 1948 and of the Hawkins-Simon condition in this context by D. Harris: 'Structural Change and Economic Growth: A Review Article', *Contributions to Political Economy*, Vol. 1, March 1982. For discussion of some similar conditions in the context of Indian planning; see A.K. Bagchi: 'Long-term Constraints on India's Industrial Growth 1951-68', in E.A.G. Robinson and M. Kidron (eds.): *Economic Development in South Asia* (London, Macmillan, 1970), pp. 172-3, and 191.

17 See in this connection, the review of Pasinetti: *Structural Change and Economic Growth* by W. Eltis, *Economic Journal*, December 1982.

Nor would natural prices guide investment allocation in a capitalist economy. Pasinetti's construct is best seen as a composite model of the most advanced capitalist economies, where there is a hierarchy of natural rates of profit as between different sectors, where capital mobility is induced as between the different sectors in response to perceived rates of profit, and where dynamic equilibrium conditions are continually disturbed by unanticipated technical change, demand shifts and unemployment caused by both macroeconomic demand failure and unanticipated problems of disproportionality as between different sectors.

Looking at the problem in this way, we can see that much of the discussion in the usual literature as regards import substituting strategies or export promotion strategies results from an arbitrary chopping up of the dynamic sequences of change so as to foreclose some policy options and hide the difficulties inevitably lying in store for any policy-maker pursuing any particular strategy for any length of time.

But, of course, processes of international trade and investment inevitably lead to the parcelling out of some of the stretches of the dynamic sequence as between different countries and to the diffusion of particular products and processes from one country to another. So it is necessary to say something about the factors governing the diffusion of technical change before we turn back to the narrower problem of adjustment to structural change.

1.7 The Representative Demand and Product Cycle Themes

An important contribution was made in 1961 by S.B. Linder towards the understanding of diffusion of consumer demand patterns, consumer product patterns and of patterns of trade among developed countries.¹⁸ Linder found the Heckscher-Ohlin theory of international trade inadequate in understanding patterns of international trade, particularly trade in manufactures. He advanced an alternative explanation for the pattern of trade in manufactures. The essential features of his explanation Can be summarized in his own words:

Among all non-primary products, a country has a range of potential exports. This range of exportable products is determined by *internal demand*. *It is a necessary, but not a sufficient condition that a product be consumed (or invested) in the home country for this product to be a potential export product.* It is really what we may refer to as "representative demand" that is necessary for a good to be a potential export product. It will be evident that, although for instance, the demand for Cadillacsin Saudi Arabia is not totally absent, this kind of unrepresentative demand is not sufficient to turn luxury cars into potential export products for Saudi Arabia.¹⁹

Linder advances the following reasons justifying his proposition:

Firstly, the decision to take up production of any particular good is likely to be generated by clearly discernible economic needs. In a world of imperfect knowledge, entrepreneurs will react to profit opportunities *of which they are aware*. These would tend to arise from domestic needs . . .

18 S.B. Linder: *An Essay on Trade and Transformation* (Stockholm, Almqvist and Wiksell, 1961).

19 *Ibid.*, p. 67. Italics in the original.

As a successful firm grows, the local market becomes insufficient for further expansion. The trade horizon of the firm is gradually lifted.... Whatever the percentage share of exports. . . . export is the end, not the beginning, of a typical market expansion path. *International trade is really nothing but an extension across national frontiers of a country's own web of economic activity.*

Secondly, to the extent that production of a good is based on invention, we have an additional reason to believe that home market demand is necessary. An invention is, in itself, most likely to have been the outcome of an effort to solve some problem which has been acute in one's own environment. The exploitation of the invention will then, in its first phase, automatically be geared to the home market.²⁰

Linder's explanation took little account of capital mobility as between countries. In particular, it did not take into account the fact that the original innovator in a particular field may decide, after a time, to produce the new product in another country, or that a country may shift from importing a particular product to producing it at home and then finally exporting it. This is where the product cycle hypothesis developed by Posner, Hufbauer and Vernon made its contribution.²¹ According to this hypothesis, when an innovation is made in a particular country by a firm or a group of firms, in the first stage the domestic market is exploited. (It is assumed that the home country is rich enough to provide a large market, otherwise the innovation would not have been made in the first place). Then gradually the product begins to be exported to other countries. When the markets in these other countries grow to a respectable size, it pays for some firms to begin production in these importing countries. The production may be undertaken by a subsidiary of a transnational corporation based in the innovating country, or it may be undertaken, under a suitable licensing agreement, by some other firm. When the scale of production in the second-stage countries becomes sufficiently large, they begin to export the not-so-new product. In the meanwhile, in the original innovating country, wage incomes and costs of production rise, so that it may find itself in a position where it imports the product in question from the imitating countries.

The product cycle hypothesis had only a brief run. For with gradually increasing mobility of capital which searched for locations with lower wage costs and controlled labour environments, many of the stages of the product cycle were syncretized. Vernon himself has recently stressed the role of the global information network of transnational corporations in severing the link between the country where the innovation first takes place and the markets in which it is exploited through production'.²² Furthermore, the emergence of Japan as a major innovator in the fields of consumer

20 *Ibid.*, p. 89. Italics in the original.

21 M.V. Posner: 'International Trade and Technical Change', *Oxford Economic Papers*, Vol. 13, October 1961; G.C. Hufbauer: *Synthetic Materials and the Theory of International Trade* (Cambridge, Mass., Harvard University Press, 1966); and R. Vernon: 'International Investment and International Trade in the Product Cycle', *Quarterly Journal of Economics*, Vol. 80, May 1966.

22 R. Vernon: 'The Product Cycle Hypothesis in a New International Environment', *Oxford Bulletin of Economics and Statistics*, Vol. 41, November 1979; see also C.P. Kindleberger: *Multinational Enterprises and Economic Analysis* (Cambridge, Cambridge University Press, 1982), Chapter 7.

electronics, automobiles and industrial robotics has also tended to weaken the strong link hypothesized between very high incomes and emergence of product and labour-saving process innovations.

1.8 Manufacturing Industry and Service at the Highest Income Levels

The pattern of evolution of manufacturing industry in the highly industrialized countries had undergone a major change with the rise of the tertiary industry to a position of dominance. In most countries of western Europe such as the Federal Republic of Germany, France, the U.K., and Sweden there has occurred almost a steady decline in the proportion of income generated by manufacturing industry to total GDP. In some of these countries there has occurred also an absolute decline in employment in manufacturing, especially since 1973-74. In the USA, while the absolute employment in manufacturing has gone up, the share of that employment in total national employment has declined.²³ In practically all these rich countries, the services sector has emerged as the biggest employer of labour and generator of incomes.

Changes in patterns of consumer demand as a result of growth in per capita incomes, dispersion of certain kinds of industries (labour-intensive, energy-intensive or relatively polluting industries) to a few export platforms, recession in the global economy since the middle-1970s, the emergence of new skill-and capital-intensive service industries (the 'informatics' sector, for example) and the proliferation of financial enterprises as a result of a rise in interest rates, recycling of the initial surplus of the OPEC countries and the growing indebtedness of a number of developing countries have all contributed to the dominance of the tertiary sector in advanced, industrialized countries.²⁴ From our point of view, two consequences are important. One is that Engel elasticities for any but the basic necessities have become far more difficult to predict. The second is that there has been a slowdown in many of the traditional producer goods industries in the developed countries such as construction materials, electrical machinery industry, general engineering, machine tools and iron and steel industries.²⁵ Two groups of industries, however, have shown steady growth in almost all countries. One is the group of industries connected with electronics and semi-conductors. The second is the group of industries connected with organic chemicals, and synthetic fibres and plastics.

1.9 Diffusion and Price Factors in Structural Change in Developing Countries

The structural changes within secondary industry would apply, properly speaking, to the group of affluent market economies. The changes in other, poorer countries would not exactly follow the patterns observed in these affluent countries at earlier

23 For data relating to the period 1960-79, See OECD: *Industry in Transition* (Paris, OECD, 1983), chapter II, and Tables 4-6.

24 For discussion of the issues connected with the emergence of services as the dominant sector and its internationalization, see F.F. Clairmonte and J.J. Cavanagh: 'Transnational Corporations and Services: The Final Frontier', *Trade and Development: An UNCTAD Review*, No. 5, 1984.

25 OECD: *Industry in Transition*, pp. 27-28.

stages of evolution, that is, at the stages roughly corresponding to the per capita incomes attained today in the developing countries concerned. At least three sets of factors would interfere with the replication of the earlier stages of evolution of the developed market economies. First, there is the factor of technical change. Technical changes pioneered in advanced market economies are diffused to other economies, thus upsetting previously observed patterns. Synthetic fibres, for example, are being produced in many countries which are considerably poorer than the countries in which the basic innovations were made, at the time of the commercialization of the innovations. It has been claimed that not only in the poorer economies but also in most other market economies international diffusion of innovations made elsewhere rather than home-made innovations have been the major mother force of technical change and productivity growth.²⁶

The second factor, which is connected but not necessarily identical with the first, upsetting previously observed patterns of structural change is international relocation of manufacturing activities. This relocation may be guided by considerations of cheap labour and effected by decisions of transnational corporations." This may also be brought about by conscious decisions of governments and firms in particular developing countries to exploit perceived advantages in costs of skilled and unskilled labour, access to large or growing markets abroad and the ability to guide investment in favourable directions. Relative prices and wages play an important but not necessarily a dominant role in such decisions, for it is not always the economies with lowest costs of labour, energy or land that are able to invest in the right industries at the right time. But it is important to recognize the role of relative prices in guiding incremental structural change in many cases.

The third factor that may upset any straightforward correlation between Engel elasticities for individual products observed in the past and their expected evolution in particular developing economies or between growth in consumer expenditure and growth in producer goods industries, severally or as a group, is social organization. A socialist economy may generate demands for consumer durables at a far lower level of realized per capita income because consumers find that their basic needs are satisfied at a very low cost to themselves through the medium of a comprehensive system of public distribution and social services. Similarly, producer goods industries may go on growing much faster than might seem to be dictated by the growth of consumer expenditure because the government's priorities dictate such an evolution. Very often, the latter kind of disjunction between observed market growth and profitability and investment patterns may be found also in market economies if large companies, transnational or national, find that their strategic interests demand a relocation of investments sectorally or regionally.

- 26 S. Gomulka: *Incentive Activity, Diffusion and the Stages of Economic Growth* (Aarhus, Denmark, Institute of Economics, Aarhus University, 1971); and R. Rowthorn: 'What remains of Kaldor's Law?', *Economic Journal*, Vol. 85, March 1975.
- 27 For an intensive study of the process of international relocation of West German manufacturing activities, see F. Froebel, J. Heinrichs and O. Kreye: *The New International Division of Labour* (Cambridge, Cambridge University Press, 1980).

1.10 Some Tentative Conclusions and Qualifications

Some very tentative conclusions can be derived from the actual experience of industrialization. In any industrializing country, other than the leading nations, development of new industries will take place primarily in response to perceived movements in domestic demand, since information about the latter is most easily forthcoming. Such investment is often supported by the use of government policy instruments such as tariffs or quota restrictions on imports, cheap loans for long-term investment, preferential allocation of foreign exchange, and so on. Successful import substitution along these lines will be followed in many countries by development of exports based on the import substituting industries. In the long run, it is the rise in real incomes and labour productivity, much more than changes in relative prices of products or factors, which determine the major directions of change in industrial structure most. This will be *a fortiori* the case where economies of scale, endowments of high level skills and research and development strongly affect the quality and cost of production of a product. Relative prices will be important when quality variations are unimportant.

Of course, there are phases in which countries will stress import substitution more than export promotion. But on the whole, it is more satisfactory to classify products on the basis of how much of them are exported or imported, or domestically used, rather than box them as import substitutes or exportables *per se*. One such classification has been given by Westphal and Kim:²⁸ industries are called (a) 'exporting industries' if more than 10 per cent of the output is exported, (b) 'import competing' if more than 10 per cent of domestic supply is imported, (c) 'non-import competing' if neither the export nor the import share exceeds 10 per cent and (d) 'export-and import-competing' if both shares exceed 10 per cent. The last category arises probably because important quality variations are hidden by aggregation.

Since all industrial restructuring of any major kind involves large investments spread over a period of time, public intervention or public guarantees very often become crucial in setting the restructuring in train, particularly in the less developed countries.

In such interventions, quantity guarantees or restrictions can be as important as price variations. But somehow price changes have received the major share of attention in the literature on industrial restructuring.

There are also problems in the general area of industrial policy-making which cannot be captured in terms simply of prices and quantities of commodities or services to be produced. These relate to questions of information flow between policy-makers and economic agents, between different groups of economic agents, between different levels of the policy making apparatus, between particular economies and the rest of the world. There are related problems in the general area of coordination of activities. Prices are only one set of variables conveying information or acting as agents of coordination.

Besides such issues there are questions of activities relating to the future which again are not adequately captured in a discussion of current prices and quantities

²⁸ L.E. Westphal and K.S. Kim: *Industrial Policy and Development in Korea* (World Bank Staff Working Paper No. 263, Washington D.C., World Bank, August 1977).

of goods. R&D activities and activities in the general area of science and technology can be crucial in preparing the ground for induction of higher-productivity technologies and sectors. Our discussion will have to pay some attention to such aspects of government, and where applicable, private sector behaviour as well.

The openness of economies in an inter-dependent world poses quite intricate problems in deciding on an acceptable mode of adjustment to a new industrial structure. Inflows of capital from the international economy, and transfers of technology to particular countries are unevenly distributed as between different countries. It is necessary to pay attention to the specific conditions of particular countries in deciding on whether it is realistic for those countries to depend on large inflows of capital. It is also necessary to look at the ways in which transfers of technology take place to different countries. Transfers of technology often involve explicit or implicit bargaining, and it is generally not very fruitful to predict a narrow band of outcomes in the process. What we can do is to look at strengths and weaknesses of particular economies taking part in this bargaining.

Since R & D activities and transfer of technology are intimately related, we shall look at the two sets of issues together. The attempt will be to focus on only those areas of transfer of technology and R & D activities which have a direct bearing on industrial restructuring.

The actual or potential openness of the economies and continual structural change taking place in the world economy imply that we should not expect every economy to replicate, as in a hologram, the composite picture of structural change that we presented in the earlier sections. Instead we should expect to find large gaps and tears in the actual industrial structure: such gaps may well be the result of deliberate planning to take advantage of the comparative costs prevailing between different economies. But they also are the result of the specific historical circumstances of the particular countries—their per capita incomes, rates of literacy, endowments of natural resources, and relations with the dominant countries in the international economy. These qualifications must be used to bridge the gap between the theoretical conceptions of industrial structure and the reality to be found in the three countries which we have chosen for our study—viz., China, India and South Korea.

Government Intervention and Planning in on Uncertain World

2.1 Some Basic Arguments for Planning and Government Intervention

The building up of an industrial structure in any economy requires investment in a set of industries spread over a period of time. Investment decisions are made by private individuals, corporate firms, holding companies, conglomerate bodies consisting of holding companies, banks and big firms, government departments, publicly owned corporate bodies, co-operative bodies consisting of individuals or collective bodies and so on. The investment decision involves the choice of a particular product or group of products to be produced, the processes to be used, the scale on which the plant and machinery is to be erected, the site(s) at which the factory or factories are to be located, the relations to be maintained between different parts of the factories, the mode of marketing the product, and the organization controlling the production of the product(s) chosen. In a socialist economy, practically all industrial investments are made by the state at the federal, provincial, cantonal, municipal, or even village level. The level at which the control over the resulting output is to be exercised is itself a matter of choice. Very often, the investment decision is made at a higher level than the organization controlling the plant. (This division has its analogue in a multi-divisional enterprise, where typically the day-to-day or *tactical* decisions are vested with the divisions of the firm whereas the *strategic* or long-term decisions or decisions requiring infrequent intervention are made by the general office)¹. Similarly, even when we know that an investment is to be carried out, in a so-called mixed economy, in the private or public sector, the choice of the organizational form is not automatic. In the case of the public sector, the choice may be explicitly made through a political process. But even in the case of the private sector, the organizational forms guiding investment and production decisions are influenced by a myriad of factors—including, current market prices. But current market prices are not the sole guide either to the form or scale of investment chosen, or to the organizational forms controlling the investment or production decisions.

The difficulty of co-ordinating long-term investments through market prices arises not only because of uncertainty about what 'states of nature' would prevail in -the

1 See A. D. Chandler: *The Visible Hand* (Cambridge, M. A., The Bellknap Press of the Harvard University Press, 1977), chapter 14; O.E. Williamson: *Markets and Hierarchies* (New York, Free Press, 1975), chapter 8; and idem: 'The Modern Corporation; Origins, Evolution, and Attributes', *Journal of Economic Literature*, Vol. XIX, December 1981.

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future, but also because of uncertainty created by the decisions, independently taken, or taken in recognition of mutual interdependence, by other economic agents which would have a bearing on the profitability or the success of the particular investment decision concerned. These two types of uncertainty were characterized as 'primary' and 'secondary' uncertainty respectively by Koopmans,* and the existence of the latter in particular formed an important justification for socialist planning or planning by the government in general.' The justification for undertaking of investment by the government in this particular context is that the latter can internalize many of the desirable external effects and exclude some of the undesirable external effects by combining investment in a number of different locations or products at the same time. Thereby the government can also frustrate what has been called 'opportunistic behaviour' on the part of individual actors. The same class of reasons has also been advanced to explain the emergence of large private enterprises which build under their own control forward or backward linkages, or expand laterally into related or even apparently unrelated fields.⁴ In a mixed economy, the choice between public and private investment then turns on the likely effects of private control on income distribution and other aspects of collective welfare, and on the efficacy of public control over the particular field of activity. The choice also depends on the ability of private enterprise to raise the resources required for investment and the likely effects on the size of investible resources if the particular project is vested in public rather than private hands.

2.2 Tariffs, Quotas and Monopolies

In typical mixed economies of the developing world, industrial investment was undertaken by both the public and the private sectors. Most of the private industrial investment up to the Second World War was undertaken in the extractive or crude processing industries in order to exploit foreign markets, or more rarely, to meet the strategic needs of a ruling foreign power (as in the case of Korea under Japanese rule), or to meet that part of the domestic market which was not serviced by imports from abroad. Industrial growth on a broader front had to wait on the imposition of tariffs or quotas on imports of manufactured goods; such tariffs or quotas (and measures of foreign exchange control, including institution of multiple exchange rates in some cases) were mostly brought in to prevent, or in the wake of, a balance of payments crisis. But in many countries, they became a part of the system because balance of payments deficits became a chronic feature and because tariffs and quotas, it was argued, were needed in order to protect the fledgeling domestic industries.

Such tariffs, quota restrictions and exchange controls all lead to the earning of monopoly rents by traders and producers. But so do many other factors. It must be emphasized that in many third world countries, local oligopolistic enterprises existed before the imposition of quotas or tariff restrictions. But monopolizing tendencies

2 T.C. Koopmans: *Three Essays on the State of Economic Science* (New York, 1957).

3 M. Dobb: *An Essay on Economic Growth and Planning* (London, Rontledge & Kegan Paul, 1960), Chapter 1.

4 Williamson: *Markets and Hierarchies*, Chapters 5-7.

were probably accentuated with the imposition of tariffs and quotas. When the protected industries are growing first, there is generally a large difference between the domestic prices of protected items and prices at which they could be imported from abroad. (I am not here talking about 'world market prices', because in the case of differentiated products it is not clear whether a uniform world market price exists. There are problems in taking the minimum cost of importables as world market prices, for on the supply side, there may be hidden subsidies, and on the demand side, the price may be higher because the import of the product is tied to a loan or a grant, or a foreign investment package). Such 'price distortions' may persist later also. From the point of view of the growth of the economy and of employment, the important point is not the existence of the price distortion, but the way the monopoly rents are utilized, and the impact such utilization has on the growth of capital, employment and productivity. The earners of the monopoly rents or profits may simply consume them. The consumption may, of course, take the form of purchase of cars or building or purchase of houses. The profit-earners may invest them to expand their existing businesses or to create new and profitable productive enterprises. Or the monopoly profits may be remitted abroad (a favourable or officially fixed rate of exchange may facilitate such transfer).⁵

A regime of tariffs, quotas, etc. may also, paradoxically enough, lead to the establishment of units which are too small for exploiting the available economies of scale to the full. This will happen under several conditions working separately or jointly—viz., if the domestic market is too small, if there is collusion among prospective investors (so that there is an arrangement for sharing the domestic market), if there are entrenched foreign enterprises which already have supply lines for servicing any foreign markets so that they do not want to add to the supply of exportables, or if the access to export markets is judged to be difficult—rightly, because of actual barriers to entry—or wrongly, because information about foreign markets is scanty and risk-averting investors do not want to invest in searching for relevant information. The government, in many cases, facilitates the emergence of oligopolies because it has an explicit policy of industrial licensing (as in India) and apportions investible resources among prospective investors. When powerful foreign groups, with manufacturing facilities abroad, are already entrenched in the economy, bringing in tariffs or quota restrictions or exchange controls generally serves to increase the first-mover or early-starter advantages of such enterprises without stimulating an adequate volume of investment by such enterprises in the protected branches.⁶

Before we proceed any further, it should be pointed out that not only was monopoly in industry not solely the product of tariff and quota protection in third world countries but highly imperfect markets in trade and finance were also not the product

5 For illustration of remittance overseas of monopoly rents obtained from loans in foreign exchange even before the industrial enterprise has come into being, see R. Amjad: *Private Industrial Investment in Pakistan 1960-70* (Cambridge University Press, 1982), chapter 5.

6 The optimal location as between home country and foreign country production for a profit-maximizing firm has been worked out by T. Horst: 'The Theory of the Multinational Firm: Optimal Behaviour under Different Tariff and Tax Rules', *Journal of Political Economy*, Vol 79, September-October 1971. See also R.E. Caves: *Multinational Enterprise and Economic Analysis* (Cambridge, Cambridge University Press, 1982), pp. 36-45.

of tariff and quota protection. Margins between producer and retail prices were typically quite high in most third world countries; where the foreign trade sectors were dominated by foreigners they provided a major part of the earnings of foreign capital. Much of the divergence between domestic and foreign prices is still explained primarily by the grip on foreign trade exercised by groups of traders, often acting through formal or informal cartels.

Now suppose the government of a third world country is faced with a situation where there is a widespread divergence between domestic and foreign prices in general, and where it is suspected that not only are the monopoly rents not being utilised for productive investment within the economy but new entrants who could make a dent on the monopoly rents are also being kept out by the entrenched monopoly groups. (I use 'monopoly groups' or 'monopoly houses' to mean oligopolistic sellers or producers). It has been suggested widely that the government can reduce tariffs and quota restrictions and induce a greater degree of competition by foreign products and foreign sellers and thus reduce the earning of monopoly rents within the economy.

The circumstances under which the government contemplates this are very important. If it is already faced with problems of scarcity of foreign exchange, then a reduction of tariffs or quota restrictions will lead at once to a widening of the deficit. This will be particularly so if the tariff or quota restrictions have been in force for some time, for, then the current demand for foreign goods will be swollen by the bursting of the pent-up demands for several past periods. If there are guarantees of untied capital inflow, then the government may eventually tide over these short-run problems. But there are three snags in this preliminary scenario. First, if the lowering of barriers against foreign competition does not go far enough or cannot be sustained long enough, then the actual divergence between foreign and domestic prices may not come down much. This may be because of monopoly in the trading sector or because of the fact that the new quotas may still leave a part of the demand unsatisfied. Secondly, with entry of competitive foreign products, domestic output and employment may be badly affected. Thirdly, with the currently prevailing rates of interest, the government may be piling up debt at too fast a rate.⁷

Generally speaking, no capital inflow is entirely untied or unconditional. When the aid is tied to a particular project, the extra foreign exchange is not available for balancing the deficit on other accounts. It would be too much of a coincidence if the project exactly takes the place of some other activity which had absorbed, in the net, the amount of foreign exchange coming in with the project. Again, when the aid is tied to inputs from a particular country (aid-tying in this form has probably increased rather than diminished with the continuance of the world economic crisis which has affected the DAC countries as much as the developing countries), the cost of raw material or capital goods is generally higher than in the case where the coun-

⁷ By the beginning of 1983, the debt service requirements alone of 92 developing countries was estimated by the World Bank to be 100.9 billion US dollars. *World Debt Tables, First Supplement, External Debt of Developing Countries* (Washington D.C., The International Bank for Reconstruction and Development, May 1983), p. 5. As the negotiations for the rescheduling of the Philippines debt revealed in late 1983, the public and private debt of that country had been grossly underestimated. With the prevailing system of accounting and borrowing in many developing countries, there is no reason to believe that the Philippines is unique in this respect.

try is free to shop for them around the world.

Where the capital inflow is tied to the pursuit of particular sets of policies which the IMF or the World Bank nowadays recommend as a means of 'readjustment' or 'structural adjustment', they generally have a contractionary effect on output. Among other policies typically recommended are some degree of devaluation (in fact, a *massive* dose of devaluation, when the degree of overvaluation of exchange is considered to be rather large), the cutting back of subsidies with redistributive effects, the reduction of the government deficit and a realignment of prices so as to bring the prices of tradable goods at least in line with 'world market' prices. It is now admitted, even by economists associated with the IMF, that although the eventual effect may be to cut down the balance of payments deficit (whose size generally requires a resort to the IMF as the international lender of last resort and underwriter of the financial soundness of the country concerned), the immediate effect of this package is almost always contractionary.⁸ Since devaluation almost always leads to inflation and capital flight, the problems of immediate contractionary effect become compounded by speculative expectations! The IMF structural adjustment package generally also involves a severe degree of wage repression. Since in an inflationary situation, it is virtually impossible to hold the wage line under conditions of free bargaining, there is generally a severe restriction of workers' rights and civil rights in general. Furthermore, when measures of import liberalisation and/or devaluation are accompanied by credit restrictions, this generally leads to the collapse of small enterprises which feel the pinch of such credit restrictions. This may in fact lead to a greater degree of monopolization of trade and industry in the sectors which are severely affected. These monopolies may be locally controlled, or in many cases (as in Brazil during the period of military rule) they are transnational corporations based in the developed countries. Since the concerned governments may be chary of disturbing foreign enterprises when they are trying to woo foreign investment and foreign loans, the transnational corporations and their local collaborators may get away with many monopolistic practices and thus successfully defeat one of the chief objectives of the import liberalisation exercise.

Hence a government which wants to encourage industrial growth and yet wants to bring about a greater degree of efficiency and a greater degree of utilization of surpluses for purposes of investment—either in new enterprises or in old enterprises with updated technologies—may seriously contemplate policies which are alternatives to the institution of a free trade regime.

8 See, for example John Williamson: 'Economic Theory and International Monetary Fund Policies', *Carnegie-Rochester Conference Series on Public Policy*, Vol. 13, 1980, pp. 255-278. The credit for pinpointing the contractionary impact effect of devaluation in a developing country probably goes to R.N. Cooper. See R.N. Cooper: 'An Assessment of Currency Devaluation in Developing Countries', in G. Ranis (ed.): *Government and Economic Development* (New Haven, Conn., Yale University Press, 1971). See also A.K. Bagchi: *The Political Economy of Underdevelopment* (Cambridge, Cambridge University Press, 1982), chapter 5; L. Taylor: 'IS/LM in the Tropics: Diagrammatics of the New Structuralist Macro Critique', in W.R. Cline and S. Weintraub (eds.): *Economic Stabilization in Developing Countries* (Washington, D.C., Brookings Institution, 1981; and A. Singh: *Employment and Output in a Semi-Industrial Economy: Modelling Alternative Policy Options in Mexico* (mimeo.), paper prepared for the Technical Workshop on Forecasting Models and the Employment Problem, ILO, Geneva, 19-21 September 1983.

One way in which governments have tried to correct a bias against exports is to provide special incentives for exports and to create free trade zones or export processing zones. The incentives for exports fail to work in many cases, because traders and industrialists find ways of obtaining the incentives without really stepping up their export efforts.⁹ In cases in which they work, they might involve a further shift of incomes in favour of profit-earners or landlords in a situation where the incomes of the poorest sections are already very low.¹⁰ This statement seems to run counter to the usual claim that manufactured exports of third world countries are typically labour-intensive and that therefore, an accelerated growth of such exports will improve distribution. The situation would seem to vary from country to country, and would very much depend on the product and factor composition of exports as against import substitutes."

2.3 Price Interventions and Quantity Interventions

Whatever the particular situation, the 'success', even narrowly interpreted, of export-led industrialization would seem to depend on the pursuit of a package of policies which goes well beyond the correction of 'price distortions'. These policies involve determined and purposive intervention by the government in major spheres of economic activity, including infrastructure and large-scale industry. But, of course, governments have intervened in activities which are not directly linked to export promotion. This has been particularly true of socialist countries such as China and of **such** mixed economies as India whose governments have from time to time professed to pursue the goal of self-reliance.

In the 1970s, in the wake, first, of the 'oil crisis' of 1973 and then of the world-wide economic recession which has become more and more widespread and has persisted into the 1980s, many industries, both privately owned and state-controlled, became less profitable and in extreme cases unviable. In this situation the governments have often taken action to try and insulate their economies against the effects of world recession, and at the same time initiated action to restructure industries. Industrial restructuring has generally involved a change in the direction of investment, new investments in modern industries, promotion of what are felt to be the growth industries of the future, and in extreme cases, closure of unprofitable activities and enterprises. Such restructuring activities have also been accompanied generally by a realignment of prices, particularly energy prices, exchange rates and interest rates. But such price interventions have been embedded, especially in the larger or more dynamic economies of Asia, in a package of what could be called quantity interventions by the government.

Before we look at restructuring activities in particular economies such as China, South Korea and India, we need to go back to a closer consideration of the logic

- 9 For a study of the Indian experience in this regard, see, for example, S.K. Verghese: 'Export Assistance Policy and Export Performance of India in the 1970s', *Economic and Political Weekly*, Annual Number, February 1978.
- 10 For a preliminary analysis, see A.K. Bagchi: 'Export-Led Growth and Import-Substituting Industrialization in India', *Economic and Political Weekly*, Annual Number, February 1977.
- 11 For studies of export-led industrial growth, see E. Lee (ed.): *Export-Led Industrialisation and Development* (International Labour Organization, 1981).

of long-term intervention either by the government or by large-scale organizations such as oligopolistic enterprises or business conglomerates. We shall here bring out the analogy between the emerging theory of long-term, enforceable contracts and the assurance provided by government planning and coordination.

2.4 Government Planning and Collective Assurance

The scope of government intervention in industrial investment and restructuring extends far beyond the running and regulation of public enterprises, and the logic of government intervention holds in wide areas in mixed economies, even though private profit rather than any collective welfare, however vaguely defined, is the goal of most economic agents in such economies.

We have already referred to 'secondary uncertainty' arising in investment programmes involving more than one agent. In fact, in any activity where the final outcome and the share of participants in that outcome can depend on the degree of co-operation or collusion between all the participants or between members of subsets of the group of participants, the outcome becomes uncertain, since the kind of co-operation or collusion cannot usually be predicted beforehand. In the celebrated game of Prisoner's Dilemma, if the two prisoners obey a prearranged code or some agreed behaviour pattern, and refuse to confess then both get away rather lightly. If both behave equally stupidly and both confess, then they both get considerably heavier sentences. But if one of them breaks down and confesses, and the other does not, then the 'clever' one gets the maximum sentence prescribed under the rules.¹² If thus one prisoner breaks the 'Code of Honour among Thieves' and behaves opportunistically, and the other does not, then the 'Honourable Thief' suffers for the caddish behaviour of his fellow professional.

Suppose the two prisoners can engage in a large number of games. Then by following the strategy of punishing the other player every time he breaks the code, the prisoners might or might not achieve some kind of equilibrium, in which they follow the rule of obeying the code most of the time.¹³ In real life, the opportunities for such an indefinite repetition of the game would be limited and the social costs of code-breaking might be too high in each individual case. This is why in actual social relations, the government or some other public body sets the rules (e.g. as to whether or not individuals will be allowed to find out for themselves the harmful effects of taking cocaine).

As in social life, so also in business matters, the government would be expected to set the rules such as the laws of contract, the interest rate to be charged by the central bank, the rules governing the transactions in the foreign exchange market, or the bundles of property rights to be enjoyed by a factory-owner in different locations. But often the government also acts as the umpire in disputes between different business groups or between different public enterprises or as the co-ordinator for planning by businessmen. It also might act as the risk-bearer and as risk-preventer in some cases. These wider aspects of government intervention are often clouded over

12 For a discussion of the 'Prisoner's Dilemma', see R.D. Luce and H. Raiffa: *Games and Decisions* (New York, John Wiley & Sons, 1957), pp. 94-97.

13 *Ibid.*, pp. 97-102.

by discussions about the effectiveness of particular forms of government intervention (such as the risk-averting or risk-embracing character of public enterprises in a socialist economy).¹⁴

In some ways, the assurance the government can generate about the non-occurrence of certain harmful developments is probably the most fundamental service it can provide for the planning of long-term business decisions. For example, one major constraint faced by any economy embarking on a course of industrial development is the shortage of foreign exchange to buy the needed imported inputs. The government can try, by following appropriate policies, (as in the case of the People's Republic of China), to keep a sufficiently large foreign exchange reserve, part of which can be used to finance the purchase of equipment from abroad. Otherwise, it can try to ensure, as in the case of the Republic of Korea, through appropriate military alliances, and a suitably welcoming attitude to private enterprise, that a large enough volume of foreign loans and foreign grants will be available to finance any deficit in the balance of payments. Lacking the ability to pursue either of these two courses of action (because of a difference in geopolitical position and in the degree of homogeneity of interests guiding the government), the government may, as in the case of India, ration the foreign exchange between different competing uses. In this last case, the certainty of obtaining foreign exchange once it is sanctioned by the appropriate authorities may be more valuable for business planning than the uncertain freedom to raise a loan in an increasingly unfavourable international money market. Of course, if there is no regular pattern in the rules guiding the allocation of foreign exchange, that may introduce a new element of uncertainty into the situation, but this will be because the government's assurance function has been imperfectly executed and not because the government assumed the function in the first place.¹⁵

The government's function as a co-ordinator is seen clearly when it sanctions, for example, as in Japan, the organization of an export cartel, or when it takes an initiative in setting up research organizations which are run on a co-operative basis by firms in a particular industry (many such research organizations exist in India and South Korea). It acts as the umpire, when in the case of an industry with a number of unprofitable plants or enterprises, it decides which ones are to be rationalized or modernized, and which ones are to be closed down.

In matters of research and development, the government in most countries acts as the chief risk-bearer. Developing countries are very much in the category of followers in the matter of science and technology. However, in most areas of technology transfer there is no such thing as purchase or borrowing of technology across the counter, so that some local adaptation is needed for most cases of purchase of technology. The second reason for keeping a local research and development capability alive is that there are many problems which are perceived only by the decision-makers or economic agents involved in that particular locality, and which-

14 See, for example, the discussion by M. Ellman: *Socialist Planning* (Cambridge, Cambridge University Press, 1970), chapter 3.

15 Our concept of government or public assurance is analogous to, but distinct from the concept of 'collective assurance' as defined by Amartya Sen, who is primarily concerned with individual saving decisions. See A.K. Sen: 'Isolation, Assurance, and the Social Rate of Discount', *Quarterly Journal of Economics*, Vol. 81, 1967.

become an agenda for solution for them. Bringing them to the attention of research organizations or enterprises based in advanced countries and getting them solved by them would often be prohibitively costly in time and money.¹⁶ Finally, a local research and development capability is often helpful in bargaining with foreign sellers of technology.

Our discussion does not imply that in mixed economies the government is the only one which does or should engage in research and development activities. However, in most developing countries, the record of private organizations in this respect is still rather poor. And it can be said to be a measure of effectiveness or otherwise of the pattern of industrial organization in a particular country, as to how far private enterprise engages in R & D activities in such a country.

We can put our discussion in perspective by referring to Keynes' and Arrow's concept of 'agenda' of organizations, and in particular, the state.¹⁷ Unlike nineteenth century Britain, the states in developing countries are not minimalist states. The attainment of independence and/or social revolution has generally brought many items on the agenda of the states concerned that had not been there before, say, 1945. As Arrow notes, 'the difficulty of arranging that a potential decision variable be recognized as such may be much greater than that of choosing a value for it'. Whether we like it or not, planning of investment leading to major industrial restructuring either directly under state auspices or under the auspices of private enterprise but guided and supported by the state, is very much part of the agenda of the state in countries such as India, China, South Korea or Indonesia. Putting a programme on the agenda does not mean that it is implemented properly. Investment planning by the state or by large private business organizations has often led to various difficulties, and to major revisions in targets, instruments, and even in the conception of the whole process. However, as Arrow notes, the principle of 'salutary neglect' of an item which should be put on the agenda is likely to be unfruitful in most cases: 'An unsatisfactory solution may be what is needed to provoke the needed information-gathering to produce a better one, while neglect is never productive'.¹⁹

In their interesting analysis of government-business interaction in South Korea, Jones and Sakong have distinguished between instruments of government intervention such as taxes, exchange rates, subsidies etc., and what can be called pressures to bring about behavioural compliance. They also distinguish between manipulation by government decision-makers of the field or opportunity set in which economic agents function, and ensuring the choice of particular points or subregions within that field by issuing commands. They further distinguish between situations where the field can be manipulated or commands can be issued at the executive's discretion

16 Hyung-Sup Choi, the first president of the Korea Institute of Science and Technology (KIST) gives an example where the KIST was able to solve the problem of malfunctioning of a polyester spinning mill at a cost of less than US\$ 30,000 when the fee quoted by the foreign consultant was US\$ 200,000. See Hyung-Sup Choi: 'Adapting Technology: The Korean Case', in E. Rabinowitch and V. Rabinowitch (eds.): *Views of Science, Technology and Development* (Oxford, Pergamon, 1975).

17 See J.M. Keynes: *The End of Laissez Faire* (London, Macmillan, 1927), pp. 46-47. Arrow discusses the agenda of organizations in his *Limits of Organization*, (New York, Norton, 1974), chapter 3.

18 *Ibid.*, p. 47.

19 *Ibid.*, p. 48.

and where the executive does riot or cannot exercise much discretion in these matters.[^]

In economies where the dominance of the executive over the rest of society or polity is not so absolute as in South Korea, the executive may not in fact have much discretion in respect of either field manipulation or instruments or commands to enforce compliance. But it is valuable to recognize the opportunities open ^government decision-makers, to influence the course of investment and limits on those opportunities imposed by the power of private decision-makers, the information available to the government for making effective decisions, the degree of development of the economy, the legal system and the environment of international trade and investment. While it will not be possible in this report to cover all or even the major aspects of these limits, our failure to discuss them should be attributed to lack of time rather than to any implicit judgement about their relative importance.^{2'}

2.5 Modes of Organization of Economic Life and Channels of Public Intervention

The predominance of private over public ownership is the dividing line between private enterprise or mixed economies, and socialist (or as they are sometimes called, 'state socialist') economies. However, formal ownership as such does not define the locus, scope or span of control. Even in the People's Republic of China, as the institution of 'the responsibility system' in agriculture has demonstrated, the control vested in the state can be unpackaged in various ways, and control with concomitant responsibility can be handed over to teams, households or individuals.²² In a similar way, in a private enterprise, the ownership of one-millionth part of the share capital of a giant corporation does not confer any control at all on a shareholder. Nor does the fact of public or private ownership in itself decide the matter of whether an industrial enterprise will be organized on a large or small scale and what its relationship will be with the rest of society.

The importance of 'being the right size' and being linked in the right way with the rest of economy and society can be brought out clearly in the case of socialist economies. Many of the early theorists of socialist economies had pictured them as basically centralized, command economies. Thus did Bukharin and Preobrazhensky theorize about the Soviet economy, for example." Then came the debate about the

- 20 L. P. Jones and II Sakong: *Government, Business and Entrepreneurship in Economic Development: The Korean Case* (Cambridge, Mass., Council on East Asian Studies, Harvard University and Harvard University Press, 1980), chapter 4.
- 21 On the limits imposed by the nature of the state on the effectiveness of public enterprises as instruments of development in less developed countries, see the valuable work of Sobhan and Ahmad: R. Sobhan and M. Ahmad: *Public Enterprise in an Intermediate Regime: A Study in the Political Economy of Bangladesh* (Dhaka, Bangladesh Institute of Development Studies, 1980); R. Sobhan: *Public Enterprise and the Nature of the State: The Case of South Asia* (Dhaka, Centre for Social Studies, 1983) and M. Ahmad: 'Political Economy of Public Enterprise', in L. P. Jones (ed.): *Public Enterprise in Less-Developed Countries* (Cambridge, U.K., Cambridge University Press, 1982).
- 22 For a lucid analysis of the different variants of the responsibility system and their likely effects on production and income distribution see A. R. Khan and E. Lee: *Agrarian Policies and Institutions in China after Mao* (Bangkok, ILO Asian Employment Programme, 1983).
- 23 N. Bukharin and E. Preobrazhensky: *The ABC of Communism* (Harmondsworth, Middlesex, Penguin Books, 1969).

possibility of rational calculation under socialism. It was demonstrated by O. Lange and F.M. Taylor (as it had in fact been demonstrated as far back as 1905 by Enrico Barone) that in principle, prices could be introduced in a socialist economy to simulate a market economy, and the usual properties of efficiency associated with a partly competitive economy could also be an attribute of a price-guided socialist economy.

However, it was realized that just as unexhausted economies of scale play havoc with the tenability of the assumption of pure competition, so the existence of such scale economies and the necessity of making lumpy investments would make it impossible to plan production on the basis of a system of prices supporting a production set, for the production set may not be a bounded, convex set.²⁴

Side by side with these purely technical developments in the theory of planning and prices, evidence was accumulating of other reasons for wanting to centralize or decentralize control in socialist economies. On the one hand, there were other economies of scale than those of production which a production unit might want to internalize: these would be those associated with centralized procurement or marketing, research and development, or planning of plants in locations so as to economize on transport costs. (These arguments would often apply more to investment rather than to production decisions, so that very often while investment decisions remained centralized, production decisions were decentralized to lower level units).

On the other side, evidence accumulated of the absence of, and impediments to the acquisition of, key elements of information by the superior decision-making authorities. When commands became too detailed, they also tended to be arbitrary, with little relation to the attainment of professed goals of the top decision-makers. The commands often also failed to take account of the actual needs of the producing units or the consumers which they were supposed to serve, leading to unforeseen and expensive bottlenecks, shortages and gluts.²⁵ Such problems have been at the centre of the debate on economic policy going on in China since 1976.²⁶ Furthermore, the lower-level producers often had the incentive to conceal their reserves and information about some key variables, to submit slack plans and thus to thwart the objectives of the planners.

These problems point to the need to distinguish between different systems of organization of a socialist economy along several dimensions. « First, there is the degree of centralization as against decentralization of the economy. At the one extreme all investment and production decisions are taken by the central authorities

24 For a discussion of problems of planning in the presence of significant economies of scale, see L.E. Westphal: 'Planning with Economies of Scale', in C.R. Blitzer, P.B. Clark and L. Taylor (eds.): *Economy-Wide Models and Development Planning* (London, Oxford University Press, 1975).

25 For a summary discussion of these problems, see Ellman: *Socialist Planning*, chapter 3.

26 T. Pairault: 'Industrial Strategy (January 1975-June 1979): in Search of New Policies for Industrial Growth', in J. Gray and G. White (eds.): *China's New Development Strategy* (London, Academic Press, 1982).

27 For a summary view of the organization of production and attempts to reform it, see P.T. Knight: *Economic Reform in Socialist Countries: The Experiences of China, Hungary, Romania and Yugoslavia*, World Bank Working Paper No. 579, July 1983.

and commands are issued in a hierarchical chain. Such an economy does not exist anywhere. Now most production decisions are decentralized to lower-level authorities, and in China many investment decisions are also being decentralized. The principle of decentralization can be territorial or functional. That is, at every territorial level such as the province or the district or the town there may be political authorities who take the production and investment decisions at the appropriate level. Or the central ministries may be horizontally divided and then decentralization may proceed along territorial lines with no integrated planning being performed at the lower level political or administrative units. In practice, there is a mixture of the two types of decentralization, some key industries being only functionally decentralized, while others are decentralized territorially;

Again, even with different degrees of decentralization or centralization, there may be reliance on different types of compliance systems in different degrees. Alexander Eckstein in his book on Chinese economic developments distinguished between *coercive*, *normative* and *remunerative* systems for ensuring compliance.²⁸ Of course, except in penal settlements, there is no such thing as pure coercion. Furthermore, normative and remunerative systems cannot be clearly distinguished when the incentive is given out to a collective. In fact, Chinese practice has been to try to mix individual and collective incentives so as to form an amalgam. 'Normative' systems and political persuasion can also be used to achieve what Ellman has called 'indirect centralization', so that formal decentralization preserves the guiding role of the central authorities.

Meanwhile, in Europe and the USA, new developments in the theory of the firm pointed to a number of factors besides the traditional external economies and economies of scale in production, marketing or finance which might render purely competitive markets not only inefficient but also unviable. These factors arise because of the omnipresence of uncertainty, and uneven and asymmetrical distribution of information. Short-term contracts with labour measured by the hour are costly; so employers seek to control workers hierarchically. Intermediate inputs which might be unavailable in the market at crucial moments would create serious bottleneck problems for a firm, so it integrates vertically. Similarly, distribution outlets for similar products might be so distributed as to create gluts and shortages at particular points, so firms try to integrate horizontally to cover as many retail outlets as possible. Firms might find that their suppliers or customers (in the case of producer goods) are few, and they might tend to behave strategically or opportunistically, and even be prepared to pay the penalty of breaking contracts at crucial moments. So they have yet another motive for absorbing the key customers or suppliers. But because of the inevitable limits on the ability of top decision-makers to absorb and process information (the problem of 'bounded rationality') controllers of the firm have to decentralize some decisions. When such decentralization has reached a limit point, the firm itself may stop growing, until means are found to break the bottleneck in information-processing capacity.

28 A. Eckstein: *China's Economic Revolution* (Cambridge, U.K., Cambridge University Press, 1977), pp. 37-38.

These factors have been broadly classified under the heading of transaction costs leading to failures of atomistic markets or particular types of organization.²⁹ They have been advanced as the reasons for the emergence of giant, multidivision firms and of conglomerates straddling several industries. Very similar factors would seem to explain the positive encouragement given by the government in South Korea to the emergence of the General Trading Companies, and from time to time, to try to limit their number. They also explain, paradoxically, their attempt to encourage price competitiveness in many fields.

Large conglomerates have also been characteristic of Indian industry. The fewness of their number and the possibility of strategic conflict between them and investment planning by the Government of India would be a factor in explaining why the nominally anti-monopoly stance has been doubted in many cases. Furthermore, large business houses have sometimes succeeded in utilizing the policy of licensing of big investment programmes for their ends (for example, through pre-emption of these licenses). The possibility of such strategic behaviour is a factor which might justify the retention by the government of many residual controls and powers in the field of investment planning, particularly when the supply of capital or risk-bearing entrepreneurship becomes uncertain owing to foreign exchange constraints. Mere announcement of a suitable schedule of prices or even a schedule of investments with no discretion on the part of the government to intervene in the middle of the process can lead to private behaviour that effectively sabotages the assumptions on which the plan was based in the first place. Thus, for example, the announcement that the government would release foreign exchange for approved investment projects during the period of the Second Five Year Plan in India led to such a burst of import of goods by the private sector (which correctly anticipated a foreign exchange shortage) that foreign exchange reserves were exhausted within one year and a half rather than the five years which the planners had projected.³⁰

To summarize this rather sketchy discussion, recent developments in the theory of the firm and in the theory and practices of socialism point to the need to distinguish between different degrees of centralization and decentralization in decision-making, and the areas in which markets can be expected to be effective and those in which they are likely to fail. The reasons for the development of large private firms and the possibility of strategic behaviour on their part point to the limits of guidance through pure price signals by the government. The need thus arises of deciding the ranges within which particular types of prices, or quantities will

29 See Arrow: *Limits of Organization*; Williamson: *Markets and Hierarchies: Analysis and Antitrust Implications*; and idem: 'The Modern Corporation: Origins, Evolution, Attributes'.

30 For discussion of such cases of strategic behaviour by the private sector, see A.K. Bagchi: *Private Investment in a Partially Planned Economy* (Ph.D. Thesis, Cambridge University, 1963), chapter 9; and idem: 'Shadow Prices, Controls and Planning', *Indian Economic Review*, New Series, Vol. 1, No. 1, April 1966. For wider aspects of strategic behaviour by economic agents leading to inconsistent long-term plans, see W.H. Buiter: 'The Macro-Economics of Dr. Pangloss: A Critical Survey of the New Classical Macroeconomics', *Economic Journal*, Vol. 90, March 1980. It should be pointed out that only oligopolistic enterprises need not resort to strategic behaviour in relation to government policy. Individual, small capitalists can also upset government decisions through particular types of group behaviour. But the latter type of behaviour may be more predictable.

be enforced. The recognition of the wide agenda for government action would also lead to a proper evaluation of different aspects of government intervention in the field of industrial growth and restructuring and prevent a myopic concentration on the behaviour of public enterprises as *they are at present constituted*. The behaviour of the latter is crucial for understanding the pattern of industrial growth. However, the instruments of government for industrial restructuring extend far beyond the utilization of public enterprises and the limits of the latter might be transcended by utilizing other instruments. For example, managers of public enterprises (like managers of many private enterprises) might be risk-aversers for career reasons.³¹ However, the government might still perform a crucial entrepreneurial and risk-bearing role in the field of productive innovations through the research establishments run or supported by it. In our report, we shall try at least to indicate the *range* of instruments available to the government for bringing about industrial restructuring, although it will not be possible to attach exact weight to their relative effectiveness.

31 See K.J. Arrow and R.C. Lind: 'Uncertainty and the Evaluation of Public Investment Decisions', *American Economic Review*, Vol. 60, 1970, for an analysis of reasons for risk-aversion in managerially controlled enterprises.

Government Intervention and Industrial Restructuring in South Korea

3.1 The Record of South Korean Industrial Growth

By any criterion, economic growth in South Korea has been very impressive since the 1960s and the leading sector in that growth performance has been manufacturing industry. Tables 3.1 and 3.2 set out some of the highlights of that growth. Most Korean and foreign economists date the spectacular economic growth of South Korea from the initiation of the military regime under President Park Chung Hee and in particular from the time of implementation of the First Five Year Development Plan (1962-66). So it is appropriate that at 1975 prices South Korean GNP almost quintupled over the twenty-year period 1963-82. Over the same period manufacturing output grew more than seventeen times. The proportion of income from mining and manufacturing to GNP rose from 11.6 per cent to 34.4 (the proportion of manufacturing alone rose from 9.7 per cent to 34.2 per cent, mining accounting for 1.9 per cent of GNP at the beginning of the period and 1.2 per cent in 1982). The contribution of agriculture to GNP declined from 43.5 per cent in 1963 to 18.1 per cent in 1982.

It would appear that the prices of manufactures rose less fast than those of other commodities and services between 1975 and 1982, since at current market prices, the share of manufacturing in GNP rose from 14.5 per cent in 1963 to 28.6 per cent in 1982, and share of agriculture declined from 43.1 per cent in 1963 to 16.9 per cent in 1982. (These data are taken from the Bank of Korea: *Economic Statistics Yearbook 1983*, Table 148).

Along with these striking changes in the structure of incomes, the structure of sectoral distribution of population of Korea also changed. Between 1970 and 1982 there was a marginal contraction in the economically active population engaged in agriculture. Since this was accompanied by a large increase in employment in industry, the share of agriculture in the economically active population declined from 48.2 per cent in 1970 to 30.7 per cent in 1982. It would appear that there was a significant inequality between agricultural and non-agricultural incomes in 1970, and this difference remained also in 1982. But it did not widen greatly over time as the figures in Table 3.3 would indicate.

3.2 The Background for Intensive Government Intervention in the 1960s

In the drive towards industrialisation, the government of South Korea, starting from 1962, intervened repeatedly and at different points in the economic process. In fact,

Table 3.1

Growth of Agriculture, Industry and National Income in South Korea and Changes in Composition of National Income, 1963-1982

	Income from agriculture forestry & fishing	Income from manufac- turing (a)	Gross national product	Percentage Agric. forestry & fishing	share in GNP Mining & manu- facturing	Others
(in billion won at constant 1975 prices)						
1963	1,456	324	3,351	43.5	11.6	44.9
1964	1,684	356	3,672	45.9	11.7	42.4
1965	1,668	429	3,885	42.9	13.1	44.0
1966	1,861	503	4,378	42.5	13.4	44.1
1967	1,751	612	4,669	37.5	15.1	47.4
1968	1,774	779	5,196	34.2	16.7	49.1
1969	1,961	947	5,911	33.2	17.5	49.3
1970	1,933	1,136	6,363	30.4	19.5	50.1
1971	2,005	1,349	6,962	28.8	20.9	50.3
1972	2,046	1,538	7,366	27.8	22.3	49.9
1973	2,174	1,988	8,463	25.7	25.0	49.3
1974	2,319	2,301	9,141	25.4	26.6	48.0
1975	2,442	2,590	9,793	24.9	28.0	47.1
1976	2,703	3,177	11,276	24.0	29.5	46.5
1977	2,759	3,634	12,432	22.2	30.6	47.2
1978	2,650	4,387	13,877	19.1	32.9	48.0
1979	2,829	4,818	14,759	19.2	33.8	47.0
1980	2,208	4,764	13,843	15.9	35.6	48.5
1981	2,692	5,102	14,724	18.3	35.9	45.8
1982(b)	2,813	5,304	15,514	18.1	35.4	46.5

Note: (a) Manufacturing does not include electricity, gas and water, whose share in GNP rose from 0.4 per cent in 1963 to 1.9 per cent in 1982. Correspondingly, 'Others' includes electricity, gas and water.

(b) Provisional figures.

Source: The Bank of Korea: *Economic Statistics Year Book 1983* (Seoul, Korea, 1983), Table 148.

Table 3.2

Structure of Employment of the Economically
Active Population in South Korea 1970-1982

Population 14 years old and over ('000 persons)

	Economically active population ^{a)}					Economi- cally not active population
	Total	; Agriculture, forestry & fishing*)	Manu- facturing ^{b)}	Con- struc- tion	Unem- ployed	
	(1)	(2)	(3)	(4)	(5)	(6)
1970	10,199	4,916 (48.2)	1,284 (12.6)	284	454	8,054
1971	10,542	4,876	1,336	348	476	8,442
1972	11,058	5,346	1,445	392	499	8,666
1973	11,600	5,569	1,774	371	461	8,838
1974	12,080	5,584	2,012	450	494	9,068
1975	12,340	5,425	2,205	511	510	9,493
1976	13,061	5,601	2,678	529	505	9,488
1977	13,440	5,405	2,798	625	511	9,896
1978	13,932	5,181	3,016	821	442	10,092
1979	14,206	4,887	3,126	836	542	10,472
1980	14,454	4,658	2,972	841	749	10,881
1981	14,710	4,806	2,872	875	661	11,260
1982	15,080	4,623 (30.7)	3,047 (20.2)	831	656	11,451

Note: (a) Persons who worked regularly more than one hour for wages during the survey period (a week in every quarter).

(b) Figures within brackets in columns (2) and (3) indicate the percentage of the population employed in the corresponding sectors to the total number of economically active population.

Source: Bank of Korea: *Economic Statistics Year Book 1983*, Table 144.

Table 3.3

Comparison of Income Per Head in Agricultural and
Non-Agricultural Sectors in South Korea, 1970 and 1982

	Percentage share of agriculture, forestry and fishing				
	in economically active population	in GNP at current prices	in GNP at constant 1975 prices	Proportion of (2) to (1)	Proportion of (3) to (1)
	U)	(2)	(3)	(4)	(5)
1970	48.2	26.8	30.4	.556	.631
1982	30.2	19.6	18.1	.556	.559

Source: Bank of Korea: *Economic Statistics Year Book 1983* and Small and Medium Industry Promotion Corporation: *Major Statistics of Small and Medium Industries*, (Seoul, 1983).

the phrase 'guided capitalism' was used to describe the mechanism during the First Five Year Development Plan.'

In order to understand the objectives of this intervention process and the reasons for its success in stimulating industrial growth, some aspects of the earlier history of the Korean economy have to be recapitulated. Under Japanese colonialism, Koreans were excluded from most positions of decision-making in economic and political life, and virtually all large enterprises were controlled by the Japanese. However, Korea was used by Japan as a base for her war effort in China, and some branches of chemical and mechanical engineering industry were set up. Most of the employees in such industries were Koreans. Furthermore, many Koreans were more or less forcibly conscripted by the Japanese to work in Japan. Thus Koreans in Japanese-controlled factories in Korea and Japan learned many necessary industrial skills, and it is remarkable that when after the Second World War, Japanese-owned factories were confiscated, Koreans found no great difficulty in running these factories.²

The Korean war left in its wake enormous destruction. However, the Americans' involvement in the war and their continued presence after the war provided the South Koreans with several opportunities. First, they obtained military training which also involved training in the operation of modern instruments and in methods of military management. Secondly, the need to service the procurement requirements of the American and Korean armies created a demand not only for simple industrial goods

- 1 Whang In-Joung: 'The Role of Government in Korea's Industrial Development' in International Development Exchange Programme (IDEP), *Iorum on Trade Promotion and Industrial Adjustment*, September 6-15, 1983 (Seoul, Korea Development Institute, 1983), p. 11. But the term was discarded during the Second Five Year Development Plan (1967-71).
- 2 Cf. C.K. Kim and C.H. Lee: 'The Growth of the Automotive Industry,' in C.K. Park (ed.) *Macroeconomic and Industrial Development in Korea(Seoul)*, Korea Development Institute, 1980).

but also such goods as parts for vehicles.³ The destruction caused by the war also, of course, gave a fillip to construction industry and all types of replacement and rebuilding activities. Thirdly, the foreign aid poured in by the Americans, however unproductive it might be in some directions, undoubtedly created a confidence about managing the balance of payments in a chronically deficit economy. The aid given by the Americans and the expenditure by the troops probably set up many entrepreneurs in business.⁴

Finally, although the period since the Second World War and the 1950s did not produce much economic growth, two important developments in social life took place during that period. First, through several land reform measures, including confiscation of land formerly owned by the Japanese, a remarkable degree of equality was achieved in the size distribution of ownership and operational holdings of land.⁵

Apart from creating the basis for a relatively egalitarian distribution in rural areas (the permissible ceiling on land holdings was strictly enforced, so that there was no free market in land making for a more unequal distribution later)* the land reform destroyed the power of landlords as a class,⁶ and left a single avenue for amassing wealth for ambitious men, viz., capitalist enterprise. Secondly, the traditional Korean respect for learning combined with educational expenditures urged by the Americans on the Syngman Rhee government led to a high degree of literacy among the Koreans by standards of less developed countries. In 1944, only 13.7 per cent of the population aged 14 years and above had received any kind of schooling. In 1960, this proportion went up to 56.3 per cent (but the majority of females were still illiterate) and by 1966, it had gone up to 69.2 per cent (by then only 21.5 per cent of males, 14 years old or older and 39.8 per cent of females of the same age-groups were illiterate).⁷

In the next few sections, we shall spell out the nature of the assurance that the South Korean government provided to the domestic investors, and to foreign investors and lenders. However, behind the South Korean government always stood the military might of the USA. The continued importance of military and economic assistance

- 3 See in this connection, L.P. Jones and II Sakong: *Government, Business, and Entrepreneurship in Economic Development: The Korean Case* (Cambridge, Mass., Council on East Asian Studies, Harvard University and Harvard University Press, 1980), Chapter 2; and L.E. Westphal, Y.W. Rhee and G. Pursell. *Korean Industrial Competence: Where It Came From*, World Bank Staff Working Paper No. 469, July 1981.
- 4 Cf. the case of Mr. Ham, founder-owner of a hand-woven silk factory who had obtained some of his seed capital from the USAID, as described by V.S.R. Brandt in Appendix A of Jones and Sakong: *Government, Business, and Entrepreneurship*.
- 5 E. Lee: 'Egalitarian Peasant Farming and Rural Development: The Case of South Korea', in D. Ghai, A.R. Khan, E. Lee and Radwan (eds.): *Agrarian Systems and Rural Development* (London, Macmillan, 1979).
- 6 For a summary of the contrasting experience of Mexico, see A.K. Bagchi: *The Political Economy of Underdevelopment* (Cambridge, U.K., Cambridge University Press, 1982), pp. 160-65.
- 7 M.K. Datta-Chaudhuri: 'Industrialisation and Foreign Trade: The Development Experiences of South Korea and the Philippines', in E. Lee (ed.): *Export-led Industrialisation and Development* (International Labour Office, 1981).
- 8 Y.B. Kim: 'Education and Economic Growth' in C.K. Park (ed.): *Human Resources and Social Development in Korea* (Seoul, Korea Development Institute, 1980), Table 2.

in bridging the gap in South Korea's balance of payments in the two decades of surging growth starting in 1963 has been pointed out by Mason and others.⁹

'South Korea has been one of the largest recipients of foreign aid in the world. The United States alone supplied \$12.6 billion in economic and military assistance between 1946 and 1976, the international financial institutions an additional \$1.9 billion, and Japan approximately \$1 billion. The total of over \$15 billion for a country with a population of 25 million at the mid-point of 1960 gives a per capita assistance figure of \$600 for the three decades. With the exception of South Vietnam and Israel, no other major country has received such a high level of military assistance.'

As the example of South Vietnam shows, the availability of aid alone does not make a regime viable. On the other hand, the eligibility for receiving largesse on such a scale also includes the demonstrated ability of the regime to be stead-fast in its adherence to anti-communist values and its ability to control those elements of the population which might be restive about the policy adopted. This ability was amply demonstrated by the regime of the late President Park Chung Hee and is continuing to be demonstrated by the successor regime of President Chun Doo Hwan.¹⁰ While the economic aid on concessional terms from the USA and international financial agencies declined over time, the value of military assistance actually grew, as Table 3.4 brings out.

Table 3.4
Economic and Military Assistance to South Korea from the United States
(in \$ million for US fiscal years)

	1946-52	1953-61	1962-69	1970-76	Total
Economic assistance	666.8	2,579.2	1,658.2	963.6	- 5,745.4
Military assistance	12.3	1,560.7	2,501.3	2,797.4	6,847.3
Total	679.1	4,139.9	4,159.5	3,761.0	12,592.7

Source: US Government, Agency for International Development, 'US Overseas Loans and Grants and Assistance from International Organisations', Washington D.C., July 1, 1945-September 30, 1976, as quoted in Mason, Kim and others: *Economic and Social Modernization of the Republic of Korea*, p. 182.

E.S. Mason, Mahn Je Kim and others: *The Economic and Social Modernization of the Republic of Korea* (Cambridge Mass Council on East Asian Studies, Harvard University, and Harvard University Press, 1980), p. 165.
On the political conditions in South Korea, see Ibid, Chapter 2.

The figures of military assistance are understated in two ways. Obviously, they do not include the large values of equipment supplied to South Korea during the Korean War. Nor do they include the expenditures incurred by the US army for maintaining its presence.

The military connexion of South Korea allowed her to reap quite a bonanza from the Vietnam War while it lasted: South Korea supplied troops as well as materials and gained from the stepping up of US military expenditure throughout East Asia. The military link has also helped South Korea to obtain many contracts for construction during and after the Vietnam war." Many of these were routed through the US Corps of Engineers. For example, two-thirds of the Middle East contracts of Samhwan, one of the biggest construction firms and one of the top 100 listed companies, were military-related and awarded by the US Corps of Engineers in Saudi Arabia (including a \$600 million contract as part of the massive \$8 billion project for building the King Khaled Military City)¹² But the military connexion can pay off only because of a record of proven performance. It pays off in other ways too, as the winning of the \$3.3 billion dollar Libyan project for tapping the underground water below the Sahara by South Korea's Dong Ah Construction showed."

South Korea's external political connexions also helped her secure markets abroad. After the normalization of her relations with Japan, the USA and Japan accounted for the major part of Korea's exports. In 1970, for example, about 47 per cent of Korea's exports were taken by the USA and 28 per cent by Japan.'« Although the diversification of Korea's trading partners led to a decline in the importance of these countries, even in the period 1979-82, they together accounted for nearly 50 per cent of South Korean exports (Table 3.5). The role of the Japanese and American transnational investing in, or transferring technology to, Korea and of buying companies in those countries in cementing this relationship is a fascinating subject but is beyond the scope of this study.

The compulsory military training required of most able-bodied South Korean men also probably contributes to the 'militarization' of the labour process. But how much of this can be attributed to imitation of Japanese practice and how much is induced by the level of education of the labour force and especially of the managers and their imbibing of the military culture of the government is open to dispute.

3.3 The Style of Government Planning and Implementation

When the regime of Syngman Rhee was overthrown because of a student revolt, it was succeeded briefly by the regime of Chang Myon.'s The Chang Myon regime was

11 The founders of two of the biggest *chaebol* in South Korea, Hyundai and Hahjin, made their 'primitive accumulation' in military contracts during and after the Korean war and landed further contracts during the Vietnam War in Vietnam and Thailand. See Jones and Sakong: *Government, Business and Entrepreneurship*, pp. 356-61.

12 *Business Korea*, December 1983. See also the account of Daewoo group construction projects in Saudi Arabia and Libya, in *Asian Wall Street Journal*, 21 February 1984.

13 *Business Korea*, December 1983, pp. 44-5.

14 W. Hong: 'The Role of Trade in Economic Development: The Korean Experience', in IDEP: *Forum on Trade Promotion and Industrial Adjustment*, p. 162.

15 Jones and Sakong: *Government, Business, and Entrepreneurship*, pp. 46-7.

Table 3.5
Value of Trade With Major Trading Partners of South Korea 1979-82
(in million US Dollars)

	Exports				Imports			
	Total	Japan	Europe* ³⁾	USA	Total	Japan	Europe^'	USA
1979	15,055	3,353	2,838	4,374	20,339	6,657	2,533	4,603
1980	17,505	3,039	3,116	4,607	22,292	5,858	1,905	4,890
1981	21,254	3,503	3,382	5,661	26,131	6,374	2,456	6,050
1982	21,854	3,388	3,741	6,243	24,251	5,305	2,126	5,956

Note: (a) Mostly countries belonging to the European Community.

Source: Bank of Korea: *Economic Statistics Yearbook*, 1983.

in turn overthrown by the military under the leadership of Park Chung Hee on 16 May 1961. One of the last acts of the Chang Myon regime was to enact a Special Law for Dealing with Illicit Wealth Accumulation. On the basis of this law, the Park regime proceeded to arrest most of the leading businessmen of South Korea on charges of accumulating wealth in various illegal ways.* Ten business leaders were soon summoned to a meeting with Park. A deal was struck whereby:

- 1) The government would exempt most businessmen from criminal prosecution;
- 2) With the notable exception of commercial bank shares, existing assets would not be confiscated;
- 3) Businessmen would instead pay off their assessed obligations by establishing new basic industrial firms and donating the shares to the government. "

The actual amount collected by the government was only about \$16 million. But the government acquired control over all the leading commercial banks, and even more important, the episode set the tone of relationship between business and government. Businessmen could expect to keep their wealth and, as it turned out, be enormously enriched, provided they obeyed the instructions of the government.

Economic planning had been formally initiated in South Korea before the Park regime, and a Five-Year Economic Development Plan had been drawn up by the short-lived Chang Myon regime. However, teeth were put into planning when the Park government organised an Economic Planning Board which took over the Bureau of the Budget from the Ministry of Finance, and the Bureau of Statistics from the Ministry of Home Affairs. Its head was given the rank of Deputy Prime Minister.>< Since 1962, Korea has seen the completion of five Five Year Plans and the initiation of the Sixth Five Year Plan (1982-86). The formal model was vastly improved during

16 *Ibid.*, pp. 280-82.

17 *Ibid.*, pp. 69-70.

18 *Ibid.*, p. 48.

the Second Five Year Plan (1966-71), but emphasis later shifted to flexible policy-planning.¹⁹

Twice-weekly meetings are held to resolve conflicts and arrive at decisions between economic ministers (who are really civil servants under the command of the President). The meeting is attended by all ministers concerned with economic matters and the Minister of Foreign Affairs and is chaired by the Deputy Prime Minister. Besides these meetings, a monthly export promotion meeting is held, and these meetings are often attended by the President himself.

At the outset of planning and in the 1960s the South Korean government passed a series of laws regulating most areas of economic life, including exports, imports, foreign investment, technology induction, and so on. But government intervention in economic life was often highly particularistic. Particular firms could be directed to do certain things or alter their behaviour in particular ways. Or they might find their bank credit cut off, their foreign exchange allocation stopped, or tax returns scrutinized with unwanted strictness.*> Although over the years, such particularism has diminished as the economy has grown more complex, even now, the government can and does intervene in a very particularistic manner. For example, 'In 1981, the government forced Kia out of the passenger car business as part of its heavy industry reorganisation. In return, the debt-ridden Kia was given a monopoly in 1-ton to 4.5 ton trucks'.*'

Two, interrelated, instruments of direct intervention in the hands of the government which had profound effects on the economy were bank loans and foreign exchange loans. For most of the period of rapid growth in Korea, it was a 'financially repressed' regime—that is to say, the real rate of interest was not only considerably lower than the real rate of return on investments but was often negative." For, Korea had a very high rate of inflation until the beginning of the 1980s, and the nominal rate of interest was often lower than the rate of inflation.

With a limited domestic market for manufactures, the South Korean government even in the 1950s had been attempting to encourage the development of exports, but through a complicated system of tariffs and quota restrictions it was also encouraging industries which would replace imports. There was a system for linking the right to import certain items to export performance. The won was consistently overvalued because of raging domestic inflation and the system of tariffs and quotas making for a regime of multiple exchange rates."

19 Mason, Kim and others: *Economic and Social Modernization*, pp. 255-262.

20 *Ibid.*, p. 265.

21 *Business Korea*, December 1983, p. 15.

22 For orthodox or monetarist perspectives on the sin of 'financial repression', see M.J. Fry: 'Models of Financially Repressed Developing Economies', *World Development*, 10(9), September 1982.

23 The following discussion of export incentives, relative rates of protection and relative price changes is based on Mason, Kim and others: *Economic and Social Modernization*, Chapter 5; K.S. Kim: *Relative Price Change and Industrial Growth Patterns in Korea*, Working Paper 8101, Korea Development Institute. February 1981; and C.H. Nam: 'Trade, Industrial Policies, and the Structure of Protection in Korea', in W. Hong and L.B. Krauses (eds.): *Trade and Growth of the Advanced Developing Countries in the Pacific Basin* (Seoul, Korea Development Institute, 1981). See also Park Pil Soo: 'The Incentive Schemes for Export Promotion', in IDEP: *Forum on Trade Promotion and Industrial Adjustment*.

The Chang Myon government twice devalued the won, but with the Park government following an expansionary expenditure policy in the face of chronic deficits, the exchange rate was again overvalued. (Such policies could be sustained because of the availability of large-scale American aid). In 1963 the government introduced a system under which the value of non-aid imports permitted to an importer was limited to the amount of his export earnings. In May 1964, the won was again devalued (from 130 to 256 won per dollar) and from March 1965 onwards, it was allowed to float. After that whenever the value of the won was felt to be high, it was officially devalued, so that by 1974, its value had come down to 484 won to the dollar and by the fourth quarter of 1982, to 750 to the dollar.²⁴ These measures of devaluation helped maintain the competitiveness of Korean exports, without provoking large-scale capital flight, because (a) the government controlled all foreign loans tightly, (b) any blatant infringement might provoke punitive measures against which there might be no appeal, (c) the profitability of further investment in South Korea by the larger groups of domestic capitalists was guaranteed and (d) there were few really large owners of foreign capital in South Korea until the 1970s. The devaluation measures also did not lead to a contraction of domestic output because the supply of foreign exchange for complementary domestic inputs was more or less guaranteed by the government, by the foreign (Japanese and American) firms buying the exportable products, and by the sheer speed of increase of exports. Thus in the South Korean case the contractionary effects of devaluation did not operate because of the very special circumstances described.

The government provided all or most of the following export incentives in the period up to 1965 and beyond: '1) tariff exemptions on imports of raw materials for export production (since 1959); 2) domestic indirect tax exemptions on both intermediate imports used for export production and export sales (since 1961); 3) direct tax reductions on income earned from exports and other foreign exchange earning activities (since 1961); 4) a preferential export credit (since 1950); 5) a system linking import business to export performance (since 1957); 6) wastage allowance subsidies (since 1965); 7) tariff and tax exemptions for domestic suppliers of intermediate goods used in export production (since 1961)'."

Import substitution was also encouraged by selective tariffs in such industries as fertilizers, automobiles, food processing, steel products, and so on. In the years from 1966-67 onwards, many tariffs were lowered and a system of quota restrictions was adopted under which specific items that were banned or restricted (South Korea practised the policy of restricting imports from countries with which it had a deficit) were named rather than imposing a blanket restriction on all items except those which were allowed.²⁵ The system of tariff exemptions for imports of intermediate goods used in production for exports was replaced by a system of granting duty draw-backs on such imports. In the 1970s the government promoted new industries to replace imports such as shipbuilding, iron and steel, machinery and petrochemicals. Lately, many of these have become export industries.

24 Bank of Korea: *Economic Statistics Year Book 1983*.

25 Mason, Kim and others: *Economic and Social Modernization*, p. 129.

26 *Ibid.*, p. 131.

According to Mason, Kim and others, the industrial policy changes made by the government during the first half of the 1960s did not really increase significantly the measurable incentive preference in terms of tariffs (nominal or effective) or quota restrictions given to exports in South Korea. Such studies are fraught with methodological problems: for example, the effective protection rate can change drastically with small changes in input-output coefficients. Such problems apart, at best the studies have established only a marginal advantage for producing for export rather than for substituting existing imports or producing for the expanding domestic market.²⁷ In a careful study of the structure of protection in Korea, C.H. Narr concluded:

There appears to have been little overall import liberalization during the 1968-78 period. Despite the fact that both the average legal tariff rates and the number of restricted items for all industries decreased over the 1968-78 period, the average nominal rate of protection rose slightly during the same period. It is interesting to note that nominal protection rates were negative for three industries, mining and energy, and intermediate products in 1978, whereas no industry was subject to negative nominal protection in 1968. However, the negative nominal protection rate is largely the result of government price control strictly applied to certain manufacturing output in 1978. Thus, this should not be taken as an indication that domestic technologies are superior to those of foreign countries.

The system of protection may differ from other developing countries in that it is biased in favour of the primary sector and against the manufacturing sector. Furthermore, the extent of discrimination between the two sectors has become greater during the 1968-78 period. This result stems mainly from the exceptionally high protection given to the domestic markets of the agricultural sector in 1978. Within the manufacturing sector, estimates of nominal and effective rates of protection for domestic sales also show much greater variations among industries in 1978 than in 1968, suggesting that the relative efficiency of resource allocation has become worse during the 1968-78 period....

The third finding was that under the incentive system prevailing in Korea in 1978, it appears that domestic sales are favoured over export sales in the aggregate of all industries. The relative incentives accorded to the manufacturing sector, which accounted for nearly 90 per cent of Korea's exports in 1978, however, reveal that export sales on average, receive greater incentives than domestic sales, with 16 per cent effective protection, for export sales versus 4 per cent for domestic sales.M

Thus the South Korean story can hardly be regarded as one of progressive improvement of resource allocation mechanisms. There has been a marginal advantage in terms of relative prices or protection rates, in selling manufactures abroad rather than

27 See *Ibid.*, chapter 5 for a summary of such studies up to about 1978-79.

28 Nam: 'Trade, Industrialisation Policies, and the Structure of Protection in Korea' in Hong and Krause (eds.): *Trade and Growth of the Advanced Developing Countries in the Pacific Basin*, pp. 209-10.

at home, but this advantage is hardly enough to explain the explosive growth in exports. As K.S. Kim, a careful student of the structure of protection in South Korea, has concluded in another study:

.. the industrial growth patterns in Korea cannot be explained solely by the sectoral price competitiveness in domestic and foreign markets nor by the degree of trade protection found in each sector....Normally it would be expected that the growth contributions of export expansion are negatively correlated with the sectoral nominal rates of protection, while the IS (import substitution) contributions are expected to be positively correlated with those nominal rates. During all periods under observation (viz., 1955-1975), however, no statistically significant relation could be found between the said variables.

These results seem to reflect the fact that Korean exports are not determined simply by the factor of price competitiveness alone, since there is a complicated system of industrial incentives used in Korea which includes many indirect import subsidy schemes. In other words, we suggest that in Korea the direct and indirect supports of the government including some non-price "measures may be more important determinants of industrial growth patterns than the changes in the relative price structure and nominal protection rates.²⁹

3.4 Encouragement of Large-Scale Firms for Production and Trade, Rise in Profit Shares and Rates of Investment and Saving

As we have mentioned already, one important class of tools for government intervention in order to encourage production consisted of financial instruments. The government came to control the whole supply of money and loans from the formal sector since it controlled the Bank of Korea, the Korea Development Bank, the Korea Small and Medium Industry Banks, the Korea Housing Bank, and other specialized banks and the group of commercial banks which had earlier been privately owned. Except for one or two banks, which were specifically meant to serve the small and medium industry sector, the bias of all other bank credit, both in domestic and in foreign exchange, was towards the large-scale sector. For both export trade and support of domestic production, the government adopted a policy of encouraging large enterprise and trading companies, and the concentration of economic power in Korea increased by leaps and bounds. Jones and Sakong tried to measure the degrees of concentration of economic power in India (1968), Pakistan (1959) and South Korea (1975) and found the concentration no higher in South Korea than in South Asia. But they also pointed out that the Korean pattern had evolved only over 25 years as against two to three times that period in South Asia, and that the degree of concentration was rising very rapidly in South Korea. Indeed, over the three years 1973-1975 alone, the degree of concentration of economic power in South Korea had

29 K.S. Kim: *Relative Price Changes and Industrial Growth Patterns in Korea*, Working Paper 8101, Korea Development Institute, February 1981.

increased quite significantly (from 5.2 per cent to 7.1 per cent in case of percentage of non-agricultural GDP controlled by the biggest 5 *chaebol* and from 15.0 to 18.6 per cent for the percentage of non-agricultural GDP controlled by the top 46 groupspso

Although we have no comparable data to offer on the overall degree of concentration of economic power in a more recent year, it was estimated that over January-October 1983, the 10 General Trading Companies (or GTCs, which are organised on the Japanese pattern and given special official recognition) accounted for 52 per cent of the total South Korean exports of US\$10.28 billion: The GTCs increased their share of exports from 12.4 per cent in 1975, to 21.6 per cent in 1977, to 33.9 per cent in 1979, to 41 per cent in 1980, and to 50.7 per cent of January-July 1983.³¹ This is indeed an explosive rate of increase in concentration.

The Korean GTCs and *chaebol* (business groups) are in general highly geared. For example, the Daewoo group (one of the five top *chaebol*) had a thirteen-to-one debt-equity ratio in 1981 and eight-to-one in 1982.³² But even then, much of the growth has been financed and stimulated by a high degree of profitability. This profitability has been made possible through subsidized credit, export incentives, privileged access to markets, flexible and discretionary tax administration favouring profits, and control of wages through the device of banning strikes and government control of trade unions.

The importance of subsidized credit and government controls in a generally inflationary regime has been well summarized by Wontack Hong:

Pursuing an export-oriented growth strategy, the Korean government has introduced widespread restrictions on economic activity throughout the country. These restrictions have produced a variety of rents. However, the credit subsidies based on seignorage and inflation tax seem to have been the largest source of rent in Korea.

DMB (Deposit Money Banks) loans constituted from 40 to 50 per cent of total loans (year-end balance) in Korea during 1964-76. The share of KDB (Korea Development Bank) loans amounted to around 10 per cent thereafter. The share of foreign loans was negligible until 1962, but this share has rapidly increased to about 30 or 40 per cent of total outstanding loans in Korea since 1966. The share of curb loans, admittedly underestimated, amounted to around 11 per cent of total loans during 1964-71, and to around 7 per cent during 1972-76.

The weighted average real interest rate on DMB loans reached a peak of 13 to 15 per cent in 1966-69, but fluctuated from negligibly low rates to substantially negative rates in other years. The rate on KDB loans was always negative, except in 1966-71 and 1973. Taking into account the devaluation effect, the real interest rate on private foreign borrowing, mostly in the form of supplier credit for imported capital goods, was

30 Jones and Sakong: *Government, Business, and Entrepreneurship*, Chapter 8.

31 *Business Korea*, December 1983, p. 56.

32 *Asian Wall Street Journal*, 21 February 1984.

estimated to have been about 8 per cent during 1962-66, 3 per cent during 1967-71, and -6 per cent in 1972-76. The real interest rate on government foreign borrowings was estimated to have been about 5 per cent during 1962-66, about 0 per cent during 1967-71, and about -9 per cent during 1972-76, on average.

The estimated average real rate of return on capital, that is to say, the rate of return on all factors but labour, in manufacturing was about 12 per cent in 1954-61, about 17 per cent during 1962-66, 26 per cent during 1967-71, and 27 per cent during 1972-76.

The ratio of the total interest subsidy associated with domestic and foreign loans in manufacturing increased from 40 per cent during 1962-66 to around 75 per cent during 1966-71, and to more than 100 per cent after 1972. The most remarkable fact is that although the absolute amount of interest subsidies associated with foreign loans was negligible prior to 1966, it was equivalent to more than half of the total interest subsidies associated with KDB and DMB loans together after 1966.³³

This again underscores the importance of the external political and economic relations of South Korea, and in particular, of her special relationship with the USA and Japan (after 1965), which provided aid, loans, technology, markets and many of the trade credits supporting the growth of exports and incomes in South Korea. However, over time, as incomes and in particular, property incomes grew, the ratio of investment and saving to national income also grew but the latter ratio rose faster. Thus the contribution of foreign saving to total investment came down over time, although it still remained substantial compared with the situation in India, or *a fortiori* China (which normally has a balance of payments surplus). The rise of the ratio of domestic saving to national income and total investment is shown in Table 3.6.

The growth in profit incomes was accelerated by the generally regressive tax and expenditure policies of the government, particularly as far as urban, non-farm incomes are concerned. The major part of tax revenues is derived from indirect taxes. Direct taxes also fall more heavily on wage or salary incomes than on profit or interest-earners. According to Hong, 'the average effective tax rate on interest, dividend and rent income amounted to only about 1 per cent before 1967. Since the late sixties, this rate has been raised to be about 3 to 4 per cent. On the other hand, the rate on non-agricultural unincorporated business income amounted to about 3 per cent in the early sixties and was raised to about 5 to 8 per cent thereafter.... Until the late seventies, the majority of capital gains were exempt from taxes. On the other hand, revenues from inheritance and gift taxes have always been negligible'³⁴. In an economy which had a high rate of inflation and wages generally lagging behind prices, the exemption of capital gains from taxes must have been another powerful factor tending to redistribute incomes in favour of asset-owners.

Thus, if we assume that investment and production were determined' by profit ex-

33 W. Hong: 'Trade, Growth and Income Distribution: The Korean Experience' in Hong and Krause (eds.): *Trade and Growth of the Advanced Developing Countries in the Pacific Basin*, pp. 273-74.

34 *Ibid.*, p. 276.

Table 3.6

Ratio of Fixed Capital Formation to GNP, and of Domestic Saving to Fixed Capital Formation (at current prices) 1963-82

	Fixed capital formation as percentage of GNP (1)	Gross invest- ment as per- centage of GNP (2)	Foreign saving as percentage of fixed capi- tal formation (3)	Domestic saving as percentage of GNP (4)	Foreign saving as percentage of GNP (5)
1963	13.9		82		
1964	11.6		67		
1965	14.8		50		
1966	20.2		49		
1967	21.5		49		
1968	25.8		50		
1969	26.6		46		
1970	25.1		40		
1971	23.2		48		
1972	20.2	21.7	26	15.7	5.2
1973	23.9	25.6	14	23.5	3.8
1974	26.0	31.0	- 48	20.5	12.4
1975	25.7	29.4	37	18.6	10.4
1976		25.5		23.1	2.4
1977		27.3		25.1	0.6
1978		31.1		26.4	3.3
1979		35.4		26.6	7.6
1980		31.5		19.9	10.2
1981		28.4		19.6	7.9
1982		26.2		21.5	4.8

Sources: Columns (1) and (3) Mason, Kim and others: *Economic and Social Modernization*, Table 44; columns (2), (4), (5), 11 Sakong: 'The Korean Economy: Past Performance and Future Prospects', Table 4, in IDEP: *Forum on Trade Promotion and Industrial Adjustment*, September 6-15, 1983. [We have ignored the statistical discrepancy between the sum of (4) and (5), and (2)].

pectations and expectations of growth in sales and that, as Y.C. Park has argued," foreign borrowing is more or less government-determined, with domestic saving making up for the gap between total targeted investment and government-determined foreign saving, then the following scenario of adjustment appears. With incomes con-

tinually shifting in favour of profit-earners, the latter decide how much to save out of their incomes and partly also, how much to earn, by taking advantage of the generally controlled wage regime, and the fact that interest income in the informal market is rarely considered taxable income."

This conceptually simple adjustment process has been obscured by the opinion assiduously propagated in some quarters that Korea achieved an astonishing growth in incomes while retaining a low degree of inequality of distribution because of high labour-intensity of exports and a relatively high wage share. A relatively high labour-intensity does not guarantee a relatively high wage share, especially in an economy with significant differentials in wages between men and women, and between workers in large-scale and small-scale firms. Furthermore, if with increasing production and exports, productivity of workers rises faster than their wages (deflated by the price of the product manufactured) then again there need be no positive association between a rise in output and exports and a rise in wage share."

3.5 South Korea's Distribution of Incomes, and Performance in Export Markets

South Korea experienced a once-for-all redistribution of assets in favour of the poor as a result of the land reforms effected in the early years of her independence. This redistribution was not nullified by subsequent land transfers and/or growth of tenancy, for both were controlled by the government. In urban areas the initial distribution of incomes in a war-devastated economy with no accumulation of inherited incomes or assets in a few hands was also rather uniform. But in subsequent years, inflation, corruption and exemption of the rich from tax must have led to a gradual increase in the degree of inequality of income distribution. However, some observers³⁶ claimed to have found evidence for a remarkable degree of equality of income distribution even in the years of high growth starting in 1962-63. Subsequently, most analysts have noticed a tendency towards an increase in the degree of inequality of incomes. But even for the early years of the 1960s, despite the argument about the relative labour-intensity of exports leading to a degree of equality of income distribution as Paul Kuznets had noticed, the evidence for the claim appears to be distinctly dubious.³⁸

For, to start with, even the official data indicate that there was hardly any rise in real wages in the three years from 1963 to 1966, while productivity was rising quite significantly in most major industries. For example, in the cotton textile industry, the productivity per employee rose from 16.69 kgs. to 21.27 kgs. in yarn production and from 59.97 metres to 83.14 metres in fabric production." Secondly, as

- 36 Cf. Corden's comment on Park: 'Export Growth and the Balance of Payments in Korea, 1960-78', in Hong and Krause (eds.): *Trade and Growth of the Advanced Developing Countries*, pp. 253-6.
- 37 See, for example, Irma Adelman's paper in H.B. Cheneiy *et. al.*: *Redistribution with Growth* (London, Oxford University Press, 1974).
- 38 P. W. Kuznets: *Economic Growth and Structure in the Republic of Korea* (New Haven, Conn., Yale University Press, 1977), pp. 94-99.
- 39 Y.B. Kim: 'The Growth and Structural Change of Textile Industry' in Park (ed.): *Macroeconomic and Industrial Development in Korea*, Table 22.

Hukchung Choo,⁴⁰ and Eddy Lee" have pointed out, there are several features in Korean income distribution data which lead to a misleading impression of stability. First of all, only wage and salary earners are included in the urban sample. Then a ceiling is imposed on the range of incomes covered. This ceiling is changed at intervals of 5 years usually. Further, at least in the case of rural incomes, a fixed sample of households is taken for a given period. This practice may prevail also in case of urban incomes. Choo has tried to correct some of these problems, but a bias towards underestimating inequality still remains in his computation. Nonetheless, we reproduce some key coefficients from his paper, which shows a clear increase in the degree of inequality of distribution (Table 3.7).

The dubious nature of the data even in Choo's calculations comes out particularly in the case of employer households. Even their incomes are supposed to have developed in an egalitarian fashion over the period 1965-70, when we know that most government subsidies were tending to favour the larger enterprises rather than the smaller ones. There is no evidence that smaller enterprises were more efficient or had greater survival value in industry as a whole or in the major export industry of the time, viz., cotton textile industry.« So an 'efficiency' argument to explain the fall in the inequality of distribution of incomes among employers would hardly be plausible.

In recent years, the argument has been given that Korean wages are increasing too fast, and this is tending to erode the competitive position of Korean exports. In fact, although market forces have tended to raise real wages, they have hardly risen faster than productivity for more than a year or two, and they have actually fallen consecutively for two years in 1980 and 1981 (Table 3.8).

In 1982, real wages rose by about 8 per cent, but this just about restored them to the 1979 level. There are several institutional and structural handles which employers can use to keep real wages within what they consider to be their paying capacity. First, there is practically no independent union movement in South Korea. Then there is little social security such as unemployment insurance provided by the government. Thirdly, there is a large migration of job-seekers from the farm to the non-farm sector, and there is an increasing participation rate (most of which is contributed by the female labour force) tending to augment the supply of workers, besides the normal rate of growth of population (see Table 3.9). One interesting feature is that while in the 1970s there has been a distinct fall in the male participation rate (probably because of increase in years of schooling), the female participation rate has increased more than enough to compensate for that. This discrepancy may partially account for the high and persisting differential between male and female wages. Female education lags far behind male, and female labour provides the core of the cheap labour servicing many of South Korea's export industries. Tables 3.10 and 3.11 bring out

40 H. Choo: 'Economic Growth and Income Distribution', in C.K. Park (ed.): *Human Resources and Social Development in Korea* (Seoul, Korea Development Institute, 1980).

41 E. Lee: 'Egalitarian Peasant Farming and Rural Development: The Case of South Korea', in D. Ghai, A.R. Khan and S. Radwan (eds.): *Agrarian Systems and Rural Development* (London, Macmillan, 1979), pp. 32-35.

42 See, Y.B. Kim: 'The Growth and Structural Change of Textile Industry' and Sam P.S. Ho: *Small-Scale Enterprises in Korea and Taiwan*, World Bank Staff Working Paper No. 384, April 1980.

Table 3.8
Index of Real Wages in South Korea 1970-81
(1975 = 100)

Year	All industries	Manufacturing
1970	78.9	75.9
1971	80.3	77.7
1972	84.5	79.3
1973	91.2	90.6
1974	96.8	98.6
1975	100.0	100.0
1976	117.5	116.8
1977	140.9	141.9
1978	166.9	166.6
1979	180.3	181.2
1980	172.9	172.7
1981	169.2	168.2

Source: Economic Planning Board: *Social Indicators in Korea 1982* (Seoul, 1982), Table 3-6.

some of these features. From Table 3.10 it comes out that even though there is a high rate of growth of employment of labour in general in South Korea, there is no tendency towards narrowing of differentials between male and female wages in the country. This is not accounted for by differences in educational attainment as such. As Table 3.11 brings out, women receive much less schooling than men (there are more women than men among the South Koreans), but the rate of increase of women's schooling is higher than in the case of men. But paradoxically enough, the relative differentials in earnings between highly educated men and women have widened over time. Furthermore, the rate of unemployment among women is lower. Thus women constitute a depressed reserve army of labour along with the unemployed (the criterion for considering a person employed is rather generous in South Korea, so the real rate of unemployment is probably higher).

The government intervenes in the labour market by setting guidelines. In the 1974 recession, it tried to persuade the employers to tell the government when they were going to lay off workers, but this merely delayed lay-off by the bigger firms while the small and medium-size firms laid off workers anyway.⁴³ But the government guidelines about wage restraint are likely to be heeded by the employers more seriously, not only for gaining bargaining points against workers, but also because the government might threaten to freeze loans or disallow price increases based on wage increases.

Thus there is a persistent tendency towards wage repression, and towards the generation of a highly skewed income distribution in South Korea. The former definitely

43 See Sookon Kim: *Employment, Wages and Manpower Policies in Korea: The Issues*, Working Paper Series 8204, Korea Development Institute, August 1982.

Table 3.9

Population 14 Years Old and Above and Participation Rates in South Korea, 1965-81

	Population 14 years old and above (000 persons)	Total	Labour force participation rate (per cent) Male	Female
1965	15937	55.6	76.6	36.5
1966	16367	55.4	76.5	36.2
1967	16764	55.4	76.0	36.8
1968	17166	56.2	76.1	38.2
1969	17639	56.1	76.6	37.5
1970	18253	55.9	75.1	38.5
1971	18984	55.5	74.2	38.5
1972	19724	56.1	74.7	38.5
1973	20438	56.8	73.9	38.9
1974	21148	57.1	74.8	40.8
1975	21833	56.5	74.5	40.6
1976	22549	57.9	74.6	39.6
1977	23336	57.6	75.9	42.3
1978	24024	58.0	75.0	40.7
1979	24678	57.6	74.1	42.2
1980	25335	57.1	73.6	41.6
1981	25969	56.6	73.2	41.1

Source: Economic Planning Board: *Social Indicators in Korea*.

helps competitiveness in foreign markets and postpones the day when South Korea decisively switches to export of highly capital-intensive products. The skewed distribution of incomes when total GNP is growing fast creates markets for consumer durables such as cars, refrigerators, TV sets, VTRs, and other such goods. But it definitely helped South Korea (as against India or many Latin American countries),⁴⁴ not to have a large and protected consumer goods industry primarily catering to domestic markets which could be an inhibiting factor against the drive towards exporting the products of the country and that the consumer durable industries came into being while the country was fast acquiring a high degree of competence in production of the simpler types of manufactures.

44 See A.O. Hirschman: 'The Political Economy of Import Substituting Industrialisation', *Quarterly Journal of Economics*, February 1968; and Bagchi: *The Political Economy of Underdevelopment*, Chapter 7.

Table 3.10

Male/Female Earnings Ratio by Education, South Korea 1971-81

Year	All workers	College & University	High School	Middle & Primary
1971	2.31	1.39	1.53	2.10
1972	2.22	1.28	1.50	1.94
1973	2.21	1.41	1.56	1.88
1974	1.95	1.60	1.56	1.87
1975	2.36	1.66	1.63	1.90
1976	2.28	na	na	na
1977	2.28	1.62	1.74	1.77
1978	2.30	1.80	1.76	1.87
1979	2.36	1.91	1.80	1.98
1980	2.33	1.73	1.82	1.97
1981	2.25	1.64	1.76	1.93
Mean	2.26	1.60	1.67	1.92

Note: (a) Includes junior college, college and university graduates.

Source: David Lindauer: 'Labour Market Behaviour in Korea: An Analysis of Wages and the Macroeconomy' (mimeo, Fall 1983), Table 6.

3.6 Foreign Investment, Transfer of Technology, and Growth of Particular Industries

Except in advanced capitalist countries such as the USA, Germany or Britain, up to the Second World War, and now Japan, change in industrial structure almost always entails import of technology from abroad on a substantial scale, since such structural change involves new products and processes. (Even the erstwhile advanced capitalist countries are concerned to update and renovate the products and processes in many sectors, and add new sectors by importing the most advanced technologies from abroad). There are some countries with a tradition of innovations or significant adaptations in technology. Since South Korea's history of industrialisation is rather short (that is, if we ignore the colonial period), she did not start with any such tradition or infrastructure for deliberate or systematic adaptation or innovation. South Korea has adopted a sequential approach to the import and development of technology, starting from importing packages of technology and foreign experts to install them and now emerging as an investor in frontline areas of technology development such as semiconductors.

In the 1950s there had been no direct foreign investment in South Korea at all. The government laid the legal basis for foreign investment in January 1960 by enac-

Table 3.11

School Attendance, Employment and Unemployment Rate, Males and Females
14 Years Old and Over: South Korea, 1971-76

Year	Males			Females		
	School population	Employed population	Unemployment rate	School population	Employed population	Unemployment rate
1971	1,412	6,371	5.2	943	3,695	3.2
1972	1,275	6,665	5.6	837	3,894	2.5
1973	1,384	6,923	5.0	864	4,216	2.3
1974	1,587	7,275	4.9	1,026	4,311	2.6
1975	1,711	7,489	5.0	1,149	4,341	2.6
1976	1,814	7,736	5.0	1,191	4,820	2.0
1977	1,709	8,126	4.6	1,266	4,803	2.4
1978	1,941	8,347	3.7	1,362	5,143	2.2
1979	2,127	8,490	4.7	1,498	5,255	2.4
1980	2,172	8,462	6.2	1,533	5,243	3.5
1981	2,284	8,687	5.7	1,684	5,361	2.5

Source: S.S. Lieberman: 'The Composition and Utilization of Korean Labour Supply' (mimeo), 15 November, 1982.

ting the Foreign Capital Inducement Promotion Act.« The Act provided various incentives to foreign investors such as equal treatment with domestic firms, tax preferences, guarantee of profit remittances and withdrawal of the principals, and tax incentives for technology licensees. However, between 1960 and 1964 only 5 cases of foreign investment had been recorded, starting with one in 1962. It was only after normalization of relations with Japan in 1965 that investment began to flow (see Table 3.12). The government, anticipating a surge of Japanese investment, revised the Foreign Capital Inducement Promotion Act in August 1966, and in 1967, adopted a 'Comprehensive Measure for Rationalization of Foreign Capital Inducement'. The latter measure was, however, mainly directed to foreign loans rather than to foreign investment, and was rendered ineffective through inefficient administration. In 1969, the government announced another 'Measure to Promote the Inflow of Foreign Direct Investment and to Foster the Activities of Foreign Subsidiaries', and reinforced the government support system. In 1970 the first Free Export Zone was established in Masan.

45 For a summary of the legal provisions for inducing and restructuring foreign investments in South Korea, see Bohn-young Koo: *Role of Foreign Direct Investment in Recent Korean Economic Growth, Working Paper 8101*, Korea Development Institute, September 1981; the most recent law is reproduced in *Machinery Korea* (Journal of the Korea Institute of Machinery & Metals), November 1983, pp. 50-58.

Table 3.12

Trend of Foreign Direct Investment in South Korea 1962-80

Year	Number of Firms		Amount of investment (US\$ million)				
	Approved	Remaining	Approved	Arrived	With- draw -als	Reim- burse ments	Remaining
1962	1	1	0.6	0.6	—	—	0.6
1963	3	1	56	2.1	—	4.8	7.5
1964	4	2	0.7	3.1 >	—	—	10.5
1965	10	5	21.8	10.7	—	—	21.2
1966	19	6	14.1	0.2	—	—	21.5
1967	25	13	23.5	12.7	—	—	34.2
1968	51	20	25.4	14.7	0.0	1.4	50.2
1969	48	26	47.1	7.0	0.2	—	57.0
1970	115	56	67.4	25.3	0.2	0.4	82.3
1971	108	64	43.0	36.7	0.6	0.4	118.8
1972	189	120	122.4	61.2	2.9	0.4	177.4
1973	385	217	316.9	158.4	4.2	2.4	334.1
1974	176	90	148.5	162.6	6.1	6.1	496.6
1975	45	29	203.5	69.2	5.9	6.1	566.0
1976	50	39	80.5	105.6	4.4	7.6	674.7
1977	52	42	79.1	102.3	11.0	1.8	767.8
1978	53	48	151.7	100.5	11.8	26.9	888.5
1979	50	47	117.6	— 127.0	90.9	3.7	923.2
1980	37	36	141.3	96.6	90.2	41.5	971.2
Total	1,421	862	1,610.6	1,096.4	228.4	103.2	971.2

Source: Bohn-young Koo: *New Forms of Foreign Investment*, Working Paper Series 8202, Korea Development Institute, 1982.

There was a noticeable change in the government's attitude to foreign direct investment in 1973. In that year, a change was made in the law which provided a greater priority to joint ventures than to wholly owned foreign firms. (It is interesting that a very similar change took place in India under Section 29 of the Foreign Exchange Regulation Act in the same year). Such an attitude had been there informally, but it was given legal form for the first time in 1973. In addition a 'General Guideline for Foreign Direct Investment' ruled the following projects non-eligible for foreign investment: '(i) projects which will disrupt domestic demand and supply of raw materials and intermediate products; (ii) projects which compete in overseas markets with domestic firms; (iii) projects which are aimed solely at financial support for ex-

isting domestic enterprises; and (iv) projects which aimed solely at profit from land use'.⁴⁶ In 1973 was also promulgated the Industrial Technology Promotion Law, which stipulated that whenever a producer in South Korea imported a technology, he would be expected to set aside a specific amount of money — usually equal to the cost of importing the technology — for adapting and absorbing the technology.

The guideline for foreign investment allowed majority foreign-owned or wholly foreign-owned enterprises, when it was felt that it would otherwise be not feasible to induce the particular technologies that would be valuable to South Korea. Exceptions were also made for projects in Free Export Zones. In line with the usual government policy of encouraging large enterprises, the minimum amount of foreign investment permitted per project was set at \$50,000 in 1973, and it was raised to \$100,000 in 1974, \$200,000 in 1975, and \$500,000 in 1979. Of course, again room for exercise of discretion was left.

Government policy changed in September 1980, when foreign investment guidelines were liberalized, and the permissible minimum for foreign investment was reduced to \$100,000. Further changes in the same direction have taken place since then.

We will look at the relationship of foreign investment to technology transfer, development of local industries and local R & D efforts. Before that it is interesting to see what induced foreign investment in South Korea, and how the inducement differed in the case of the two major investors, viz., Japan and the USA.⁴⁷ In an early survey of motives of foreign investors, in 1968, the Federation of Korean Industries (FKI) found that the main motive of the majority of the firms surveyed was taking advantage of the expected growth of South Korea's local market. But in 1974, when a Korea University team surveyed investors, they found that more than one-third of the firms wanted to take advantage of the low wages of unskilled and semi-skilled Korean workers; the motive of another 15 per cent was to secure overseas export markets through Korean production. In the case of other groups high growth, and local markets counted for most, but a definite shift had taken place towards low-wage based production for export markets. On the domestic side, nearly one half of the partners of joint ventures in the FKI survey stated that they had entered into joint ventures with foreign firms in order to export their products directly to the foreign partners and to utilize foreign brand names and management knowhow for export purposes. The vast majority of the firms with some foreign investment were joint ventures.

The single biggest foreign investor, countrywise, was Japan, in the beginning; but in the late 1970s the USA was beginning to invest more than Japan. The Japanese investment per project was smaller than average US investment per project, and the Japanese investments were concentrated in export-oriented industries, whereas American investments were concentrated in industries which were catering either to existing or expected domestic market for the products concerned.⁴⁸

46 Koo: *Role of Foreign Direct Investment in Recent Korean Economic Growth*, p. 7.

47 This account is based on Sung-Hwan Jo: 'Direct Foreign Private Investment', in Hark (etl.): *Macroeconomic and Industrial Development*, pp. 133-34.

48 Bohn-young Koo: *Role of Foreign Direct Investment in Recent Korean Economic Growth* pp. 13-15; and K. Kojima: 'A Macroeconomic Approach to Foreign Direct Investment', *Hitotsubashi Journal of Economics*, June 1973.

As we have indicated earlier, the Korean government started the process of planning industrial and economic development with the First Five Year Development Plan. During the first plan period (1962-66), the main emphasis was on replacement of imports and building up infrastructure in such key areas as the production of fertilizers, the running of petroleum, the production of textiles and plywood, and the production of electricity. With the protection granted to domestic assemblers, assembly of automobiles also started. The Second Five Year Plan continued the process, but as we have seen, deliberate efforts to woo foreign investment and to promote exports were intensified. From the Third Five Year Plan onwards, the government shifted its emphasis towards the development of heavy and chemical industries such as steel-making, shipbuilding, machinery-making and building up of petrochemical complexes.

At first, the transfer of technology took the form of importing whole plants on a turnkey basis and the hiring of foreign experts to start the plants and train Koreans. Koreans proved to be quick learners in the process. But the government soon adopted a deliberate policy of screening technology imports and trying to build up local engineering talent which would be complementary to that of foreign engineering services and eventually replace them. In addition to technology imports under the Foreign Capital Inducement Law (FCIL) Korea also imports foreign engineering service under the Engineering Export Promotion Service Law (ESPL). Under this law, foreign engineering service firms may provide engineering service for the work which local firms cannot do because of their low technical level, and a contract of such service is subject to the approval of the Ministry of Science and Technology (MOST) and should have a period of no longer than one year under the Presidential decree implementing the law. The foreign engineering service under ESPL is called Second Category Technology, and the technology under FCIL, First Category Technology'.* Under this provision a large number of agreements for transfer of technology were concluded between foreign and South Korean firms, whether domestic, or foreign-controlled firms or joint ventures.

The government later (in 1978) liberalized the provision about involvement of Koreans because the development of heavy and chemical industries required import of proprietary technology which the owners were unwilling to license, but even then, attempts were made to associate Koreans with the work of foreign design and consultancy firms.

Partly to monitor the import of foreign capital and technology, and partly to facilitate its absorption, the government established in 1966, the Korea Institute of Technology (KIST), then the Ministry of Science and Technology (MOST) in 1967, and the Korea Advanced Institute of Science (KAIS) in 1971. In 1980, the KIST and KAIS were merged to form the Korea Advanced Institute of Science and Technology (KAIST).

Although in South Korea, primary, secondary and even college-level education had reached remarkable heights before the drive for industrialisation began, organised technological and scientific research followed rather than preceded industrial develop-

49 Technology Transfer Center, Korea Institute of Science and Technology: *Comparative Studies of National Experience in Technology Policies: The Case of the Republic of Korea* (Seoul, 1979).

ment and was brought forth by the demands of such development. Advanced technological and scientific research is only recently beginning to prepare the conditions for further changes in industrial structure rather than the other way round. In this respect her experience differs distinctly from that of India where advanced scientific research has been conducted largely independently of the felt needs of industry.

The KIST was designed from the start as a problem-solving, contract research association. The South Koreans paid more attention to the absorption of imported technology at first than to any basic research or even advanced applied research. so KAIS was similarly a mission-oriented scientific 'think-tank' devoted to researching on problems which were beyond the capacity or purview of university laboratories. After the establishment of KIST, the government encouraged the setting up of research laboratories for specific industries, and under the auspices of individual firms. Numerous tax exemptions and loans were provided for encouragement of private research. Despite the periodic governmental monitoring of RD&E activities, and the constant contact through contracts between KIST and other specialized laboratories, the complaint was voiced that there was fragmentation of decision-making as between different ministries, and that the loans given for R&D activities to private firms bore too high rate of interest." The merger of KIST and KAIS in 1980 put basic and applied research under the same umbrella, and the R&D loans were charged lower rates of interest in later years. Even then, it was reported that, KAIST and its spin-offs, which accounted in 1980 for 27 per cent of South Korea's R&D expenditures, still suffered from poor linkages with industry and difficulty in securing well-qualified researchers. Most researchers came from academic fields and R&D establishments of developed countries, and lacked manufacturing knowhow or the knowhow needed to develop commercially viable prototypes.ⁿ The fact that most South Koreans going in for higher education abroad went to the USA, while the large majority of South Korean firms used technologies and management patterns absorbed from the Japanese also probably created a contradiction.

In spite of these caveats, two remarkable facts emerged about R&D expenditures and expenditures on science and technology in general in South Korea. First, they have grown even faster than the fast-growing GNP. Secondly, private R&D expenditures now account for a larger percentage of national R&D than government-financed R&D expenditures (see Table 3.13).

How did the structure of industries change in South Korea over these years of government guidance, foreign lenders' and traders' support, and private enterprise

50 Hyung-Sup Choi: 'Adapting Technology—The Korean Case', in E. Rabinowitch and V. Rabinowitch (eds.): *Views of Science, Technology and Development* (Oxford, Pergamon Press, 1975); and Hyung-Sup Choi: 'The Role of Various Stages of Technology Relevant to Developing Countries', (Keynote address prepared for the 3rd Inter-congress of the Pacific Science Association, July 8-12, 1977, Bali, Indonesia). Choi was the first President of KIST and was Minister of Science and Technology, Republic of Korea in 1975.

51 Linsu Kim: 'Science and Technology Policies for Industrialization in Korea', in IDEP: *Forum on Trade Promotion and Industrial Adjustment*, pp. 8-10.

52 *Ibid.*, p. 13.

Table 3.13

R&D Expenditures by Source and as a Percentage of GNP in South Korea, 1971-82

Year	Total R & D expenditure (million won)	Funds from government (million won)	Funds from private sources (mil. won)	GNP (billion won)	Percentage of (1) to (4)
	(1)	(2)	(3)	(4)	(5)
1971	10,666	7,285	3,380	3,151.55	0.34
1972	12 028	7,965	4,062	2,860.00	0.31
1973	15,628	8,271	7,356	4,428.67	0.32
1974	28,182	25,051	13,130	6,779.11	0.56
1975	42,663	28,458	14,204	9,792.85	0.44
1976	60,900	39,461	21,438	13,272.59	0.46
1977	108,285	51,705	56,580	17,021.37	0.64
1978	152,418	74,447	77,971	22,917.60	0.67
1979	173,038	94,790	79,247	29,072.08	0.60
1980	211,726	109,281	102,445	35,030.62	0.61
1981	293,131	127,906	165,226	42,397.12	0.69
1982	457,688	188,941	268,747	48,267.89	0.95

Source: Ministry of Science and Technology, Republic of Korea: *Science and Technology Annual*, various issues.

drive? Hollis Chenery and Lance Taylor in 1968 carried out regressions for 50 countries over the 1950-63 period where manufacturing value added was treated as a function of income per head, population, and the shares of primary and manufactured exports in GNP.»

Comparing the Chenery-Taylor norms with South Korean data, it was found that in 1953-54, although South Korea lagged slightly behind the predicted GNP share in manufacturing, in textiles she was already more developed than the typical country. By 1960-62, she substantially exceeded the norm for textiles and clothing and also marginally exceeded the norm for the manufacturing share of GNP. By 1972-74, South Korea substantially exceeded the norm for the manufacturing share of GNP as a whole (28.2 per cent as against the predicted share of 12.9 per cent) and exceeded the sectoral norm for food, textiles, clothing, paper products, chemicals, non-metallic minerals, and metal products.

Although South Korea seems thus to have achieved what might be called a 'precocious industrialisation', in the development of particular sectors such as tex-

53 H.B. Chenery and L. Taylor: 'Development Patterns: Among Countries and Over Time', *Review of Economics and Statistics*, November 1968; and Mason, Kim, and others: *Economic and Social Modernization*, pp. 146-8.

tiles, electronics, or even automobiles her evolution has followed the import replacement, imported technology absorption, foreign-assisted exports and independent exports route, though the importance of the different elements and the exact sequence have varied from sector to sector.

In spite of South Korea's startling break-through in all areas of manufacturing development and exports, textiles—the first sectoral leader of her manufactured exports—continue to occupy a very important place in her total exports. In 1972, at the high point of textile exports (in terms of sectoral share) textiles and clothing constituted 38.1 per cent of total exports.⁵⁴ This share declined in later years, as machinery and transport equipment, electronics, fertilizer and iron and steel came to occupy larger shares. But even then in 1982, textiles and clothing accounted for 27.5 per cent of total South Korean exports.

The textile industry of South Korea up to 1960 was based mainly on natural fibres such as cotton, silk and wool, with some admixture of rayon.» But wearing apparel and textile goods other than yarn and fabrics already accounted for more than 30 per cent of value added in 1960. During the 1950s and early sixties, the industry suffered from a deficiency of demand. The rise of oil-based synthetic fibres and fabrics aggravated the problems of the natural fibre-based industry. Even in 1962, the import of textiles and wearing apparel exceeded their exports. In 1968 the two were more or less equalized, and after that date exports decisively overtook imports. By 1975, the value of exports of textiles and wearing apparel (US\$ 1840.1 million) was more than three times that of imports (US\$ 593.2 million). South Korean exports thrived on a change-over from the production of natural fibre-based fabrics to synthetic-fibre-based fabrics, and on increasing concentration on clothing based on synthetic and mixed fabrics, and knitwear and hosiery. This changeover was also accompanied by a rise in labour productivity in yarn and fabric industries, and by a growth of large and medium sized establishments in relation to the small ones. 'Over the 1963-73 period, the number of establishments with less than 100 employees increased by 56 per cent from 3,379 to 5,255, while that of medium-sized establishments (those employing 100 to 499 persons) increased by 329 per cent from 132 to 566, and the number of large-sized establishments (employing 500 or more persons) increased by 332 per cent from 28 to 121'.⁵⁶ The shares of the small, medium-sized and large-sized establishments as defined above in the value of textile output changed from 40.0 per cent, 17.6 per cent and 42.5 per cent respectively in 1963 to 14.0 per cent, 24.5 per cent and 61.4 per cent respectively in 1973. Over the years 1963-73, the number of persons employed in the textiles and wearing apparel industry increased from 123,907 to 373,908 persons. While the share of the fabrics sector in employment shrank from 44.0 per cent in 1963 to 23.9 per cent in 1973, the share of yarn in employment first shrank and then went up again to nearly recover the level (of one quarter)

54 11 Sakong: 'The Korean Economy: Past "performance and Future Prospects', in IDEP: *Forum on Trade Promotion and Industrial Adjustment* JS^{AS} "•

55 For an account of development of the textile industry, »C^e Yun S^{Bong} Kim: 'The Growth and Structural Change of Textile Industry', in Park (ed.): *MaV(6econot7i^{tr} and industrial Development*, pp. 185-276.

56 Kim: 'The Growth and Structural Change of Textile Industry', p. 244.

by 1973 as the production of synthetic fibre yarns picked up. The share of wearing apparel and knitted goods together in employment went up from 21.6 per cent to 44.7 per cent between 1963 and 1973.

Externally, South Korean manufacturers had access to many markets which the Japanese had cultivated earlier. Japanese small and medium firms made investments in South Korea to take advantage of cheap labour and produced all kinds of garments such as knitwear, lingerie, clothing and hosiery.³⁷ But foreign firms, including Japanese firms, invested most heavily in the production of chemical fibres. Most of the investment took place in joint ventures firms. 'As of end 1981, 80 per cent of nylon and 76 per cent of polyester manufacturing facility in Korea were owned by joint-venture firms.'³⁸ Over the years, except in the chemical fibre industry, the importance of foreign investment or foreign licensing the textile industry has come down, while the importance of licensing by local firms has increased.

The development of electronic industry in South Korea in many ways has taken a quite different route from that followed by the textile industry. The beginnings of the industry are well described by Linsu Kim in the following passage: 'Although the AM radios have been assembled in small-scale "garage-operations" in Korea since 1958, the electronics industry in Korea can be said to have begun in the mid 1960s, with the production of black and white TV sets, stereos, and radio communication equipment through the international transfer of production technology. When the government banned the imports of consumer electronics as a means of import substitution, this measure plus control of foreign investment and contraband goods in the black market provided attractive business opportunities for local manufacturers in the protected local market which had previously been dominated by foreign products. However, there was no local capability to establish production operations: Entrepreneurs who had previous trade contacts with foreign firms quickly imported "packaged" technology from overseas which included assembly processes, together with product specifications, production knowhow, technical personnel, and component parts'.³⁹*

The first cases of foreign investment in electronics industry in the country occurred with offshore assembly of transistors and integrated circuits by US transnational firms around 1965. But the major wave of foreign investment came in with the entry of Japanese firms to manufacture all kinds of electronic components and parts.« In fact, it would appear that although companies with foreign investment exported parts of a more and more sophisticated variety, and South Koreans began to manufacture a larger and larger fraction of the parts needed, the major fraction of TV sets was sold in the domestic market up to 1971, and even after, it was mainly the domestic market (which was growing fast) that the producers exploited. This was even more true of communication equipment. The major exception was the manufacture of electronic calculators, which was set up as an exporting industry from the very beginn-

57 Koo: *New Forms of Foreign Investment*, p. 69

58 *ibid.*

59 Linsu Kim: 'Stages of Development of Industrial Technology', in Park (ed.): *Macroeconomic and Industrial Development*, p. 317.

60 Koo: 'New Forms of Foreign Investment', p. 79.

ing, and the domestic market picked up only in later year.⁶¹ However, as Japan relinquished her monopoly in many of simpler types of electronic goods, and South Korea successively absorbed the technology for colour TV sets and VCRs, the proportion of electronic exports to total output grew. According to figures given by the Electronics Industry Association of Korea, the following⁶² were the values of electronics output and exports in 1970, 1980, and 1981 (in US\$ million):

	1970	1980	1981
Output of electronic goods	106	3,022	3,791
Electronics exports	55	2,004	2,195
Total exports	835	17,505	20,993

Electronics output increased as a share of total manufactures and electronics exports grew as a percentage of total exports, and both grew as a percentage of GNP. But the growth in gross output does not always reflect growth in net output. For South Korea continued to import a large fraction of the more sophisticated components, and such essential items as semi-conductors. Such imports have been taken to be symptomatic of what has been dubbed as 'structural dependence' between South Korea and Japan.⁶³

However, the success of South Korea in the manufacture of all kinds of electronic goods, including computers, and the determination of the major *chaebol* and GTCs to retain their export markets and to maintain their market shares in the domestic market in the face of the reluctance of the Japanese to transfer high technology that might make the former formidable competitors have prompted major South Korean groups to invest heavily in R&D in the computer industry.⁶⁴ According to a new item in the *Asian Wall Street Journal*⁶⁵ Samsung and the Lucky-Gold Star groups were already producing personal computers in 1983: some 50,000 units were sold in the domestic market at \$300 each and another 10,000 to the government at cut prices. (The government has banned the import of any assembled personal computers). Daewoo and Hyundai also hoped to produce a personal computer soon, and all of them expected to enter the export market, although South Korea was not yet in a position to compete with the Europeans and Americans in this field. The Korean companies hope at first to enter into joint ventures with US and European companies, market the models of their partners first, and then strike out on their own.

61 Linsu Kim: 'Stages of Development of Industrial Technology', Figure 4.

62 Quoted from Jang Won Suh: 'Policy Issues for the Electronics Industry in Korea' (mimeo.; Korea Institute for Industrial Economics & Technology, 1983).

63 T. Watanabe: 'An Analysis of Structural Dependence Between Korea and Japan, in Hong and Krause (eds.): *Trade and Growth of the Advanced Developing Countries*.

64 On collaboration and conflict between Japan and South Korea in the field of technology transfer, see, for example, 'Technology Flow from Japan: Breaking the Bottleneck', *Business Korea*, December 1983.

65 13 February 1984.

The story in the case of South Korean automobile industry is also one of transition from import replacement to exploit a growing domestic market and breaking into the export market. Here the fast growth of a domestic market (growing both because of a fast-rising GNP and because of a shift of income towards the richer groups) and the government's deliberate tilt towards heavy industry both helped in the gradual improvement of the industry.⁶⁶ However, in this case the road was much more difficult than in the case of textiles or electronics. Up to 1973, the industry had grown primarily on the basis of assembly of CKD models, but domestic parts and components were gradually replacing the imported parts. In 1974 the government's policy changed decisively to the manufacture of complete vehicles. It encouraged a subcontracting system for the production of parts and granted special privileges to the ancillary producers of parts and components. As already indicated, in 1981, it directly intervened to give a monopoly of production of trucks to Kia to take away the passenger car business from them. After that Daewoo and Hyundai remained the only domestic producers. By 1983, both had broken into the export market; though they had many problems still to overcome. In these car ventures although foreign transnationals such as General Motors, and Mitsubishi have an equity stake or provide technical assistance, managerial control is primarily in the hands of the South Koreans.⁶⁷

We have seen that the public sector in the form of banks and financial institutions has been a major instrument of government policy. The financial sector was an important revenue-earner also for the government. But the South Korean public sector was not confined to the financial sector or the infrastructural sector, such as railways and electricity. Partly because the government inherited many enterprises inherited from the Japanese, and also as important—it had to step in where the private sector did not have the resources or incentive to enter, the public sector has a number of manufacturing and mining enterprises such as coal mines, fertilizer factories, and a steel mill either under its direct ownership or under its control. In fact, it has been estimated that two countries as widely separated in their official ideology as India and South Korea have had very similar shares of the public sector to GNP, rising from about 6-7 per cent in 1964-65 to around 9 per cent or so around 1972.⁶⁸ As in other countries, public enterprises have stimulated growth both through their expansionary plans and through the subsidization of private enterprises. It has generated savings for the economy (a cigarette monopoly has helped it greatly in this), but generally speaking its rates of investment have been much higher than its rate of saving. We are not entering into any detailed discussion of public enterprises in South Korea, because while important, they have by no means been the chief instruments for industrial restructuring in that country.

Throughout the phase of rapid industrial growth, the conscious aim of the govern-

66 See Kim and Lee: 'The Growth of the Automotive Industry', in Park (ed.): *Macroeconomic and Industrial Development*.

67 'Korean Automakers Keep "Helping Hand" at Arm's Length', *Business Korea*, December 1983.

68 Jones and Sakong: *Government, Business and Entrepreneurship*, Chapter 5; and 11 Sakong: *Macroeconomic Aspects of Public Enterprise in Asia: A Comparative Study*, Working Paper 7982, Korea Development Institute, January 1979.

ment has been to promote output growth rather than employment or equity. Employment has risen over the years, but it has fluctuated severely in times of recession, and it is suspected that technological change combined with recession in 1979-80 has led to the shedding off of many employees who have had to abandon the organised or 'formal' economy and join the informal economy.⁶⁹

The policies of the South Korean government have undergone a rapid change in recent times. The government has divested its shares in commercial banks, which are now privately owned. It is also emphasizing more regulatory and less discretionary policies. In fact, latest policy statements emphasize the importance of 'indicative planning' rather than detailed planning. As an official handbook puts it, 'Aside from a limited number of large scale projects, investment choices are being left to the initiative of the private sector, while the government is only indicating the general framework and direction in which such choices should be made'.⁷⁰ However, given the continuing strength of the executive arm of the government, and the eminence and visibility of a few *chaebol*, it should not be difficult for it to intervene decisively whenever it chooses to do so.

3.7 Industrial Restructuring, the Pattern of Employment and Earnings Differentials

The second shock of 1978-79 and the political turmoil following the assassination of her President were among some of the exogenous causes that depressed the rate of growth of South Korea in 1980 and 1981. The instability had also raised question marks regarding the strategy of concentrating resources on heavy industries that South Korea had been following in the late 1970s. In the process of readjustment to these shocks, not all heavy industries have come out losers. The South Korean shipbuilding industry has emerged as one of the most competitive in the world, with full order books for the leading shipbuilding firms, most of which are owned by one or the other of the major general trading companies (GTCs).⁷¹ The state controlled Pohang Iron and Steel Company has emerged as the leader of a steel industry which has become a major exporter of steel in the world market. The automobile industry which had been in the doldrums in 1979-81 and in whose restructuring the state had played a major part is now again poised for expansion, as we have already indicated. General Motors has entered into an agreement with Daewoo for production of 167,000 sub-compacts by 1986. Half of this production has been earmarked for export from 1987.⁷² Thus some of the heavy industries fostered by government are also turning out to be winners in the export market.

Several other industries, especially in the capital goods sector, are feeling the pinch of recession in world markets. Power generators, diesel engines, construction equipment industries were working with large excess capacities in 1984. Korean shipping was also in trouble partly because of the earlier government policy of encouraging

69 Cf. Lindauer: 'Labour Market Behaviour in Korea', Chapters 1 and 3.

70 *A Handbook of Korea* (Seoul, Korean Overseas Information Service, 1983), p. 485.

71 *The Economic Times* (Bombay), 22 October 1984.

72 *Far Eastern Economic Review*, 15 November 1984, pp. 113-15.

shipping lines to acquire ships as fast as possible and maximise foreign exchange earnings. The acquisition of ships with fuel-intensive engines and cut throat competition led to increasing financial problems. The government stepped in again to encourage shipping lines to merge: it just gave three months to 69 ocean-going lines to merge into 20 groups. It held out the threat of embarrassment with banks to which the shipping lines were heavily indebted unless they conformed to government policy."

Restructuring has also involved the further growth of some of the older industries. In textiles South Korea is moving towards items with greater value added. This is also true in the case of electronics, which has emerged as a major industry in the country employing around 250,000 persons already in 1978.⁷⁴ Some of the assembly operations of consumer durables such as colour TV sets for a manufacturer from other countries, especially Japan, have been discontinued. Further advances in microelectronics technology including automatic insertion and very large scale integration (VLSI) have enabled Japanese firms to withdraw from South Korea⁷⁵ However, South Koreans are exporting many components of TV sets, and other consumer durables under their own brand names. They are pursuing a dual strategy of entering into foreign collaboration agreements with firms from Japan, the USA and other countries to import more advanced technologies, and at the same time investing heavily in their own R&D efforts to try and absorb the imported technology and eventually become independent of foreign help in the transferred technologies. The production of semiconductor devices with LSI and VLSI involves large amounts of investment. South Korean GTCs which have been fostered with active government help are in a position now to make such investments.

Whether the combination of these restructuring strategies will enable South Korea to keep the volume of unemployment at the relatively low levels reached before 1980 or not, and what will happen to wage differentials or income distribution in the near future are questions that can be answered only approximately. In spite of the very high rate of growth of manufacturing industry, the share of the secondary sector in the total employment has ceased to grow. In 1982, the shares of the primary, secondary and tertiary sectors in total employment were 32.1 per cent, 21.9 per cent and 46.1 per cent respectively.⁷⁶ With the gradual shift of the composition of output from the more labour-intensive branches of textiles and clothing industries, and of the electronic industry, and with the introduction of new automatic or semi-automatic technologies in branches of manufacturing, including garments-making, manufacture of electronic equipment and machine building, it is not very likely that a large net addition to employment in manufacturing proper will take place. If the South Korean construction industry also runs into trouble because of emerging problems

73 *Far Eastern Economic Review*, 14 February 1985, pp. 47-49.

74 T. Hayashi and A. Suehiro: 'Electronics Industry', being Chapter 8 of *Comparative Advantage of Manufacturing Industries in Asian Countries* (Tokyo, Institute of Developing Economies, 1982).

75 R. Kaplinsky: 'The International Context for Industrialisation in the Coming Decade', *Journal of Development Studies*, October 1984.

76 Hagen Koo: 'The Political Economy of Income Distribution in South Korea: The Impact of the State's Industrialisation Policies', *World Development*, 12(10), October 1984.

in the oil-exporting West Asian and North African countries, total employment in the construction sector is also unlikely to rise, even if domestic construction picks up in preparation for the 1988 Olympic games scheduled to be held in Seoul. Most of the projections of employment in fact predict a faster growth of employment in the tertiary sector than in the secondary sector. This prognostication would also be consistent with the patterns of employment growth that have been observed in middle-income countries of Southern Europe and Latin America in the past.⁷⁷

The influence of most of these changes on wage differentials will pull in several directions. The rate of inflation in South Korea has been brought down considerably. One major influence which tended to aggravate differentials in earnings between property owners or house-owning middle classes and those who were too poor to buy any immovable property was the rise in property values in an inflationary situation.⁷⁸ This factor will not act so strongly in the near future, unless the restraint exercised by a tight financial policy in recent times is removed or unless prices of oil or other imported inputs rise strongly again. Another factor which is likely to narrow the wage-differentials is the continuing raising of educational standards of the average Korean. It has been claimed that earnings differentials between people with education up to junior college level and people who had only attended school had already narrowed in the late 1970s and early 1980s.⁷⁹ «However, there is no evidence that the earnings differentials between college graduates and the rest have decreased over time. In fact, such people are in a position of authority where they can to a large extent determine what is to be regarded as their income and what is to be treated as necessary professional or business expenses, and their opportunities for earning high incomes in the fast-expanding Korean economy have grown over time. Hence it is very likely that the earnings differentials between them and the rest of the wage and salary earning groups have been underestimated to a greater extent with time.

Moreover, the kinds of changes in industrial structure observed in South Korea are likely to increase earnings disparities between different groups of workers. With the increasing substitution of labour-intensive branches of textiles and electronics by more capital- and knowledge-intensive operations, the part of the labour force which is most likely to be affected is low-paid female labour. There are large and persistent male-female wage differentials in South Korea as in many other countries, the levels of education attained by women are generally much lower, and even highly-educated women rarely attain positions of authority. These factors, combined with the generally wage-restraining policies pursued by the South Korean government in the interest of preserving the earlier vantage positions of competitiveness as long as possible and promoting growth, are likely to inhibit earning gains by the lower paid sections of the labour force, especially the female workers.

All these factors will combine with the tendency of the newer technology to increase the proportion of supervisory or highly skilled personnel to the total labour force and probably aggravate earnings inequalities in an economy which adopts these

77 Ueberman: 'The Composition and Utilization of the Korean Labour Supply' and Koo: 'The Political Economy of Income Distribution in South Korea', p. 1031

78 Koo: 'The Political Economy of Income Distribution in South Korea'.

79 Lindauer: 'Labour Market Behaviour in Korea'.

technologies at a fast rate as South Korea does. The government's policy of encouraging mergers and the growth of the nine general trading companies the 50-odd *chaebol* will pull strongly in the direction of widening income equalities between profit-earners and wage earners.⁸⁰ The very success of South Korea in effecting a quick restructuring of the industrial sector on the basis of a rising rate of investment in the economy and a fast implementation of policies to take advantage of emerging patterns of dynamic comparative advantage is likely to aggravate the degree of inequality of incomes in the country. However, the effect of this increasing dispersion of incomes on the standard of living of the people will be limited if South Korea manages to maintain the rates of growth attained in the past and thereby keep the labour market tight and the overall rate of unemployment low.

80 See, in this connection, 'South Korea '84: A Precarious Industrial Structure', *Far Eastern Economic Review*, 19 July 1984.

Modes of Public Intervention and Industrial Restructuring in the People's Republic of China

4.1 The Economic and Industrial Structure of China and Its Evolution since the 1950s

The method of national accounts adopted by the People's Republic of China (PRC) differs significantly from that of the UN system of national accounts which is the model for the national accounts of India and the Republic of Korea.¹ The Chinese official sources use the Marxist or Soviet method of computing national income primarily on the basis of production of material goods and services directly entering into the production and distribution of material goods. Earlier complaints about unavailability of Chinese statistics are no longer valid since the Government of the PRC has published abundant data going back to the 1950s.²

First, let us recapitulate the evolution of the structure of the 'total product of society'. Table 4.1 presents the data from 1949 to 1982. The period from 1949 to 1952 is generally taken as a period of recovery from the effects of the Second World War and the Civil War upto 1949. If we confine our attention to the period since 1952 we find that the share of industry in total product increased from 34 per cent in 1952 to nearly 56 per cent in 1982 and that of agriculture declined from more than 45 per cent in 1952 to 28 per cent in 1982. The years 1959-61 were clearly abnormal, when under the dual impact of massive harvest failures and the Great Leap Forward, the share of industry increased tremendously and that of agriculture declined precipitously. If we exclude these two years, we can say that most of the structural change had been completed by about 1970. The post-1970 period has witnessed a fluctuation around a share of 55-59 per cent for industry and 25-28 per cent for agriculture.

If we look at the changes in real values of industrial and agricultural output (Table 4.2) we find that whereas agricultural output increased from an index of 100 in 1952 to 306.6 in 1982, the index of industrial output increased over the period from 100

- 1 For an explanation of the methods used see Nai-Ruenn Chen: *Chinese Economic Statistics: A Handbook for Mainland China* (Chicago, Aldine Publishing Co., 1967); S. Ishikawa: *National Income and Capital Formation in Mainland China* (Tokyo, Institute of Asian Economic Affairs, 1965); and *China: Socialist Economic Development, Annex A: Statistical System and Basic Data* (Washington D.C., World Bank, 1981), Chapter 3.
- 2 Nai-Ruenn Chen: 'An Assessment of Chinese Economic Data: Availability, Reliability, and Usability' in *China: A Reassessment: A Compendium of Papers Presented to the Joint Economic Committee, Congress of the United States* (Washington, D.C., US Government Printing Office, 1975).

Table 4.1

China: Composition of Total Product of Society, 1949-82 (in Percentages of Total Product)

Year	Agriculture	Industry	Construction	Transport	Commerce
1949	58.6	25.1	0.7	3.4	12.2
1950	56.2	28.0	1.9	2.8	11.1
1951	51.3	32.2	2.9	2.9	10.7
1952	45.4	34.4	5.6	5.5	11.1
1953	41.1	36.3	6.8	3.4	12.4
1954	39.7	38.3	6.1	3.6	12.3
1955	40.6	37.8	6.1	3.5	12.0
1956	37.2	39.2	8.9	3.4	11.3
1957	33.5	43.8	7.4	3.7	11.6
1958	26.5	50.7	9.4	4.2	9.2
1959	19.5	58.2	9.2	4.8	8.3
1960	17.1	61.1	9.2	4.9	7.7
1961	28.3	53.7	4.5	3.8	9.7
1962	32.5	51.1	4.1	3.4	8.9
1963	32.8	50.8	4.9	3.4	8.1
1964	31.7	51.3	6.7	3.2	7.1
1965	30.9	52.0	6.6	3.4	7.1
1966	29.7	53.1	6.4	3.3	7.5
1967	33.3	49.8	5.6	3.1	8.2
1968	35.1	48.5	5.0	3.1	8.3
1969	29.8	52.3	7.0	3.1	7.8
1970	27.8	54.8	7.1	3.1	7.2
1971	26.3	56.5	7.4	3.1	6.7
1972	25.5	57.3	7.3	3.1	6.8
1973	25.7	57.4-	7.0	3.0	6.9
1974	26.3	56.2	7.7	2.9	6.9
1975	25.0	58.1	8.1	3.0	5.8
1976	25.4	58.1	8.0	2.9	5.6
1977	- 23.3	59.6	7.7	3.0	6.4
1978	22.9	59.4	8.3	3.0	6.4
1979	24.8	58.7	8.4	2.7	5.4
1980	25.7	57.6	8.8	2.7	5.2
1981	27.2.	56.6	8.1	2.6	5.5
1982	28.1	55.6	8.8	2.6	4.9

Source: Statistical Yearbook of China 1983, compiled by the State Statistical Bureau, PRC and published by Economic Information & Agency, Hong Kong, October 1983.

Table' 4.2

China: Indices of Gross Output Value of Agriculture and Industry in Comparable Prices, 1949-82 (1952 = 100)

Year	Gross output value of agriculture and industry	Gross agricultural output value	Gross industrial output value	Of the gross industrial output value	
				Light industry	Heavy industry
1949	56.3	67.4	40.8	46.6	30.3
1950	69.5	79.3	55.7	60.6	46.7
1951	82.7	86.8	76.8	81.0	69.7
1952	100.0	100.0	100.0	100.0	100.0
1953	114.4	103.1	130.3	126.7	136.9
1954	125.2	106.6	151.6	144.8	163.9
1955	133.5	114.7	160.0	144.8	187.7
1956	155.5	120.5	204.9	173.3	262.3
1957	167.8	124.8	228.6	183.2	310.7
1958	221.9	127.8	353.8	245.0	555.5
1959	265.0	110.4	481.8	298.8	822.7
1960	279.3	96.4	535.7	269.5	1,035.5
1961	192.5	94.1	330.7	211.1	553.6
1962	173.0	99.9	275.9	193.5	428.4
1963	189.6	111.6	299.4	197.9	487.8
1964	222.9	126.7	358.2	233.2	590.3
1965	268.3	137.1	452.6	344.5	650.6
1966	314.7	149.0	547.4	394.3	829.5
1967	284.5	151.2	471.8	366.4	663.6
1968	272.6	147.5	448.0	348.3	629.8
1969	337.4	149.2	601.6	436.1	906.6
1970	424.3	166.3	786.0	514.9	1,289.9
1971	475.9	171.4	903.3	548.2	1,565.5
1972	497.4	171.1	962.9	582.2	1,675.1
1973	543.0	185.5	1,054.2	643.6	1,820.7
1976	626.6	207.1	1,223.2	764.4	2,102.2
1977	693.7	210.6	1,408.4	873.7	2,402.9
1978	779.0	229.6	1,598.6	968.1	2,777.7
1979	845.2	249.4	1,734.4	1,061.0	2,991.6
1980	908.6	259.1	1,887.0	1,256.2	3,033.5
1981	950.4	276.2	1,964.4	1,433.3	2,890.9
1982	1,033.1	306.6	2,115.7	1,515.0	3,177.1

Source: The same as for Table 4.1.

to 2115.7. The compound annual rate of growth of agriculture (taking the terminal years only) comes out as 3.8 per cent and that of industry as 10.8 per cent over the thirty-year period.

There are several problems in interpreting these rates of growth and comparing them with rates of industrial and agricultural growth in other countries. The first problem springs from the use of gross value of output and the presence of double counting in many of the figures of industrial output. While this factor would affect the measurement of industrial output at any moment of time, it would not necessarily vitiate the measurement of rates of growth over time. Exercises in terms of net value of industrial output have not thrown up any great discrepancy between rates of growth of the gross and net values of industrial outputs. Secondly, the Chinese statistical system was badly disrupted in the 1960s. Moreover, the value of industrial output may have been exaggerated in some years by over-enthusiastic reporting and by the inclusion of output which was not usable. But these factors would affect the evaluation of year-to-year fluctuations, but would leave unaffected the long-term trend of growth, especially since 1952 and 1982 are regarded as 'normal' years in this respect. Thirdly, industrial output in China was evaluated at relatively high prices, especially for the newer types of goods, and it included the values of many services which are classified under the service sector in countries following the UN Standard National Accounts System. These two factors would inflate the size of the industrial sector at any moment of time, and the first factor would also tend to exaggerate the rate of growth of industrial output.⁴ But this latter problem is common to most less developed countries following a policy of protection of new industries.

The World Bank study of 1981 attempted a comparison of the production structure of PRC after making suitable adjustments. The relevant figures are reproduced in Table 4.3. These figures reveal that by LDC standards, China has an unusually high proportion of output generated by industry, and by all standards, an unusually low proportion of income generated by services. (There are problems in comparing incomes of different countries even after making adjustments for relative prices, it being particularly difficult to evaluate the services of administration and military and para-military forces. But we are not entering into that discussion here since it is not germane to our main problem).

Table 4.2 also shows that the growth of heavy industry far outpaced that of light industry in China. The ratio of the outputs of the two branches has fluctuated over time. It would appear that since 1976, light industry has tended to grow much faster than heavy industry. Although 'light industry' is not synonymous with consumer goods industries, there is a very large overlap between the two, and the faster rate of growth of heavy industry upto 1976 partly reflects the high rate of accumulation maintained by the Chinese economy. This is a signal achievement for such a poor country as the PRC, and we shall turn to an approximate explanation of the phenomenon in the next section.

3 *China: Socialist Economic Development*, Annex D: *Challenges and Achievements in Industry* (Washington, D.C., World Bank, June 1, 1981), Chapter 1.

4 N. Maruyama: 'The Mechanism of China's Industrial Development—Background to the Shift in Development Strategy', *The Developing Economies*. XX (4), December 1982, p. 439.

Table 4.3

International Comparison of China's Production Structure, 1979 (Figures in Percentages of Total National or Group GDP at Market Prices)

	China (adjusted)		India	Indonesia	Low- income countries	Middle- income countries
	(a)	(b)				
Agriculture	31	34	38	30	38	15
Industry	47	40	27	33	24	38
Services	22	26	35	38	38	48

Note: (a) Adjusted only for differences in accounting conventions.

(b) Adjusted also for relative price differences.

Source: China: *Socialist Economic Development, The Main Report*, p. 43.

The fast growth of industrial output in China has also been accompanied by a fast rate of growth of industrial employment, and this is brought out by Table 4.4.

Comparing Tables 4.1 and 4.4 we find that industrial output per worker has expanded much faster than agricultural output per worker, although agricultural output per capita has expanded at a significantly positive rate (more than 1 per cent per annum). Thus the productivity difference between agriculture and industry, which was already high in 1952, has further widened in later years. This has been one of the major issues addressed by Chinese policy-makers seeking to adjust and reform the economy in recent times.

4.2 The Rate of Investment and Heavy-Light Industry Balance in Chinese Development

The PRC official statistics provide the 'rates of accumulation' for different years. Table 4.5 gives the data regarding the rates of accumulation since 1952. The World Bank study of 1981 thus defines 'accumulation' and its difference from the UN system of standard national accounts (SNA).

Accumulation corresponds to domestic investment, but with several differences. First, capital expenditures on equipment and construction by the military are included, whereas the SNA convention treats these as current government consumption. Second, accumulation is net of depreciation. Maintenance and repair of productive fixed assets are excluded from both national income and accumulation, while for unproductive assets, they are considered part of current consumption. An increase in working capital in the productive sectors (inventories, stocks, goods in process, expenditure on unfinished construction projects, young farm animals and stockpiles) is the second element of accumulation.'

5 World Bank, *China: Socialist Economic Development, Annex A: Statistical System and Basic Data*, pp. 27-28.

Table 4.4

China: Industry-agriculture Distribution of the Labour Force 1952-82

Year	Labour force employed (million persons)		Composition (percentage of total of industry and agriculture)	
	Industry	Agriculture	Industry	Agriculture
1952	12.46	173.17	6.7	93.3
1953	13.73	177.48	7.2	92.8
1954	15.01	181.52	7.6	92.4
1955	14.00	185.93	7.0	93.0
1956	13.75	185.45	6.9	93.1
1957	14.01	193.10	6.8	93.2
1958	14.16	154.92	22.2	77.8
1959	28.81	162.73	15.0	85.0
1960	29.79	170.19	14.9	85.1
1961	22.24	197.49	10.1	89.9
1962	17.05	212.78	7.4	92.6
1963	10.72	219.68	6.9	93.1
1964	16.95	228.03	6.9	93.1
1965	18.28	233.98	7.2	92.8
1966	19.74	242.99	7.5	92.5
1967	20.32	231.67	7.5	92.5
1968	20.92	260.65	7.4	92.6
1969	23.65	271.19	8.0	92.0
1970	20.09	278.14	9.4	90.8
1971	32.33	284.00	10.2	89.8
1972	34.96	282.86	11.0	89.0
1973	37.04	288.61	11.4	88.6
1974	39.00	292.22	11.8	88.2
1975	42.84	294.60	12.7	87.3
1976	46.92	294.48	13.7	86.3
1977	48.09	293.45	14.1	85.5
1978	50.09	294.26	14.5	85.9
1979	53.40	294.25	15.4	84.6
1980	56.00	302.11	15.6	84.4
1981	57.96	311.71	15.7	84.5
1982	59.30	320.13	15.6	84.4

Source: Statistical Yearbook of China 1983, p. 122.

We shall not be far wrong if we treat the rate of accumulation as roughly equivalent to the orthodox concept of net domestic investment, especially since it is known that the army in China undertakes many purely civilian activities. It is notable that except for the years of the adjustments to the harvest disasters of 1959-61, the PRC has

Table 4.5

Consumption and Accumulation in China 1952-82 (percentages of national income)

Year	Consumption	Accumulation
1952	78.6	21.4
1953	76.9	23.1
1954	74.5	25.5
1955	77.1	22.9
1956	75.6	24.4
1957	75.1	24.9
1958	66.1	33.9
1959	56.2	-43.8
1960	60.4	39.6
1961	80.8	19.2
1962	89.6	10.4
1963	82.5	17.5
1964	77.8	22.2
1965	72.9	27.1
1966	69.4	30.6
1967	78.7	21.3
1968	78.9	21.1
1969	76.8	23.2
1970	67.1	32.9
1971	65.9	34.1
1972	68.4	31.6
1973	67.1	32.9
1974	67.7	32.3
1975	66.1	33.9
1976	69.1	30.9
1977	67.7	32.3
1978	63.5	36.5
1979	65.4	34.6
1980	68.4	31.6
1981	75.5	28.5
1982	71.0	29.0

Source: Statistical Yearbook of China 1983, p. 25.

maintained a very high rate of investment throughout her recent history (see Table 4.5). In the 1970s, in fact, the rate of investment was consistently and considerably above 30 per cent. Most of this investment has gone into capital and intermediate goods industries. As we can see from Table 4.2, heavy industry grew much faster than light industry for most of the years since 1952. Heavy industry demands far more capital and energy per unit of output than light or consumer goods industries. One of the aims of recent Chinese policy has been to bring down the ratio of accumula-

tion to national income and of output of heavy industry to that of light industry.

As is evident from Tables 4.2 and 4.5 the proportions of both accumulation and heavy industry output to national income have fluctuated in the past. Both the constraints of availability of resources (energy, capital goods—and most important, agricultural output) and policy changes have played important roles in these fluctuations.* The call for adjustment and modernization or consolidation is not new in public pronouncements in the PRC. For example, in the aftermath of the collapse of the Great Leap Strategy, 'a new policy of 'readjustment, consolidation, reinforcement and improvement' was announced in 1962'.

Before we go into the experience with industrial readjustment in recent Chinese developments, it is instructive to ponder on the means which the PRC used to raise the rate of investment to such very high levels. The first means was the socialization of all non-labour income, and its use for the purposes of social consumption and public investment. In any economy where agriculture provides the pre-dominant share of national employment and income and where there is private property in land, rent makes up a large proportion of total income. Socialization of land makes this income available for redistribution among the poorer farmers and agricultural labourers, and for purposes of social consumption and investment. The agrarian reforms carried out in the PRC between 1949 (in some areas before that date) and 1957 effectively redistributed part of the rental income to the poorer groups* and allowed the state or the commune to retain the rest. In the urban areas similarly nationalization of all private property led to the elimination of conspicuous consumption by the rich. Secondly, by building an all-pervasive public distribution system, the state managed to provide a sense of security about the basic needs of consumption, health and education to most of the participants, and take away or rather reserve the surplus product for purposes of accumulation.

The third element in the success of the high investment strategy was the guarantee of employment to all adults whether in agriculture, or in commune-level industrial enterprises, or in country and province-level enterprises or in collective enterprises organised on a group basis in urban areas or finally in state enterprises controlled by the Central government. This meant that not only theoretically but also practically everybody was assured of his "iron rice bowl", a guarantee of a minimum level of living throughout life.'

The fourth element making for a high rate of saving was the built-in incentive for

- 6 For an authoritative discussion of the roles of ideology and objective constraints in producing fluctuations in aggregate investment and its composition, see A. Eckstein: *China's Economic Revolution* (Cambridge, U.K., Cambridge University Press, 1977), chapter 6. For later discussions of investment cycles in China see N. Maruyama: 'The Mechanism of China's Industrial Development', and idem: 'The Investment Cycle in China: Why Overexpansion of Investment Persists', *China Newsletter* (JETRO, Tokyo), No. 45, July-August 1983; and B. Macfarlane: 'Political Economy of Class Struggle and Economic Growth in China, 1950-82', *World Development* 11(8), August 1983.
- 7 Eckstein: *China's Economic Revolution*, p. 125.
- 8 Victor D. Lippit: 'Land Reform and Economic Development in China', *Chinese Economic Studies* VII(4), Summer 1974; and A.R. Khan: 'The Distribution of Income in Rural China', in *Poverty and Landlessness in Rural Asia* (Geneva, International Labour Office, 1977).
- 9 See, in this connection, S. Ishikawa: 'China's Economic System Reform: Underlying Factors and Prospects', *World Development*, 11(8), August 1983, especially p. 653.

Table 4.6
Sectoral Composition of the Labour Force in China, 1982

Sector	Labour employed (million persons)	Percentage of • total labour force employed
1. Industry	59.30	13.2
2. Construction and resource prospecting	13.40	3.0
3. Agriculture, forestry, water conservancy and meteorology	20.13	71.6
4. Transport, posts and tele- communications	8.50	1.9
5. Commerce, catering trade, service trade and supply and marketing of materials	18.20	4.1
6. Scientific research, culture, education, public health and social welfare	16.46	3.7
7. Government agencies and peoples	6.11	1.4
8. Others	4.96	1.1

Source: *Statistical Yearbook of China*, 1983.

achieving as much self-sufficiency as possible, at the level of an enterprise, or at the level of the group to which a particular enterprise belonged. Under a system of central or provincial or county-level physical allocation of thousands of items in a regime geared to high growth, shortages and bottlenecks often developed, especially since the transport network continued to be inadequate in relation to the needs of a subcontinent-sized land. And political leaders, enterprise managers and cadres and ordinary workers strived to overcome these shortages by producing as many of the inputs as possible internally. This made for the maintenance of a high level of construction also on the part of individual enterprises.

The fifth element making possible a high level of savings and investment without the help or side-effect of inflation was the holding of the wage line for all workers, especially industrial workers. According to a recent analyst,¹⁰

State policy stressed the creation of jobs, not increases in rates of remuneration (rates of capital accumulation remained high). As a result, the average real wage for state industrial employees fell by 58 yuan over the two decades after 1957, and it dropped even more precipitously from a peak of 741 yuan in 1964 to 632 yuan in 1977....(The drop in the average wage reflects additions to the labour force at the bottom wage grades, with a general freeze for most other workers at their existing rates of pay). When adjustments are made for increases in the cost of living ... there was a drop in the average real industrial wage of 19.4% for the period from

10 Andrew G. Walder: 'The Remarkings of the Chinese Working Class, 1949-81', *Modern China*, 10(1) January 1984, p. 22-24

1957 to 1977, and 16.5% for the period from 1964 to 1977. The trend was reversed only after a national decision in 1977 to devote a larger portion of the state budget to the wage bill* yet in real terms average wages still have not returned to their 1956-57 levels.

The final element in the ability of the Chinese economy to sustain a high level of saving and investment is the role of the Communist Party in sustaining workers' morale and inducing them to work hard for a better future, most of the time. In spite of recent reforms in enterprise management, the PRC economy is still run on the basis of centrally laid down guidelines, and makes predominant use of central, provincial or county level allocation of raw materials, capital goods and essential consumption goods. With changes in policy and in external conditions, the relative roles of mobilization as against incentive, or what might be called adaptation schemes, have varied. But the changes have mostly been initiated, guided and halted by the Party leadership. The crucial role of the Party guidance of the economy continues today.

We have, in the above, stressed the role of savings more than of investment, for by and large, demand deficiency has not posed a problem for the Chinese economy. Sectoral imbalances of production and transport have led to stockpiling of unwanted or immobile goods from time to time, but such imbalances have not been allowed to affect purchasing power through multiplier effects or the ability of these enterprises to acquire other goods consignable to them under the allocation system.

As will be apparent from our analysis, the methods used in the PRC to sustain a high level of accumulation have created their own problems. For example, the guarantee of full employment and the tendency of all large enterprises to internalize as many linkages as possible have led to 'extensive' rather than 'intensive' growth and have often led not only to temporary waste but to a system of perpetuation of inefficient or wasteful utilization of capital goods, raw materials and labour. The PRC seems to share this characteristic with most of the centrally planned economies of eastern Europe, which have continued to rely on physical controls and directives or commands from above as the primary planning device. It has been argued that those systems continually generate excess demands for raw materials and capital goods, since prices or purchasing power of consumers are not used as rationing or allocating devices." According to two Polish economists analysing the system the following consequences result from the situation:¹¹

First, industrial production in CPEs i.e. centrally planned economies is very resource intensive; excessive use of material inputs, overinvestment and overemployment in industry are a rule rather than an exception. Second, given excess demand for investments and well-known decision-makers' preferences for heavy industry, a distorted production structure is created.

The PRC in recent years has been concerned with both readjustment, meaning the

- 11 J. Kornai; *Anti-Equilibrium: On Economic System Theory and the Tasks of Research* (Amsterdam, North-Holland, 1971); idem: 'Resource-Constrained Versus Demand-Constrained Systems', *Econometrica*, 47(4), July 1979.
- 12 M. Okowski and J. Winiecki: 'Structural Change and Adaptation'. Paper presented at the Seventh Congress of the International Economic Association, Madrid, September 1983, p. 3.

redressing of the perceived imbalance between accumulation and consumption, and between heavy industry and light industry, and reform, meaning a change in the relations between the Central government, the provincial government, the county-level administration and individual enterprises and in the mode of management of the enterprises. In the area of system reform, the attention of the government has not been centred exclusively on price-guidance or price-reform. Evolving specific contracts as between governments and enterprises, and as between workers or peasants and team or brigades or collective and state industrial enterprises has been the main instrument of system reform rather than allowing market forces to operate freely. That is to say, specific contracts or specific types of 'responsibility system' have to be seen as adjuncts or substitutes of the market system rather than as equivalents of price-guidance. So it would be wrong to view the Chinese reforms as necessarily steps towards the evolution of 'market socialism'.

The readjustment efforts and system reforms have not always pulled in the same direction. The reform movement cannot be characterized as a move for decentralization in all directions. Paradoxically enough, more centralized control over certain decisions have been considered necessary in order to achieve the desired ratio of accumulation to consumption, and the desired degree of flexibility in the economy.

In 1977 and 1978, there was renewed emphasis on modernization, which comprised the modernization of the means of production in agriculture and industry, the updating of defence production and organization, and the development of science and technology.¹³ As can be seen from Table 4.5, the drive for modernization led to an acceleration in the proportion of accumulation to national income, and the rate went up to 36.5 per cent in 1978. However, efforts were begun almost immediately after 1978 to scale down the rate of investment, and revise downwards the plan of raising steel production to 60 million tons, grain production to 400 million tons, of constructing 120 projects in the fields of iron and steel, coal mining, power generation and railway and port development, and of raising industrial production to 10 per cent per year and agricultural production to 4-5 per cent per year between 1978 and 1985. Not only did the initial construction expenditure for this plan conflict with the objective of raising consumption standards, but it also strained the budgetary and foreign exchange resources of the Chinese government. The 'new leap forward' involved the import of a large amount of equipment from advanced capitalist countries: China did not have the resources for financing their purchase, nor were the required foreign credits likely to be forthcoming on terms that the PRC found acceptable.¹⁴ Some of the results of the readjustment effort can be seen in Tables

13 For a summary of debates and policy changes in the sphere of industry and the economy in the period 1977-80, see Andrew Watson: 'The Management of Industrial Economy: The Return of the Economists' and Thierry Pairault: 'Industrial Strategy (January 1975-June 1979): In Search of New Policies for Industrial Growth', in Jack Gray and Gordon White (eds.): *China's New Development Strategy* (London, Academic Press, 1982).

14 See in this connection, Colina MacDougall: 'Policy Changes in China's Foreign Trade Since the Death of Mao, 1976-80', in Gray and White (eds.): *China's New Development Strategy*; Kosaku Matsumoto: 'External Elements of China's Economic Policy and Japan's Financial Assistance to China', *China Newsletter* (JETRO, Tokyo), No. 42, January-February, 1983; and T.T. Hsueh and T.O. Woo: 'China's Foreign Trade Since Deng' Xioping's Rise to Power', in Chi-Keung Leung and Steve S.K. Chin (eds.): *China in Readjustment* (Hong Kong, Centre of Asian Studies, University of Hong Kong, 1983).

Table 4.7

China: Average Annual Consumption of Peasants and Non-agricultural Residents, 1973-82 (Rmb)

Year	Consumption		
	All persons	Peasants	Non-Agricultural residents
1973	155	123	306
1974	155	123	314
1975	158	124	324
1976	161	125	340
1977	165	124	361
1978	175	132	383
1979	179	152	406
1980	227	173	468
1981	249	194	487
1982	266	212	501

Source: Statistical Yearbook of China 1983, p. 484.

Table 4.8

China: Change in Nominal and Real Consumption of Peasants and Others between 1978 and 1982

	1978 (Rmb)	1982 (Rmb)	Increase between 1978 & 1982 (percentages)	
			in money terms	in real terms
1. Per capita consumption of all persons	175	266	52.0	31.9
2. Net annual income per capita of peasants	134	270	101.5	N . A .
3. Average annual wage of staff and workers	614	798	30.0	13.6
4. Annual income available for living expenses per capita of staff and workers	316	500	58.0	38.3

Source: As for Table 4.7 p. 483.

4.7 and 4.8 which reproduce the official data on the rise in rural and urban (personal) incomes and consumption in China in recent years. Since their growth rate was higher than that of national income as a whole, some part of it must have been financed by the scaling down of the rate of investment, and a small part by the trade deficits in the years 1978-81. (Earlier, China generally had a surplus in her trade accounts.)

It can be seen that very recently, incomes of peasants have risen much faster than those of residents engaged in non-agricultural activities. One major factor in this has been a rise in state agricultural procurement prices which were raised by 22.1 per cent in 1979, 7.1 per cent in 1980 and 5.9 per cent in 1981.¹⁵ Another factor has been the deliberate encouragement of cash crops other than grain side-line activities (such as the raising of pigs and poultry) on the part of individual households, and the development of free markets.¹⁶ Procurement prices of cotton, edible oil, timber, jute and other such cash crops were raised by 50 per cent or more between 1977 and 1980, though some prices were marginally lowered in 1981.¹⁷ The gross output of agriculture as a whole increased by almost 50 per cent between 1977 and 1982 (see Table 4.2) but it is as yet too early to say whether this represents a break in the trend or how much of this can be attributed to the "agricultural responsibility system" which was introduced from 1978 onwards to overhaul the production organization of rural China.¹⁸

The higher procurement prices paid to producers of farm output were either not passed on to the urban consumers or passed on only partially. This led to large deficits in the state budget and along with other factors, caused the foreign trade deficits in the years 1978-80. Although some industrial prices, especially prices of producer goods were lowered, the higher incomes accruing in the hands of peasants and of those workers in industrial enterprises whose wage were raised, the development of free markets in agricultural goods, and the limited autonomy granted to many industrial enterprises to change the prices of goods sold led to a moderate degree of inflation. This is reflected in the divergence between changes in money incomes and real incomes of peasants and non-agricultural workers between 1978 and 1982 (see Table 4.8).

The PRC has been on the whole successful in recent years in bringing down the ratio of accumulation to national income. But her record in this area as well as in changing the proportion of output of heavy industry to that of light industry and of the relative amounts of investment in the two sectors has gone through its ups and downs. The reasons for this are to be found not only in the way investment deci-

15 *China: Recent Economic Trends and Policy Developments*, World Bank Report No-4072-CHA (Washington D.C., International Bank for Reconstruction and Development, 1983), p. 22.

16 A concise account of the development of various types of cash crops, animal husbandry, fishery and side-line activities and recent economic policies relating to them is available in *China Handbook Series: Economy* (Beijing, Foreign Languages Press, 1984), chapter 4.

17 *China: Recent Economic Trends...* (World Bank Report No. 4072-CHA), Table 11.2.

18 For accounts of the 'responsibility system', see A.R. Khan and E. Lee: *Agrarian Policies and Institutions in China* (Bangkok, International Labour Organisation, Asian Employment Programme (ARTEP), 1983); and H. Yamamoto: 'On Three Forms of Agricultural Responsibility Systems in China', in Leung and Chin (eds.): *China in Readjustment*, pp. 129-157.

sions were traditionally made but also, paradoxically enough, in some of the reforms introduced in the mode of management of the economy and of the individual enterprises.

4.3 Reforms in Planning and Enterprise Management

In order to understand the current issues in system reforms, including industrial restructuring, reform in planning and enterprise management, it is necessary to grasp that China has a highly centralized planning system characterized by a large degree of administrative and political decentralization, and a systematic trend towards regional self-reliance, and vertical integration of enterprises at the same level of administrative or political control. Current trends towards reform can be understood in terms of attempts to strike a balance between vertical command and horizontal co-ordination, between inter-regional balance and regional specialization, between delinking of economic and other aspects of civil administration and increased subjection of economic decisions to parametric guidance by fiscal and monetary instruments, between a greater degree of flexibility of management and continued answerability of enterprises to political authorities, and between achieving market expansion, technical development and energy efficiency through resort to foreign trade and investment by foreigners and continued assurance about easy management of external deficits and surpluses. This list could be expanded, but it captures most of the major issues that have been debated and around which experiments and new decisions are ringed in the PRC today.

In the 1950s, a Soviet-style planning system was instituted in China. In the basic structure of this system, commands were handed from the central or other political authorities down to the enterprises, and an elaborate system of physical allocation of basic capital goods, critical raw materials, and essential consumption goods such as grain and cotton textiles was operated.¹⁹ Manpower was also allocated directly to state and collective enterprises, especially in the urban areas.

The Soviet model of planning and centralized allocation underwent several modifications in Chinese practice. These modifications started even before the First Five Year Plan (1952-57) was over, but gained momentum in later years. However, the modifications were not always in the same direction. There was a considerable degree of political decentralization, especially since the birth of the commune system. While key enterprises especially in the capital goods and industrial raw materials sector were directly under the control of central ministries, some large enterprises were put under the dual control of central and provincial administrations, and some were put entirely under the administrative control of provincial ministries. Similarly, while some enterprises were under the dual control of provincial and county level administrations, there were enterprises with the county level administrations as the sole arbiter.

19 For a lucid account of the system as it operated upto the middle of the 1970s, see Eckstein: *China's Economic Revolution*, Chapters 3 and 4.

20 See, in this connection, Nicholas H. Ludlow: 'Who's the Boss? After Ten Years They Still Don't Know', *The China Business Review*, January-February 1983. This is based on a case study of the Beijing Picture Tube Factory, as reported in *Jingji Guanli* (Economic Management), August 1980.

Finally, when the commune system was set up, small rural or urban enterprises were generally put under the control of commune-level administrations.

In the recent moves towards administrative reform, the commune level civil and economic administrations have been sought to be separated. On the other hand, in many cases enterprises formerly under the control of central ministries have now been put under the control of provincial administration. While these moves bring the enterprises closer to the people they cater for, in some cases the autonomy of the enterprise managers is curbed because of closer supervision by the political authorities. It has been claimed that recent reforms under which enterprises were allowed to retain a larger share of profits from the central authorities led to situations where the local authorities bargained for higher prices and profits for the enterprises and appropriated the major part of the increased profits for their own allocation rather than for modernization or expansion of the enterprises.*¹

The command system of planning was modified, even before the present flurry of reform movements, by several other practices.*² To begin with, except for the period of the Great Leap Forward, perhaps, the Chinese planners did not draw up 'taut plans', and there was some flexibility in the internal management of firms and in inter-enterprise co-ordination.

The physical allocation system was itself implemented through a series of inter-enterprise contracts. In the course of drawing up some of these contracts, negotiations took place between the contracting enterprises (a producing and a trading company, or one producing company and another) under the supervision of the political authorities. During these negotiations, the enterprises themselves might take a hand in setting prices and other aspects of the contract. Furthermore, these routinized allocations were supplemented by supply and sales order conferences.^f "The ministries involved in the production of important producer goods sponsor [ed] such conferences at least once or twice a year." At these conferences, producing enterprises and their ministries representing the consumers and suppliers of important material inputs were present. These conferences served essentially as market-clearing agencies.

Two other institutions served the same end, in a supplementary capacity. One was a set of commodity exhibitions, at which goods not already contracted for were on display. Prospective purchasers (usually other enterprises) could buy these commodities, paying the sellers in cash or commodities, or arranging credit lines with them. The other was a series of commodity banks, where enterprises could deposit their surplus stocks or withdraw their deposits when needed.

At the rural and small town level, the rigours of the command system were also mitigated by the vigorous pursuit of a policy of 'walking on two legs'. The emphasis on regional self-reliance which was retained as a policy objective upto 1978²⁴ at least also had the effect of reducing interregional transport and communication or tran-

21 Barry Naughton: 'The Profit System', *The China Business Review*, November-December 1983, p. 15.

22 See in this connection, Eckstein: *China's Economic Revolution*, chapters 3 and 4; and S. Ishikawa: 'China's Economic System Reforms: Problems and Prospects', *World Development*, 11(8), August 1983.

23 Eckstein: *China's Economic Revolution* p. 105.

24 Watson: 'The Management of the Industrial Economy' and Pairault: 'Industrial Strategy (January 1975-June 1979)', in Gray and White (eds.): *China's New Development Strategy*.

saction costs. But, of course, the goal of self-reliance coupled with the uncertainty of obtaining adequate supplies of the needed inputs in time also led in many cases to the retention of inefficient enterprises and the building-in of a high degree of vertical or horizontal integration in even small plants."

Similarly, many rural enterprises started during the Great Leap Forward period had to be abandoned because of the wasteful use of inputs and the poor quality of products. But a significant proportion of investment in agriculture and industry continued to be undertaken under the auspices of communes. For example, in 1983, there were 2249 small current plants run by people's communes and their subdivisions, and in 1982 they turned out 12 million tons of cement, accounting for 13 per cent of the national total.»

While the new policies pursued since 1978 onwards certainly make for a significant change in emphasis, few of them are without some precedent in the experimentation which has characterized the planning system in China at least since 1956.

The changes in enterprise management systems are part of the general programme of 'Readjustment, Reform, Consolidation and Improvement'." As noted already, there have been rapid changes in policies regarding enterprise management since 1978. Those changes have been classified broadly into three phases.[^] The first phase of experimentation allowed enterprises to retain designated percentages of profits above certain, base levels. In the second phase, enterprises contracted with the ^tate for the delivery of an agreed sum of profits, retaining again agreed proportions of profits above the contract levels. In the third phase, the profit retention or profit-contract systems were sought to be replaced by a system of taxation of profits. These three phases have often overlapped with one another and have spread unevenly across the country. But it is a measure of the rapidity with which reforms spread in China once the party leadership approves of them that by the early part of August 1983, 60,527 industrial and commercial enterprises, more than 90% of all state-run enterprises affected, had made tax payments to the stated

Under the system prevailing upto 1977-78, state-owned enterprises surrendered all their profits and practically all their revenues to the state, and received allocations

- 25 The Chinese themselves call this the mentality of 'big and comprehensive' and 'small and comprehensive'. The consequences of this mentality have been summed up as follows. 'Since China is backward in the division of labour, and enterprises are obliged to manufacture most products from start to finish by themselves, there is a good deal of equipment which is used only sporadically. This problem cannot be solved by individual enterprises acting alone, but only through the establishment of a division of labour and the avoidance of double investment on an inter-enterprise, and even an inter-ministry basis'. Sanroku Kagawa: 'China's Enterprise Management and Japan-China Technological Cooperation', *China Newsletter*, (JETRO), No. 44, May-June 1983.
- 26 Foreign Broadcast Information Service (FBIS): *Daily Report China*, 16 December 1983 (FBIS-CHI-83-243), K17. On the recent policies of the Chinese government towards rural industry and the significance of the latter in the Chinese economy, see Edward K.Y. Ohen: 'Rural Industrialisation: A Key Factor in China's Four Modernisations', in Chen and Chin (eds.): *Development and Changes in China*, and Jack Gray: 'Rural Enterprise in China 1977-79' in Gray and White (eds.): *China's New Development Strategy*.
- 27 Martin Lockett and Craig R. Littler: 'Trends in Chinese Enterprise Management, 1978-82', *World Development*, 11(8), August 1983.
- 28 *Ibid.*, and Barry Naughton: 'The Profit System', *The China Business Review*, November-December 1983.
- 29 Far Eastern Economic Review: *Asia 1984 Yearbook*, p. 152.

for their working capital and capital construction needs. The central or provincial authorities not only determined the long-term investment programmes, but also, in effect, the annual production programmes of these enterprises. It was alleged in the Chinese press that very often the enterprises were not left even with funds for meeting their normal depreciation needs, and the money taken away was used for basic construction in heavy industry.³⁰

The first phase of experimentation with the new systems of enterprise management started in Sichuan (which also seems to have been the cradle of the agricultural responsibility system) in October 1978 with six of the state enterprises in the province.³¹ Around the same time, a similar experiment also started in Pingyuan County, Guangdong, and by November 1978 involved all the 17 local state enterprises in the county. But the Sichuan experiment, whose guiding spirit was the provincial party leader Zhao Ziyang, and who was soon to be promoted to the premiership of China, is much better known.

At the initial stage of the experiment, 'According to the regulations governing the experiment in Sichuan, whenever an enterprise has fulfilled the eight technical and economic targets set by the state, every worker and staff member of the enterprise is entitled to claim a bonus of 2.5 yuan... Moreover the enterprise is allowed to retain 15 to 25 per cent of the profits exceeding the planned target'.³² There were a number of variations on the profit-sharing schemes.

The main ones have been:

- (i) *progressive profit retention*, in which a basic sum is more or less guaranteed in line with past policies if the enterprise meets its main targets, but a larger proportion of the increase in profits from one year to the next is retained by the enterprise; (ii) *simple profit retention*, in which the enterprise retains a fixed percentage of all profit made; and (iii) *a tax system*, in which enterprises formally assume responsibility for their own profit and loss. Instead of retaining a proportion of profit they change to a system of retaining all their profit but paying various taxes to the state, in particular "income tax" on their value added, a "revenue equalization tax" to adjust for the differing profitability of the sector in which they operate, and a "fixed assets tax" which is a percentage of the book value of their fixed assets.³³

As we shall see, in the latest phase of economic reforms, there is an attempt to move over to a comprehensive tax system for all enterprises including the state enterprises. This is an example of the impracticality of a neat separation of the three phases. Another area where the same problem crops up is the so-called internal responsibility or internal accounting system. While in the latest phase there is a great deal of

30 Song Jiwen: 'On the Question of Adjusting the Proportional Relationship between the Means of Production and the Means of Livelihood', translated from *Jingji Guanli* (Economic Management), No. 12, 1979 in *Chinese Economic Studies*, XV(1), Fall 1981, pp. 62-71, at p. 70.

31 Lockett and Littler: 'Trends in Chinese Enterprise Management', p. 684.

32 Ren' Tao: 'Why did the Four Hundred Pilot Experiment Enterprises in Sichuan Achieve Swift Results?' translated from *Jingji Guanli* (Economic Management), No. 12, 1979, in *Chinese Economic Studies*, XV(1), Fall 1981, p. 73.

33 Lockett and Littler: 'Trends in Chinese Enterprise Management', pp. 684-685.

emphasis on managerial and worker responsibility and of division of functions at different levels of the managerial or supervisory hierarchy, correct evaluation of the profitability of an enterprise even in the first phase of reform required proper auditing of its operations.

It has been claimed for the experimental enterprises of Sichuan, for example, that³⁴

Two to three-tier auditing in the main office, the plants and the workshops has been practised, thus strengthening quantitative controls, quota setting, original data, and other basic work. Each entity has been held responsible for its own profits and losses. In the past, it was the plants that were responsible for fulfilling the eight technical and assumed few, if any, economic responsibilities. Thus the masses were not concerned about reducing consumption of objectified labour or living labour. Since the institution of the internal auditing system, the plants and all production units have shared the responsibilities of fulfilling the technical and economic targets in the same way the state would audit the enterprise. Focusing on profit, the plant inspects the workshops' overall performance in fulfilling their targets. By the same token, the workshops inspect various sections and individuals. Furthermore, the divisions and offices in turn set targets for professional inspection, thus creating a situation in which every target is taken care of by someone and the economic responsibilities are clearly defined as are the bonuses and penalties—those who meet or surpass the standards are awarded bonuses, those who fail to meet the inspection standards receive no bonuses, where damages or losses are incurred, investigations are carried out to fix the economic responsibility and bonuses are held back. At this point there is a ledger in everybody's mind, from the director of the factory to the head of the workshop and every staff member and worker.

This is really a description of the method of operation of a multi-plant enterprise in a capitalist economy, except that the inequalities in wages are kept within limits and penalties rarely take the extreme form of dismissal of a worker. Some enterprises also created special incentive schemes for over-fulfilment of targets.

For every 10,000 yuan profit earned by a workshop over and above the planned targets, its workers and staff will receive a bonus averaging 0.2 yuan, while workers and staff in the auxiliary units will receive 0.18 to 0.5 yuan provided that the contracts, in general, are carried out."

Along with the shift towards profit-sharing, there has also been an attempt to bring the producers and sellers together, by giving the enterprises freedom to sell part of their output to users or consumers directly. Enterprises were allowed to alter their

34 Ren Tao: 'Why did the Four Hundred Pilot Experiment Enterprises in Sichuan Achieve Swift Results?', p. 74.

35 *Ibid.*, p. 76.

product composition in response to consumer demand and their own calculations of the gradient along which profits would increase.³⁶

The number of enterprises involved in these experiments grew to over 400 in Sichuan by 1980. Nation-wide, Beijing apparently tried to limit the number of enterprises adopting profit-sharing systems to 1400, but by the end of 1980, this number had grown to 6600.³⁷ This figure represents only 10 per cent of the number of state-owned enterprises in the country but they accounted for about 60 per cent of the value of output and 70 per cent of the profits of enterprises owned by the state. 'In short, they tended to be the larger, more profitable and better-managed enterprises'.³⁸

The very success of the experiment created problems for the state. Profit deliveries to the state budget declined, enterprises often set prices in the free market which were much higher than before, and they often chose to change the product-mix rather than improve internal efficiency. There was also a big spurt in investment spending by local authorities and enterprises which had tasted the new autonomy. The state reacted to the budgetary and foreign trade deficits and to the emerging inflationary situation by cutting its own investment, by freezing bank deposits of enterprises and by suspending the new programme of bank loans to enterprises for fixed investment.³⁹

However, this deflationary policy tapered off after March 1981. Almost simultaneously, the second phase of economic reforms, concentrating on 'profit contracts' between enterprises and their over-seeing administrative or political bodies was initiated.

Under this system an enterprise and its supervisory body would negotiate a profit "base figure", which the enterprise had to deliver to the state. Enterprises typically were allowed to retain a high proportion, ranging from 50 to 100 per cent of profits above the base figure....By August 1981, 65 per cent of all state enterprises had adopted the profit contract system or some other profit retention programme, and by early 1982 this figure had risen to more than 80 per cent.⁴⁰

This system led to considerable friction between enterprises, their supervisory bodies, and the higher political authorities. Local governments often backed enterprises under their control to negotiate as low a base figure as possible, because the former could then get a larger share of the total profits. Moreover, with the same end in view, they also tended to meddle more in the working of the enterprises.

The profit-sharing and the contract systems were also combined with a trend towards linking up enterprises in a web of mutual responsibility.

This meant creating industrial corporations with some powers over previously separate enterprises, aiming to cut down on duplicated production. So in 1980 over 5% of state enterprises underwent mergers or integration with others, and in 1981 even more were affected.... A na-

36 See, for example, the description of the shift by the No. 1 cotton textiles and printing-dyeing plant of Sichuan from plain cotton cloth with 21-count yarn to that with 32-count yarn and to fabrics blended with terylene fibres in *ibid.*, p. 78.

37 Naughton: 'The Profit System', p. 14.

38 Lockett and Littler: 'Trends in Chinese Enterprise Management', p. 684.

39 Naughton: 'The Profit System', p. 15.

40 *Ibid.*

tionally publicized example was the Chongqing Watch and Clock Factory which became the centre of a corporation involving 14 more factories employing a work-force of 11,000 and divided into specialized subgroups.⁴¹

The contract system, however, did not reverse the downward trend in profit remittances to the state budget; they fell by almost a quarter between 1978 and 1980 and in 1981 they fell to 60 per cent of their 1978 level,⁴² that is, they fell by another 20 per cent in 1980.

At the same time, the concentration on enterprise profit retention led to the same problems as were associated with experimental enterprises, but on a wider scale. Given the price system, some enterprises (as could be expected) went "against the objectives of socialist production" by switching to more profitable product lines, reducing quality, raising prices and so on....Tax evasion was another problem, accentuated by inefficiency in tax collection agencies, with a nation-wide investigation turning up 1.3 billion yuan of tax evasions.⁴³

However, this experience did not lead to an abandonment of the experiment to endow state enterprises with more autonomy and more responsibility. Instead, as mentioned earlier, the profit-sharing arrangement was replaced by a system of taxes on the enterprises. This third phase of reform was in consonance with the wider reform of the financial and fiscal system that was attempted from 1980 onwards.⁴⁴ Instead of having to hand over designated shares of profit, the enterprises were subjected to a series of taxes. These included charges on fixed and circulating capital, the existing sales tax, or 'industrial and commercial tax', an income tax, usually equal to 40-60 per cent of profits, and an adjustment tax to compensate poor enterprises for the unfair advantages in the form of higher (state-fixed) prices, superior locations, better raw materials, etc. enjoyed by richly endowed enterprises.⁴⁵ The rates of interest or fees charged for fixed capital ranged from 2.4 per cent in Sichuan, to 9.6 per cent per annum in Shanghai" and for circulating capital they varied from 2.5 per cent to 7.2 per cent per year.

With a capital-use fee of 5 per cent, income tax of 55 per cent, an average profit for state enterprises of 15 per cent (as a percentage of fixed and working capital), and assuming no adjustment tax is levied, then only about 30 per cent of total profits remains for division between enterprises and localities. Since enterprises are already retaining about 30 per cent of total

41 Lockett and Littler: 'Trends in Chinese Enterprise Management', p. 689.

42 *Ibid.*, pp. 688, 689.

43 *Ibid.*, p. 690.

44 For accounts of the recent fiscal and financial reforms in China, see Akira Fujimoto: 'China's Financial and Fiscal Reforms, *China Newsletter* No. 44, May-June 1983; and Audrey Donnithorne: 'Fiscal Relations'. *The China Business Review*, November-December 1983.

45 Naughton: 'The Profit System', p. 15.

46 *Ibid.*, p. 16; and Peter T. Knight: *Economic Reform in Socialist Countries: The Experiences of China, Hungary, Romania and Yugoslavia*, World Bank Staff Working Paper, No. 579 (Washington, D.C., 1983).

profits, this will substantially reduce the scope for bargaining over profit deliveries between enterprises and their supervisory bodies/⁷

However, while tax-for-profit schemes coupled with a system of financing part of the investment out of bank loans and some freedom on the part of enterprises to set prices outside the central allocation system are supposed to provide incentives for enterprises to grow more efficient by becoming more profit-conscious (though the two are not synonymous if the prices are obviously wrong), the government has not depended only on such reforms for enforcing efficient management. The reforms have been accompanied by renewed emphasis on intra-enterprise responsibility."* Teams of officials and cadres from provincial organizations have been sent into industrial enterprises to audit their performance. These accounting and auditing exercises have thrown up deficiencies in management training, which are sought to be overcome through specialized management courses. China sought and received Japanese help in management training from the fiscal year 1980. Such help included the despatch of Japanese specialists to China for lecturing on management and flow of Chinese trainees in the reverse direction to attend year-long courses in Japan.▶» Reforms have included also a movement for democratic management of enterprises, but this has so far been guided by the Communist Party, and has spread only unevenly across the country.

Along with the experimentation with state enterprises, more freedom of management has been given to collective enterprises and encouragement has been provided for the setting up of 'subsidiary' enterprises or enterprises run by individuals or groups of individuals. The latter move is meant both to curb the growth of unemployment, especially in urban areas, and to meet the shortages in the services sector. Although state-owned firms still employ the majority of the workers in urban areas, the employment in collective-owned units in cities and towns and of individual labourers working on their own or in groups has grown faster in recent years than employment in the state-owned units as Table 4.9 shows. The much faster growth of number of individual labourers, and perhaps also of collective owned units is as noted already, also due to the need felt for raising the proportion of workers in the service sector. (This is very much in contrast with the developments in most other less developed countries, where there is supposed to be considerable unemployment and underemployment in the tertiary sector). The census of population[^] carried out in 1983 on the basis of a 10 per cent sample of the 1982 census revealed that only 2.98 per cent of the work force were engaged in commerce, catering and service trades. This figure was, according to the office releasing the figures, well below the 10 per cent average figure abroad, showing the need to develop these trades and provide more jobs and services for China's people.

47 Naughton: 'The Profit System', p. 16.

48 *Ibid.*, and Lockett and Littler: 'Trends in Chinese Enterprise Management'.

49 Kagawa: 'China's Enterprise Management and Japan-China Technical Cooperation'.

50 *Daily Report, China*, 16 December 1983 (BIS-CHI-83-243), K16. This is based on reports in Beijing Xinhua in English on 14 and 15 December 1983. On the underdevelopment of the service sector in China, see also S.D. Chang: 'Urbanization and Economic Readjustment in China' in Leung and Chin (eds.): *China in Readjustment*.

Table 4.9

China: Number of Staff and Workers in State-owned and Collective-owned Units, and of Individual Labourers 1976-82

	Number of staff and workers in		Number of individual labourers in cities and towns
	State-owned units	Collective-owned units in cities and towns	
1976	68,600	18,130	190
1977	71,960	19,160	150
1978	74,510	20,480	150
1979	76,930	22,740	320
1980	80,190	34,250	810
1981	83,720	25,680	1,130
1982	86,300	26,510	1,470

Source: *Statistical Yearbook of China*_x 1983.

There have also been some moves to bring the actual degree of autonomy of collective-owned enterprises and the earnings and working conditions of workers employed in collective-owned enterprises more on par with those of state-owned enterprises. However, as yet the stress seems to be on expanding the sphere of autonomy and the scope for employment rather than on equalizing wages across enterprises. Readjustment may well be facilitated by keeping wage differentials and allowing the latter to be changed in response to changing demands of the markets and quasi-markets than by trying to enforce a policy of standardizing wages and earnings as between different types of enterprises.

4.4 Foreign Trade, Import of Technology and Industrial Restructuring in China

The People's Republic of China generally practised a policy aimed at attaining self-reliance in most of the commodities needed in the country. In the 1950s there was considerable import of capital goods including complete plants, especially from the Soviet bloc. But after the cooling of relations with the Soviet Union, China embarked on a policy of producing practically all the plant and machinery needed for her development. Because of this policy and because of the large size of the country with a diversity of resource endowments, China came to possess a relatively small foreign trade sector. The ratio of foreign trade to national income was lower in China than in India or South Korea."

Even more remarkable than the relatively small size of her external sector was China's ability to finance her growth almost entirely from her own resources. Apart

51 For some comparative figures of the importance of foreign trade in China and other countries, see *China: Socialist Economic Development, The Main Report* (Rep*ort No. 3391- CHA, World Bank, 1981), Table 4.16.

from Soviet loans in the 1950s which were repaid by 1964 or so, she sought for or received few foreign loans (barring suppliers' credits in some periods of heavy imports of plant and equipment). In fact, she extended sizeable amounts of aid to some other less developed countries. (Some of these aid programmes were directly linked to bilateral trade arrangements under which China received some goods, including industrial raw materials, in short supply in the country and sold her own products to the trading partner in return). Some of the isolation of China was forced on her by the US embargo on trade with China which lasted until the early 1970s. However, China successfully used the enclaves of Hong Kong and Macau to lessen the rigours of the embargo. A major role seems to have been in fact played by Hong Kong in generating an import surplus with China which the latter used to balance her deficit with the rest of the world.⁵² As we shall see, this strategic role of Hong Kong has increased considerably in recent times because of reforms in the area of foreign trade and innovations in respect of co-operation with foreign firms for import of technology and capital.

The first moves in the reform of foreign trade consisted in the decentralization of control over trade. Upto 1976, practically all the trade was conducted by trading corporations under the direct control of the Ministry of Foreign Economic Relations and Trade. In the recent policy changes, organizations under the control of other ministries of the Central government, provincial governments, trading organizations, industrial enterprises and industries and trading organizations have been allowed to establish direct contact with buying organizations or other trading partners from foreign countries.« However, from reports and complaints in the Chinese press it would seem that the freedom of enterprises to strike direct deals is still greatly restricted, and specific permission has to be obtained for negotiating directly with foreign organizations.

Secondly, in parallel with the profit retention scheme, a scheme for retention of part of the foreign exchange by provinces, trading organizations or more rarely, lower-level governments and large enterprises exporting products was also introduced. In theory, this foreign exchange could be used for importing essential inputs, and plant and equipment. In practice, however, the Bank of China probably imposes restrictions on the use of this foreign exchange, especially in periods of looming trade deficits, since the total value of unused foreign exchange quotas retained this way grew from \$1.5 billion at the end of 1979 to just under \$4 billion at the end of 1981.⁵³

Thirdly, in January 1981 the government introduced an 'internal settlement rate' of 2.8 Yuan per U.S. dollar when the official rate was 1.6 yuan. This offered a premium of 75 per cent on exports compared with domestic sales to enterprises ex-

52 Y.C. Jao: 'Hong Kong's Role in Financing China's Modernization', and John C. Hsu: 'Hong Kong in China's Foreign Trade: A Changing Role', in A.J. Youngson (ed.): *China and Hong Kong: The Economic Nexus* (Hong Kong, Oxford University Press, 1983).

53 A new journal called *Cuoji Muye* (International Trade) was launched in 1982. A number of articles in the first number of this journal focussed on the utility of making foreign trade procedures as flexible as possible and of putting the Chinese producers and foreign buyers or trading partners in direct touch with one another. These articles have been translated in *Chinese Economic Studies*, Spring 1983.

54 *China: Recent Economic Trends and Policy Developments*, Washington D.C., World Bank, Report No. 4072-CHA, 31 March 1983, p. 41.

porting their goods abroad. This was supposed to provide an incentive for increasing exports of goods. However, it has been claimed that enterprises themselves do not always benefit from such premia and that their initiatives are often thwarted by bureaucratic intransigence.

In a 1983 report on foreign trade conducted by industrial enterprises in Shanghai,⁵⁵ six channels of export for Shanghai's industrial products were distinguished: (1) The major part of the exportable products of the enterprises are procured by the foreign trade departments and sold by them abroad. (2) With the approval of higher level authorities, a few enterprises, viz., the Shanghai Machine Tool Plant, the Yuajin Electrical Machinery Plant, and the Standard Parts Company, handle their own exports. (3) A group of enterprises handle both industry and trade and are responsible for their gains and losses. These include the mechanical equipment import-export branch company under the No. 1 Electro-Machinery Bureau, and the import-export company under the Textile Bureau. (4) There are joint industrial and trade enterprises, such as the Juishan Allied Trading Co. that is jointly run by the Shanghai Petro-chemical General Plant, the Municipal Foreign Trade General Co., the China Technological Import Co. and the China Chemical Industrial Import-Export General Co. (5) There are specialized export factories that are directly under the foreign trade departments. (6) There are joint China-foreign enterprises, such as the Xunda Elevator Plant, that has authority over direct export.⁵⁶

The writers of the report claimed that competition between enterprises in Shanghai and in other municipalities and provinces was becoming daily more acute, and the only solution to the (market) problem was to expand sales abroad. The policy to allow enterprises to export directly abroad was implemented from 1980. However, while fulfilling export orders often required greater effort because of the need to keep datelines, improve quality, greater expenses for installing balancing equipment in some cases and price reductions (since domestic prices were higher than international prices in many cases), enterprises and workers were not compensated adequately in spite of general guidelines to encourage exports. The report also provided instances of bureaucratic obstruction. For example, in 1982 the Xinhua Gold Pin Factory received an order from foreign firms and

very rapidly trial-manufactured the sample. It then asked the foreign trade department to do business with the customers. But the foreign trade department felt that doing so was "in violation of the procedures for export." This was because, in accordance with the existing system of organization, the enterprise itself could not conduct business with foreign businessmen.⁵⁷

However, although the reforms have been sometimes halting and clogged by inertia, more and more organizations, enterprises and provinces are taking advantage of them. The foreign trade reforms are also intimately linked to the policy of induc-

55 'Survey made on Foreign Trade of Shanghai Industrial Enterprises', translated from Shanghai *Caijing Yanjiu* [The Study of Finance and Economics] 25 August 1983, in JPRS: *China Report, Economic Affairs* No. 406, 16 December 1983.

56 *Ibid.*, p. 79.

57 *Ibid.*, p. 80.

ing foreign technology and finance with an eye to the speeding up of the process of modernization. The PRC has been very innovative in respect of the ways in which foreign technology or managerial enterprise are sought to be imported to modernize production methods, build up infrastructure and manufacturing industry in newer varieties of products and boost exports. The creation of special economic zones (SEZs) has been the most celebrated of the innovations effected.^{ss}

The forms which co-operation between foreign and Chinese firms take can be classified into agreements regarding processing, assembly, compensation trade or countertrade, co-production, and joint ventures under contractual arrangements but without equity participation and joint ventures with equity participation. Co-operation between foreign and Chinese firms was initiated in 1978 and the decision to create SEZs in the provinces of Guangdong and Fujian was taken in 1979. The most active SEZ so far has been Shenzhen which is across the border from Hong Kong.

Under the 'lower' forms of co-operation between foreign and Chinese enterprises, such as processing, assembly and compensation trade usually the foreign firm supplies the raw materials, technology and some of the plant and equipment, whereas the Chinese enterprise provides the site, the buildings, fuel, water and the workers, and receives payment in the form of goods processed, or assembled, the major part of which is destined for export. In countertrade arrangements the foreign firm may receive payment not in the form of goods or the raw materials they help process but in the form of other goods which some other Chinese enterprise may accept and the foreign firm may export. Similar arrangements are made in the case of co-production except that both the Chinese and the foreign enterprise are responsible for producing some of the output.

In the case of joint ventures, the involvement of the foreign firm generally lasts for a longer term. In contractual joint ventures, the payments to be made to and by the foreign firm at different stages of execution of the project and the forms in which they are to be made are specified in the contract. In the case of joint ventures with equity participation, the share of either party is specified not to be less than 25 per cent, and the Chinese have generally insisted on retaining a 50% share for themselves. The profits then are to be shared according to the shares in equity capital. The representation on the board of directors is according to contract, but again the Chinese have generally wanted a majority on the board, with a Chinese being designated as chairman or president of the company. The Chinese government has in principle agreed to the setting up of enterprises with a 100 per cent foreign equity holding, but in practice there seem as yet to be very few pure foreign enterprises on Chinese soil.

The wages paid to workers in joint ventures are generally higher than in the locality, although much lower than those prevailing in Hong Kong. Apart from the actual wages paid to the workers, the Chinese authorities insist on payment by foreign enter-

58 For accounts of the innovations in the field of trade and investment related technology import see Carolyn L. Brehm: 'Flex Trade', *The China Business Review*, September-October 1983; and Joseph Chai: 'Industrial Co-operation between China and Hong Kong', in Youngson (ed.): *China and Hong Kong*. For accounts of China's tentative laws and regulations relating to Special Economic Zones and foreign investment, see Peter P.F. Chan: *China: Modernization and Its Economic Laws* (Hong Kong, The Hong Kong Economist Newspaper Ltd., 1982).

prises of a sum which is equivalent to the health, pension and other welfare benefits a worker is entitled to in a Chinese state-owned enterprises' In theory, again, joint venture employers are supposed to be able to choose the workers they would hire and dismiss them when they are unsuitable or when they are not needed. In practice, although workers can be put on probation for a period and sent back to their original employers if they prove unsuitable, they can rarely be dismissed. Upto the middle of 1983, only one joint venture, Fujian-Hitachi, was known to have laid off more than 100 workers because of flagging demand, with a compensation of 30 yuan per month (the national average wage was about 65 yuan per month) and the promise to take them back when business improves.")

So far most of the economic co-operation agreements with foreign firms have involved either simple processing or assembly, or deals involving real estate development, tourism or primary production." Upto November 1981, for example, in the case of Shenzhen, manufacturing industries accounted for about two-thirds of the number of co-operation projects, but only 16 per cent of the capital, whereas real estate development accounted for about 40 per cent and tourism for 28 per cent of the capital involved in economic co-operation with foreign enterprises. Generally speaking, it would be right to say that Chinese compatriots outside China, especially from Hong Kong, have been the major investors in real estate development, the processing of raw materials, assembly of consumer durables and production of consumer goods in general. China's industrial cooperation agreements were dominated, upto 1981, 'by the textile, garments and other light industries and, to a lesser extent, by electronics. Chemicals, machinery and transport equipment played only an insignificant role....Of China's 29 equity joint ventures in the manufacturing and non-manufacturing sectors approved as of the end of August 1981, 53 per cent involved Hong Kong firms, and most of the contractual joint ventures involved Hong Kong and Macau capital'.«

However, Chinese joint ventures from countries such as Japan and the U.S.A. have generally involved more investment per agreement than the co-operation agreements with Hong Kong. Moreover, after a pause in 1982, when the government reviewed the experience with foreign investment since 1979, the Chinese decided to shift their emphasis from foreign loans to foreign investment in joint ventures." This decision was combined with a greater degree of codification of laws and procedures relating to joint ventures and co-operation agreements with foreign countries and the tempo of foreign investment again picked up. In Table 4.10 is given an estimate of foreign capital imported by China upto 1982. The direct investment actually committed is found to be only about a sixth of the foreign loans contracted for big steel construction projects, port and railway development projects, and so on. Of the 83 cases of joint ventures, 48 were approved by the central government, and the rest by the SEZ

59 Jeanne Chiang: 'What Works and What doesn't?', *The China Business Review*, September-October 1983.

60 *Ibid.*, p. 27.

61 Kwan-yin Wong: 'The Environment of Shenzhen Special Economic Zone and Its Potentials', in Leung and Chin: *China in Readjustment*, p. 234.

62 Chai: 'Industrial Co-operation between China and Hong Kong', p. 110.

63 Hiroko Kawai: 'Direct Investment in China in 1983', *China Newsletter*, No. 48, January-February 1984, p. 19.

authorities, and provincial and municipal governments. According to an official Chinese release, by the end of September 1983, 112 cases of joint ventures involving US\$ 650 million were approved; the amount of investment per venture rose from US\$3 million in 1982 to US\$ 10 million in 1983."

In the second half of 1983, China further increased the autonomy of selected provinces and cities to approve joint ventures. The cities of Beijing, Tianjin and Chongqing, and the province of Liaoning can approve foreign investment projects of up to \$5 million without authorization by the central government. Shanghai now enjoys a \$ 10 million ceiling. 'Projects in Guangdong and Fujian, including the special economic zones, need only provincial approval regardless of size. The only limits on Guangdong's and Fujian's authority occur when investment projects have an impact on the State Plan or fall in the areas of aviation, railroads, port developments, telecommunications, and offshore oil'.^{*1}

The Chinese have emphasized the importance of foreign technology for modernizing production methods and improving the efficiency of enterprises.* They have set a target of induction of US\$ 20 billion in direct investment by 1985. There have been reports in the Chinese press and elsewhere speaking approvingly of the good results achieved through the import of foreign technology. For example, it has been claimed that Beijing's textile industry made use of US\$ 45 million in foreign capital by the beginning of 1982 to import several hundred items of equipment. With the help of this equipment imbalances in productive facilities were corrected, production methods were modernized, eleven categories of products were added, and the quality of ten categories of products was improved." In Shanghai, in an effort to help enterprises to improve their technology with imports of knowhow and equipment, the local branch of the Bank of China began in 1983 to extend credits carrying very low (2-2.5%) annual interest rates over a period of three to four years.^{*8}

In judging the degree of importance of China's 'open-door policy' in her effort to readjust her economy and improve productivity in industry and agriculture, several factors have to be borne in mind. First, many of the policies pursued by Chinese enterprises in seeking co-operation of foreign firms are simply an extension of similar policies that they had been pursuing internally for a long time.^w The encouragement towards enterprises importing technology is combined with a policy of granting bank loans for effecting innovations.

Secondly, the policy of importing technology goes well with that of promoting the growth of light industry, because most of the industrial co-operation agreements (apart from joint ventures) have covered various types of light industries. Since most of

64 *Ibid.*, p. 20.

65 **Brehm:** 'Flex Trade', p. 21.

66 See, for example, Yu Xiaosong and Lin Zhongshu: 'Utilization of Foreign Capital to Renovate Enterprises Produces Good-Results', *Chinese Economic Studies*, Spring 1983, pp. 40-47, translated from *Guoji Muye*, No. 2, 1982, pp. 6-8.

67 *Ibid.*, pp. 4

68' Teresa Ma: 'Shanghai: Weeding out the Old, Bringing Forth the New, Slowly', *Far Eastern Economic Review*, 6 October 1983.

69 For a description of the variety of ways Chinese enterprises cooperated domestically, sometimes in defiance of the centralized command system, see E. Sabina Brady and James B. Stepanek: 'Eggs for Steel', *China Business Review*, September-October 1983.

these also involve medium and small-scale firms, the spread effect of this policy has been quite substantial especially in the coastal provinces and cities, and advantageously located units in Beijing and the neighbourhood.TM

Thirdly, in entering into the economic co-operation agreements with foreign firms, the Chinese have been able to keep full control over the direction of policy. In the past also there have been several phases in which the PRC has imported foreign technology and equipment on a large scale. But, inspite of that, China has followed the policy of being self-reliant in practically all branches of industry. During the period of the first five year plan (1953-57), in 1963-65 and again in 1971-75, China imported large amounts of equipment from abroad. Such imports were, however, halted as soon as the government considered that they were no longer necessary. In the last phase also, after massive imports of equipment in 1978 and 1979, when the stress on readjustment became pronounced, contracts for big projects were suspended or cancelled altogether, and the rate of growth of imports came down sharply.

It is true that the growth rate of China's external trade was higher in 1977-80 than in any previous subperiod of a comparable length since 1949," and that the proportion of China's foreign trade to her national income has increased during the period since 1977. However, this rise in the ratio has not made the Chinese government's control over the balance of payments less firm. After large current account deficits upto 1980, the programme of retrenchment of imports led to large surpluses in China's balance of payments, since exports grew faster than imports (imports actually fell in 1982). By the end of 1983, China's foreign exchange reserves are estimated to have grown to US\$ 11.3 billion as against a total foreign debt of \$ 4.4 billion.⁷² This places her in a totally different situation from most other less developed countries."

Thus in spite of all the reforms in the system of foreign trade, and in the systems of management and organization of agriculture and industry, two major bastions of a policy package providing assurance for investors and savers have remained intact. As we have argued earlier, the assurance of a minimum level of living to all the working people and their dependents and continued, if modest, growth in that level makes it possible for them to invest in facilities promising increased output and income in the future. On the other side is the assurance on the part of the central authorities that the external balance can always be managed without inducing an ir-

70 The classification of enterprises between large, medium and small is made according to size or value of fixed capital, physical capacity of production or value of production according to industry. According to this classification in 1982, out of 350,000 state-run and urban collective industrial units, some 1,200 were classified as large-scale, 3,000 as medium and the rest as small-scale units. See Liao Jianxiang: 'Size of Industrial Enterprise: Operation and Choice of Technology', in Xu Dixin and others: *China's Search for Economic Growth* (Beijing, New World Press, 1982), p. 132.

71 Hsueh and Woo: 'China's Foreign Trade Since Deng Xiagsing's Rise to Power', in Leung and Chin: *China in Readjustment*, p. 159.

72 Far Eastern Economic Review: *Asia 1984 Yearbook*, p. 8, China's foreign exchange reserve are reputed to have increased to US\$ 14 billion by the beginning of 1984.

73 China's ability to control her imports according to the needs of policy is also demonstrated by the successful enforcement of her decision to cut imports of agricultural commodities from the U.S.A. when trade negotiations between the two countries broke down at the end of 1982. A new agreement between the two countries was arrived at in July 1983. This allows for 2-3 per cent annual growth of Chinese textile exports to the U.S.A. in terms of volume. See Robert Delfs: 'Foreign Trade: The Critical Impact of China's Grain Card', *Far Eastern Economic Review*, 6 October 1983.

reversible or inconvenient dependence on aid or loans from other countries or international banks and financial organizations.

4.4 Reforms, Industrial Restructuring, Productivity and Prices

In discussing the success or otherwise of the attempted reforms of planning and industrial management in China, it is necessary to remember, as two students of Chinese industrial management have reminded us, that the problems faced by China are largely the problems of success rather than of failure.⁷⁴

Going by the latest figures available, the performance in respect of some of the basic goals set out by the leaders since 1978 has been mixed. Two of the key objectives have been raising the proportion of investment going to light as against heavy industry, and improving the efficiency of use of factors in industry. Labour productivity in terms of output per head could serve as one of the key indices of efficiency. There have been attempts to measure total factor productivity in the industrial sector in China. As has been pointed out by Carl Riskin," the measurement of total factor productivity is predicated on the assumption of pure competition and imputation of competition determined shares in increased production to different factors. Bearing these qualifications in mind, it may be noted that most experiments with plausible factor shares reveal* a deterioration of factor productivity over the period 1957-78 and a slight improvement upto 1981. We confine ourselves to labour productivity alone, as it is easily measured. Tables 4.11 and 4.12 set out the figures of overall productivity and of capital construction by branch of industry. It can be seen that while productivity in state enterprises increased rapidly between 1978 and 1980, it actually fell in 1981 and recovered in 1982 again. The series is too short as yet to warrant any strong inferences. But the opinion has been expressed that reforms were at first concentrated on generally the biggest enterprises which are amenable to central control and which can be redirected so as to improve efficiency quickly. As reforms embrace other, more marginal enterprises, improvement in efficiency would require a bigger effort."

What is the record of changes in investment in heavy and light industry? While the proportion of investment going to light industry increased in the period 1976-80, most of the investment is still going to heavy industry, and in 1982, the proportion of investment in light industry fell again. From available reports it would appear that contrary to the goal of Chinese authorities, the rate of growth of output of heavy industry again outstripped that of light industry in 1983. For the eleven months of January-November, outputs of heavy industry and light industry increased by 13 per cent and 8.4 per cent respectively in 1983 compared with those produced in the cor-

74 Lockett and Littler: 'Trends in China's Industrial Management', p. 701.

75 Carl Riskin: *The Political Economy of Development in China 1949-79* (unpublished manuscript), chapter 11.

76 *Ibid.*, Tables 11-12 and 11-13.

77 Lockett and Littler: 'Trends in Chinese Enterprise Management', p. 687. See also William Byrd: 'Enterprise-Level Reforms in Chinese State-Owned Industry', *American Economic Review*, 73(2), May 1983.

Table 4.11

China: Overall Labour Productivity of State-Owned Independent Accounting Industrial Enterprises (at constant 1980 prices)

Year	Labour productivity) (Rmb per person-year)	Index (1952 = 100)
1949	3,016	72.1
1952	4,184	100.0
1957	6,362	152.1
1962	4,817	115.1
1965	8,979	214.6
1978	11,130	266.0
1979	11,838	282.9
1980	12,080	288.7
1981	11,863	283.5
1982	12,133	290.0

Source: *Statistical Yearbook of China, 1983*:

Note: (a) Labour productivity prior to 1980 has been adjusted on the basis of index.

Table 4.12

China: Investment in Capital Construction in Light and Heavy Industries 1953-82
(Rmb 100 million)

Period or year	Light Industry	Heavy Industry	Metallurgical Industry ^a	Textile Industry ^b)
1953-57	37.47	212.79	46.61	15.98
1958-62	76.59	651.71	169.23	19.78
1963-65	16.47	193.71	33.94	7.92
1966-70	42.62	498.89	98.79	13.72
1971-75	103.03	874.94	173.08	31.93
1976-80	156.25	1,075.46	89.69	73.23
1981	43.38	172.63	27.35	19.86
1982	46.45	212.15	43.00	21.16

Source: *Statistical Yearbook of China, 1983*.

Notes: (a) Included in heavy industry.

(b) Included in light industry.

responding period of 1982.« (The overall industrial growth was 10.7 per cent over the same time interval).

There are at least three problems which would stand in the way of achieving quick results in terms of desirable industrial restructuring, and improvement in efficiency of factor use.

The first problem that stands in the way of achieving readjustment and greater economic efficiency is, paradoxically enough, the fact of economic decentralization itself. A larger and larger fraction of the revenues that used to be centralized in the hands of the central government has been devolved down to the state enterprises and to political authorities lower down. This has generally led to the enterprises and provincial and local governments undertaking capital construction projects which had been blocked earlier for lack of funds. The ratio of investment going to heavy industry has then gone up, rather than down. This has also resulted in budget deficits, and since some of the projects already committed involved import of equipment and materials on a large scale, in trade deficits. The central government has then had to put a freeze on capital expenditure financed out of the retained funds, or out of bank loans. Thus many desirable investment projects have had to be truncated, their efficiency has been impaired and bottlenecks have cropped up. But the important point is that in spite of such difficulties the central government has so far stuck to the scheme of economic decentralization and of delinking of political or general-purpose administrative bodies from enterprise management. But this has meant that, as noted already, the central government has achieved the needed budgetary balance or balance in external accounts by cutting down investment projects under its direct control.

This brings us the second obstacle standing in the way of achieving the goals of the reform programme. One major problem plaguing the economy, according to the Chinese leaders, is that currently Chinese industrial production uses too much energy, as compared with such countries as Japan and the U.S.A., and as compared with the available reserves of mineral fuels, especially oil." China has large reserves of coal and coal output amounted to 666 million tons in 1982. However, many of the coal reserves are far from the current centres of industrial production, - and railways and port facilities would have to be developed in order to bring the coal down to the industrial centres to export it in larger values in future (to pay for advanced industrial equipment, essential raw materials and grain). Moreover, the Chinese consider the current ratio of tunnelling to mining in coal production and of prospecting to well-boring in oil production to be too low.

Port and railway development and oil exploration all generally involve large central government projects. In the years 1980 and 1981, when the authorities resorted to large-scale retrenchment in order to achieve external and internal balance in the economy, the programmes for infrastructure development suffered the largest cuts. Thus

79 The discussion is based on Vaclav Smil: 'Energy: Deep Structural Deficiencies', *China Business Review*, January-February 1980; 'China: Socialist Economic Development (Report No.-3391-CHA), Annex E, *The Energy Sector* (Washington D.G., World Bank, 1981); Teruhisa Inada: 'Is the Chinese Economy Capable of Vigorous Development?', *China Newsletter(JETRO)*, No. 42, January-February 1983; Kosaku Matsumoto: 'External Elements of China's Economic Policy and Japan's Financial Assistance to China', *China Newsletter* No. 42, January-February 1983; Economist Intelligence Unit: *Quarterly Economic Review of China, North Korea*, Annual Supplement, 1983; and *The Sixth Five- Year Plan of the People's Republic of China for Economic and Social Development (1981-85)* (Beijing, Foreign Languages Press, 1984).

at least in the short run, the 'small' are likely to crowd out the 'large', and achieving energy efficiency will be more difficult.<> Upto 1978, Chinese leaders stressed steel as the key link in industrial development. The decision to set up the large Baoshan steel complex near Shanghai was a late manifestation of this bias towards steel. As the foreign exchange costs of the project were found to be too large, phase 2 of the complex was dropped, and phase 1 was commissioned on the basis of balanced equipment.⁸² However, the rest of the steel industry in China also will need modernization and conversion of energy-intensive open hearth furnaces to oxygen furnaces or direct reduction processes.⁸² It is believed that the production of steel can be increased to 43 million tons through the remodelling of the capacity of 1982.⁸³

The third set of problems in the way of success of economic reforms centres on the question of price reforms. Prices had been used in the PRC more as devices for achieving a certain distribution of incomes and ensuring financial stability than as indicators of change in the composition of products. It is only since 1978-79 that prices have been used, especially in the agricultural sector, to bring about desirable changes in the mixture of outputs, and in the use of inputs. Even then, as we have already noted, the major effect, as intended by the planners, has been to change the relative incomes of the peasants in the first round. The higher prices paid for non-grain cash crops seem also to have stimulated the production of such crops as cotton and oil-bearing plants. Prices also have been used to correct obvious imbalances. Thus prices of a number of capital goods have been reduced in order to bring down inventories and discourage excessive investment in expanding their capacities. In the area of consumer goods, the prices of a number of consumer durables were first brought down. But later on, the prices of the imported components of some of the items were raised and quantitative restrictions were imposed. Table 4.13 gives some figures of price indices in China in 1982 compared with 1975. These figures indicate the degree of inflation that took place in China during the adjustment process, and the role the raising of farm prices played in it.

For some industrial products, for example, those of indigenous paper and watches, prices have actually been lowered, for most industrial products prices have been kept stable, and for a number of other products such as coal, chemical fertilizers etc. prices have been marginally increased.** Price adjustments to bring supply and demand with better balance and to take account of changes in costs continued to

80 China Handbook Series, *Economy* (Beijing, Foreign Languages Press, 1984), p. 54.

81 That exhortation and financial incentives of the type offered so far may not be enough to achieve economy in the use of energy and materials is illustrated by the fact that in 1981 Shanghai state enterprises could not meet the target cuts in production costs: 324,000 tons less coal, 18,000 tons less coke, 31,500 tons less fuel oil, 22,500 tons less refined oil and 180 million kwh less electricity. Teresa Ma: 'Shanghai: Weeding out the Old, Bringing Forth the New, Slowly', *Far Eastern Economic Review*, 6 October 1983.

82 For the history of the project, see K. Odagawa: 'China's Baoshan Steel Complex Project', *China Newsletter*, No. 48, January-February 1984.

83 Seiichi Nakajima: 'The Prospects for Achievement of China's Long-Term Economic Target', *China Newsletter*, No. 42, January-February 1983, p. 17, and Economist Intelligence Unit, *Quarterly Economic Review of China, North Korea, Annual Supplement*, 1983, pp. 16-17.

84 *Statistical Yearbook of China 1-1983*, pp. 470-477.

Table 4.13

Prices Indices in China in 1982 with 1975 = 100 as the base			
General index of list prices	General index of cost of living of staff and workers	General index of purchasing prices of farm and sideline products	General index of list retail prices of industrial products in rural areas
116.3	118.7	147.5	103.7

Source: *Statistical Yearbook of China, 1983*, p. 456.

be made in 1983. For example, while prices of cotton goods were raised, those of polyester-based goods were lowered."

In looking for a system of prices which could be regarded as 'rational' as judged by some well-defined criteria, Chinese economists and policy-makers have debated the applicability of the so called 'law of value' for determining prices and guiding plan decisions.⁸⁵ In so far as the application of the law of value means looking for a system of prices of production associated with an expanding economy where goods are-produced with the help of other goods, the solution of such a system would require a uniform rate of profit for all the sectors. This would almost certainly interfere with distributional objectives, and would not serve the purpose of shifting resources away from one set of industries to another. For, by definition the system of prices would be dual to a sustainable structure of input-output relations, and one of the major objectives of price reform is to change some of the input-output relations themselves. If a non-uniform rate of profit was somehow built in for tackling this problem, then again the outcome might be no better than could be achieved through ad hoc adjustments, and could lead to a result which the policy-makers do not want.

In practice, the Chinese policy-makers have opted for retaining the basic structure of central control and for encouraging the enterprises to adopt a system of interlocking contracts." The Chinese authorities have used rates of interest to ration the use of capital by enterprises, but have supplemented such price signals by direct controls or changes in the system of allocation of funds, whenever the macroeconomic balance has been threatened. Again, in the area of allocation of national income between investment and consumption, while the stress has been on increasing the latter at the expense of the former, the authorities have sought to encourage savings by individuals by paying higher rates of interest on their deposits with banks and enterprises and by even allowing them to own shares in some enterprises. According to Chinese of-

85 *Asia 1984 Yearbook*, p. 153.

86 For a short summary of the debate upto 1982, see T. Pairault: 'Chinese Market Mechanism: A Controversial Debate', *World Development*, 11(8), August 1983. See also Watson: 'The Management of the Industrial Economy: The Return of the Economists'.

87 For summaries of recent debates among Chinese policy-makers and economists, see Ren Tao and Pang Youngjie: 'A Summary of the Discussion on Planned Economy and Planned Regulation', *Social Sciences in China*, IV(2), June 1983; and Zhao Jingxing: 'Summaries of **Speeches Made at the Symposium of the Current Role of Economies**', *Social Sciences in China*, IV(24), December 1983.

ficial figures,** the aggregate volume of savings deposits by the end of June 1982 reached 60.182 billion yuan, as against 21.06 billion by the end of 1978.

However, along with enterprise reforms, price stability has been a key objective in Chinese policy-making. Although producing units have been encouraged in some cases to seek markets for outputs in excess of those to be delivered directly to the state, and to negotiate their own prices in contracts with other enterprises, the government has stepped in whenever it has considered the price rises to be inflationary. In July 1983, it was reported that state-owned enterprises had raised steel prices by 30 per cent over the official price, cement prices by upto 35 per cent and lumber prices by 200 per cent. Thereupon the central government banned price increases except where they were specifically approved, and tightened the credit policies of the People's Construction Bank.⁸⁷

The massive subsidies provided by the government to consumers, after the rise in farm prices, especially to urban workers, are both means of keeping the nominal prices down and of ensuring that the standards of living of urban workers are not eroded by the price rises.⁹⁰

Thus in general the Chinese government has sought, so far successfully, to retain control over the macroeconomic balances of the economy, both externally" and internally, while allowing individual enterprises and consumers to seek a better balance between their costs and outputs, and between incomes and the products they demand. With the degree of control the central government exercises over the 6,600 odd major enterprises and with the interlocking system of contracts through which enterprises are encouraged to seek their best options of adjustment of inputs and outputs, there is little evidence that prices as the sole guidelines would help in bringing down the transaction costs in any way. Nor is there any evidence that Chinese policy-makers are about to embrace a mainly price-guided system in their search for an optimum structure of industrial and agricultural outputs. Achieving better co-ordination among central ministries in the area of planning and policy-making while reducing the burden of routine decision-making, tightening the management of industrial enterprises through a proper allocation of responsibility and improved training of managerial personnel and through periodic auditing of the enterprises by central or provincial teams continue to be major objectives of reform. While provincial governments are encouraged to emulate such successful administrations as those of Sichuan, Guangdong and Fujian in introducing responsibility systems or inducting foreign technology," these contracts are still continually monitored by the central govern-

88 Zeng Qixian: 'Comments on Consumption and Savings', *Social Sciences in China*, IV(4), December 1983, p. 157.

89 *Asia 1984 Yearbook*, p. 152.

90 See China Handbook Series, *Economy*, pp. 326-330; and N.R. Lardy: 'Subsidies', *China Business Review*, November-December 1983.

91 According to a report available in the beginning of 1984, China had accumulated about US\$ 20 billion in foreign exchange and gold reserves in recent years. This was slightly less than her level of imports for a full year. C.H. Farnsworth: 'China Begins Investing in Western Capitalism', *International Herald Tribune* (Singapore), 11 January 1984.

92 See, for example, the interview given by Zhang Zengyi, Governor of Jianxi, on 20 December 1983, indicating his determination to emulate Fujian in inducting foreign technology. The Jianxi Province will spend more than US\$ 50 million in 1984 and 1985 for importing technology (FBIS-

ment, which is able to intervene whenever the situation seems to cross the boundary of safety.

The policy pursued by the Chinese authorities has allowed them to ensure near-full employment for the growing population. Although there has been talk of breaking 'the iron rice bowl for life', in practice the government has rarely allowed workers to be dismissed or retrenched as a measure of adjustment. Because of the way her occupational structure has evolved, China has a greater leeway than most other less developed countries in providing new employment in her industries. She has plenty of room for expanding the service sector, where a large number of workers can be absorbed, and she means to expand her light industry which tends to be much more labour-intensive on the whole than heavy industry as it is defined in China. From the large increases recorded by the outputs of many consumer durables in recent times (for example, between January-November 1982 and January-November 1983, the outputs of cassette recorders increased by 57.2 per cent, that of household washing machines by 46.6 per cent and household refrigerators by 97.8 per cent),⁹³ it is obvious that there is an enormous pent-up demand for such goods in China. With her known expertise in machine building industries⁹⁴ and her determination to permit a controlled import of technology, there is every likelihood that most of this demand can be satisfied from domestic sources. Thus with a tight control over the macro-economic balance, China's industrial restructuring strategy should not throw up any major problem of labour displacement in the near future.

4.5 Restructuring of Science and Technology

The Chinese authorities have put the modernization of science and technology in the key role of promoting the three other modernizations, viz., those of agriculture, industry and defence. The original structure of science and technology had been built up more or less on the Soviet model, with the Chinese Academy of Sciences as the apex body of research in science and technology.⁹⁵ But as in the case of the general planning model, specifically Chinese adaptation and innovation have made the current structure of science and technology and R & D organizations deviate considerably from the Soviet pattern. Besides the central level research institutes, the Chinese soon set up research institutes under provincial and county or municipal level govern-

CHI-83-247, 22 December 1983). According to an estimate in Beijing *China Daily*, 26 December 1983, Guangdong concluded 30, 112 contracts with foreign firms, worth US\$ 4.53 billion, and imported more than 100,000 pieces of equipment worth \$500 million, in the preceding four years. (FBIS-CHA-83-250, 28 December 1983).

93 *China Daily* (Beijing), 31 December 1983, as reported in FBIS-CHI-84-002, 4 January 1984.

94 For detailed studies of the Chinese capital goods and machine-building industries, respectively, see Zhong Renyu: *Technology Issues in the Capital Goods Sector: The Experience of the People's Republic of China* (UNCTAD.TT.57, 17 February 1984), and Liang Xunxian: 'China's Machine Tool Industry', *The China Business Review*, November-December 1981.

95 For a brief account of the organization of science and technology in China, see R.P. Suttmeier: 'Research, Innovation, and the Chinese Political System', in Joint Economic Committee, Congress of the United States (henceforth USCJEC): *China under the Four Modernizations*, Part 1 (Washington, D.C., US Government Printing Office, 1982), and China Handbook Series: *Education and Science* (Beijing, Foreign Languages Press, 1983), Chapter 2.

ments, and research groups were attached to communes or farm machinery enterprises. 'All together, as of 1982, there were close to 8,000 research units throughout China, with approximately 4,600 above the county level. The rest, many of which are involved in agricultural work, are below the county level. The situation in Shanghai reflects the complexity of the system: Shanghai claims 561 research institutes: of these, 14 are under the Chinese Academy of Sciences, 79 are run by ministries, 49 by municipal bureaus, 55 belong to enterprises, and 22 are under the jurisdiction of county governments'.⁹⁶ However, it is perhaps true to say that because of the earlier Chinese traditions, and because of the still backward condition of many of the technologies in use, the Soviet model for patterning science and technology effort has exercised greater sway in China than the general Soviet planning model.

The overall organization of scientific and technological research and development is supervised by the State Science and Technology Commission. Perhaps the most important single body at the next layer of the hierarchy is the Chinese Academy of Sciences (CAS) which was founded in 1950. Under the CAS, there were 177 institutes for research in special subjects around 1983. Besides the CAS, there are other bodies such as the Academy of Agricultural Sciences and Academies of Medical Sciences, and Geological Research which are much more closely connected with the respective ministries.⁹⁷ A recent innovation is the organization of an Academy of Social Sciences. This was created by reorganizing the Department of Philosophy and Social Sciences which was formerly under the CAS.⁹⁸ The institutes under these Academics are primarily engaged in research and development and are not directly linked to institutes of higher education. Besides these, there is research conducted by the institutes of higher education including colleges and universities. The third group of R & D establishments directly serve enterprises or ministries or departments of production at state and central levels. Finally, a specifically Chinese innovation has been to attach institutes of technological education to important productive enterprises.

We shall first look at the way the Chinese society has set about solving problems of innovation and adaptation at the level of the enterprise, and then move on to the role of specially designated R & D institutes or institutions in solving the R & D problems in industry. It is useful in this respect to distinguish between large, integrated plants with relatively rigid technical specifications, and smaller-sized plants with flexibility in relations of different agents of production and of different production facilities, and between state-owned urban industrial complexes and county or commune-level enterprises catering primarily to the needs of the rural areas. A distinction between producer and consumer goods industries is also helpful for understanding Chinese achievements in absorbing and adapting technologies and effecting useful innovations, and the problems involved in further upgrading the technologies.

Basically, with respect to large integrated plants, the Chinese strategy has been to absorb the technology of operation and adapt them to Chinese needs, and where possible, to replicate either whole plants or parts of them. With respect to smaller plants, the Chinese have gone in for innovation and diffusion of the technology to as many

96 Denis Fred Simon: 'Rethinking R & D', *China Business Review*, July-August 1983, pp. 25-26.

97 R.P. Suttmeier and Genevieve Dean: 'The Institutionalisation of Science', in OECD: *Science and Technology in the People's Republic of China* (Paris, OECD, 1977).

98 China Handbook Series, *Education and Science*, p. 242.

provinces and counties as possible. By and large it can be said that Chinese attainments have been far more impressive in centres with an old, pre-revolution industrial culture and in areas where production engineering rather than a precise control of materials or energy inputs has been the key to success. The decentralized nature of planning at the lower levels, the emphasis on regional self-sufficiency in basic industrial goods and lack of barriers to diffusion of knowledge and technology in the form of proprietary control of technology have been very important elements in the successful absorption of technologies imported from abroad and in their large-scale adoption throughout the countryside.

Before the communist revolution of 1949, engineering and producer goods industries had grown up in North China in the area under Japanese occupation and in the Shanghai metropolitan region. It appears that these enterprises became very important, before and after liberation, in the diffusion of skills and in the manufacture of new products primarily through production engineering efforts. One advantage of such enterprises was their flexibility of operation. Out of these preliberation enterprises emerged, for example, the Ta-hung Machinery Works at Shanghai or Yung-li-ning Chemical Works near Nanking (which later became the Nanking Fertiliser Plant).**

In the 1950s, the Chinese executed, with Soviet assistance, 156 large ('above-norm') industrial projects. The technical specifications of these projects were often rather rigid. But thousands of Chinese received training in construction and operation of these plants, hundreds of Chinese technicians were trained in the Soviet bloc countries and a large number of Soviet engineers and technicians were sent to China to help set up the plants and tackle their initial teething problems. Even at that stage, this massive absorption of technology was accompanied by some adaptation, for it is known that in 1957

officials of the Ministry of Chemical Industry criticized Russian design as too elaborate and uneconomical in terms of land and materials. Starting in 1958, it was urged that the principle of self-reliance should be adopted so that fertilizer plants would be designed and produced domestically, except for what the Chinese could not produce."»

While the process of absorption and adaptation of technology was carried on in the actual producing enterprises, they were assisted in this work by numerous research institutions and institutes of higher learning. Apparently, in China as in Russia, most of the basic research and much of the major research in applied fields were conducted by research institutes rather than in the universities or colleges. However the institutes of higher education actively participated in solution of problems of productive enterprises."I This was done by sending out the teachers and researchers to produc-

99 T.G. Rawski: 'The Growth of Producer Industries, 1900-71', in D.H. Perkins (ed.): *China's Modern Economy in Historical Perspective* (Stanford, Calif., Stanford University Press, 1975); Jung Chao Liu: *China's Fertilizer Economy* (Edinburgh, Edinburgh University Press, 1971), pp. 8-10; and Rewi Alley: *Travels in China 1966-71* (Beijing, New World Press, 1973), pp. 479-482.

100 Liu: *China's Fertilizer Economy*, p. 14.

101 Richard P. Suttmeier: 'Research, Innovation and the Chinese Political Economy', in USCJEC: *China under the Four Modernizations*, Part I, p. 493.

ing enterprises, and by establishing regular contacts between the institutes of higher learning and enterprises for cooperation in identifying technical problems and solving them.

The coordination of activities of schools of higher education, research institutes and producing enterprises has probably been intensified in recent years. An example from Dalian illustrates the operations of 'combined groups' conducting scientific research and production, '«* In Dalian, in 1983 there were about 130 or more of different kinds of industries, and 100 or more scientific research units. Among the latter eight units were established by Departments under the Central Committee of the Party and the State Council, three were under the provincial government and 30 or more were controlled by the municipality. There were also three institutes or schools of higher education. Between 1980 and 1983, Dalian had organized 12 'combined groups' for tackling specific problems of technical adaptation and innovation. Among these were a textile dyeing and printing scientific research, design and production combined group in which the participants were four research institutes, two high schools, nine textiles dyeing and printing factories, seven chemicals and dyestuffs factories and two trading corporations. The 12 groups also included an ion bombardment heat-treatment new technique combined group in which six factories and one high school participated. The task of the group was to spread the new technique of 'ionic helium carbon titanium ternary common diffusion and vacuum diffused carbon heat-treatment'. The other groups tackled 'explosion welding new technique', refrigerating equipment problems, problems of adhesive materials, problems of changes in designs and manufacture of combined lathes and automatic assembly lines, problems of manufacture of electronic instruments and electronic consumer goods and so on.

,While the import of technology has been stressed in recent years as a key element for modernizing science and technology, the Chinese leadership have continued to place a very strong emphasis on the internal transfer of technology. 103 The Chinese have consciously tried to effect four types of technology transfer: from laboratories to farms and factories, from pure military use to civilian use, 'from coastal areas to the hinterland and from abroad to China'. "104 The defence sector has enjoyed three advantages over the civilian R&D sector: the quality and number of its scientific and technical personnel, more sophisticated instruments and equipment especially for testing purposes, and a greater financial and political support. 'Because of the

- 102 Yu Xinan Zheng: 'A Kind of Important Combined Form: Regarding Dalian Scientific Research and Production Combined Group' (paper presented/distributed at the Beijing International Conference on Science and Technology, 4-8 October 1983).
- 103 Xie Shaoming and Qian Chuanbing: 'The Spreading of the S & T Achievements and the Transfer of Technology' (paper presented at the Beijing International Conference on Science and Technology Policy and Research Management, 4-8 October 1983, jointly sponsored by the State Scientific and Technological Commission of the People's Republic of China and the United Nations Financial System for Scientific and Technology Development).
- 104 Policy Research Department of Shanghai Science and Technology Commission: 'How the Technology Transfer from Shanghai to the Hinterland is Effectuated' (paper distributed at the Beijing International Conference, October 1983).

past and present advantages it has enjoyed, the defence sector is now being called upon to provide technical assistance to the civilian R & D effort. Ever since China began to emphasize light industry in 1979, for example, military research institutes have supported the expansion of consumer goods production. The proctoscope and microscope industry in Jiangsu Province has benefited from military optics knowhow, and military experts reportedly helped an artificial rain-making factory in Sichuan design better aerial explosives, to cite just two cases'.¹⁰⁵

The other aspects of technology transfer are equally important in China's plan for modernization of science and technology. The transfer of technology from the cities to the hinterland and from the more advanced to the more backward areas in general has had a long history. Such transfer was an integral complement to the policy of building up the industries which were essential for promoting agricultural growth, viz., farm machinery, fertilizers, cement, energy and iron and steel. China's success in building up such industries at a local level has been widely recorded.¹⁰⁶ The basis for the build-up of the local-level industry which employed 9.5 per cent of the rural population in 1978, and produced a substantial fraction of the outputs of fertilizers, pig iron, cement, electric power and farm machinery was the matching of the local supplies of materials or sources of energy with the demands generated by the requirements of agriculture and a growing per capita income. The policy of encouraging every region to attain as much self-sufficiency as possible helped in the process of growth of local-level industry in the past.

The fiasco with the backyard blast furnaces of the Great Leap Forward period when many of them did not produce any iron at all or produced an unusable product and the harvest crises of 1959-61 temporarily put back the programme of producing pig iron in small blast furnaces. However, improved small blast furnaces then produced iron of a quality good enough for the simpler farm implements and small smelting facilities also produced steel which went into local engineering works. Vertical-kiln cement plants produced cement for rural housing and other civil works. Small plants for producing ammonia by the water-gas process and converting that ammonia into ammonium carbonate and other fertilizers helped improve farm productivity. Continual adaptation to local conditions through dedicated efforts of workers, technicians and personnel attached to research institutes helped the lowest level brigades and team absorb the new technology and improve productivity.

The changes in economic policy since 1978 have not affected this process of continual and relatively unimpeded transfer of knowledge and skills from one type of institution to another, and from a more advanced region to another. Chinese leaders have repeatedly emphasized the importance of internal technology transfer for raising the productivity of backward regions, and such cities as Shanghai and Beijing

105 Simon: 'Rethinking R & D', p. 26.

106 J. Sigurdson: *Rural Industrialization in China* (Cambridge, Mass., Council on Asian Studies, Harvard University, 1977); E.K.Y. Chen: 'Rural Industrialization: A Key Factor in China's Four Modernizations', in Chen and Chin (eds): *Development and Change in China*, and Christine P.W. Wong: 'Rural Industrialization in the People's Republic of China: Lessons from the Cultural Revolution Decade' in USCJEC: *China under the Four Modernizations*, Parti. The various problems involved in the mobilization and use of local level resources have been discussed in the papers by A.K. Bagchi and E. Lee in *Employment Expansion through Local Resource Mobilisation* (Bangkok, ILO-ARTEP, 1981).

have intensified their efforts in the direction of transferring technology to the other, more backward areas. According to incomplete statistics, from 1979 to the end of June 1983 Shanghai 'transferred more than 1,100 new findings and technologies to various provinces (chiefly interior provinces), accepted 1,500 assignments to develop or trial produce new products, provided 1,200 items of technical service and established 240-odd combinations of technological and economic character.'¹⁰⁷ Even though we do not know the exact significance, to be attached to these numbers, the scale and the intensity of the interaction process seem to be quite unprecedented. Shanghai regularly receives delegations from other provinces and counties in search of technology and economic cooperation. The assistance extended by Shanghai to other areas takes five different forms: 'the transfer of technological results, assistance lent to deal with some specific technical problems, providing technical service [at the site], training of technical personnel and the transfer of information' [in the form of books, documents, etc.].¹⁰⁸

For instance, the Shanghai Industrial Microbiological Research Institute supplied the Citric Acid Factory at Bengbu, Anhui Province with a new kind of *Aspergillus Niger* to enable the factory to raise its monthly production from 37 tons to 44 tons, with a 36% reduction in the consumption of raw material and 35% reduction in the cost of production. As a result, the factory with a yearly deficit of 240,000 yuan in 1978 earned 200,000 yuan profit in 1979 and this was further increased to 560,000 yuan the following year.¹⁰⁹

Similar examples of unrestricted transfer of technology in other ways can be provided.

Thus China seems to have enjoyed the full external effects of new technological knowledge in many directions without suffering the ill-effects of monopolization of knowledge by enterprises and individuals within the country. She used old machines and sub-contracting devices to transfer capital and skills down the gradient of productivity to the benefit of all.¹¹⁰ With her network of national-level research institutes, she was also able to make her own innovations in such high technology fields as nuclear weaponry, launching of missiles and satellites, and bio-technology (one major achievement in the last field being the synthesis of insulin).¹¹¹

However, several considerations seem to have induced the Chinese government to restructure their science and technology policy in some major respects. First, the very success of the Chinese in building a wide base of industry and modern technology has brought them near the frontiers in several areas and convinced them that only an intensification of organized research effort and systematic (rather than sporadic) import of technology will be adequate for their needs. Secondly, the interruptions

107 'How the Technology Transfer from Shanghai to the Hinterland is Effected', p. 1.

108 *Ibid.*, p. 3.

109 *Ibid.*

110 Cf. A.K. Bagchi: 'The Political Economy of Technological Choice and Development', *Cambridge Journal of Economics*, June 1978.

111 For a summary view of these achievements, see State Science and Technology Commission: *Science and Technology in China* (Beijing, 1982), Chapter 1; and China Handbook Series, *Education and Science* (Beijing, Foreign Languages Press, 1983), pp. 136-153.

in the regular system of college and university education during the Cultural Revolution period left gaps in scientific and technological manpower, necessitating a bigger effort for filling the gaps. Thirdly, there remained unsolved problems of acquisition and absorption of technology in key fields such as steel-making and computer. Fourthly, a redirection of investment from producer to consumer goods would require induction of foreign technologies for producing goods that are sufficiently attractive to the consumers. Several recent Chinese initiatives such as the upgrading of science and technology personnel, the encouragement of innovations through special grants and loans and awards to reward innovating persons and enterprises, codification of a patent law which would recognize foreign proprietary rights and suitably reward innovators within the country would seem to be dictated by the factors already mentioned.¹¹²

A brief look at the evolution of the Chinese iron and steel industry¹¹³ will indicate the kinds of problems China has faced in absorbing imported technology when the scales of plants are large and the degree of precision required in materials handling and process control has been of a very high order. The Chinese iron and steel industry had its beginnings in the pre-liberation period when the Anshan iron and steel mill was built by the Japanese. But the real foundations were laid in the 1950s with mills built with Soviet assistance. When the Soviet aid was withdrawn abruptly in 1960, several large projects remained unfinished, including the iron and steel mill complex at Wuhan. With tremendous energy and dedication, the Chinese nonetheless expanded the iron and steel making facilities at many locations, and steel output expanded from 11 million tons in 1958 to around 24 million tons in 1974, and pig iron output expanded from about 14 million tons to 31 million over the same period,¹¹⁴ smaller sized plants were used more for pig iron than for steel production. However, raw materials and plant efficiency posed difficult problems for China's iron and steel industry.

China's iron ore generally had a low Fe content, and her coking coal had a rather high ash content, and what was more troublesome, contained about 1 per cent sulphur. Beneficiation facilities in the form of sintering and pelletizing plants for iron ore and washeries for coking coal remained deficient. China used open hearth facilities on a large scale. This had the advantages that they could be adapted to different scales of output and paced according to requirements of different products. But the processes were generally energy-inefficient in comparison with basic oxygen furnaces. So China also established a number of mills with basic oxygen furnaces and adopted side-blown converters so as to avail of the possibility of oxygen injection. With all

112 A draft of the Chinese patent law is printed in Peter P.F. Chan: *China: Modernisation and Its Economic Laws* (Hong Kong, The Hong Kong Economist, 1982), Chapter 17; see also Masao Sakurai: 'Investment-Related Laws and Regulations', *China Newsletter* (JETRO), No. 48, January-February 1984.

113 For succinct accounts of the evolution of the iron and steel industry and the problems faced by it, see William W. Clarke: 'China's Steel: The Key Link', *U.S.—China Business Review*, July-August 1975; Alfred H. Usack, Jr. and James D. Egan: 'China's Iron and Steel Industry' in USC-JEC *China: A Reassessment of the Economy* (Washington, D.C., US Government Printing Office, 1975); and Martin Weil: 'The Baoshan Steel Mill: A Symbol of Change in China's Industrial Development Strategy', in USCJEC: *China under the Four Modernizations*, Part 1.

114 Usack and Egan: 'China's Iron and Steel Industry', pp. 275-276.

these modifications, however, China's steel finishing capacity remained inadequate and she had to import special steels in large quantities.

In the early 1970s, China sought to induct new technology, as in the 1950s and to a lesser extent in the mid-60s, through the import of complete plants under the '43' plan, which involved an expenditure of US\$ 4.3 billion for such import (eventually US\$ 3.7 billion was spent for this purpose). Under this plan US\$ 500 million worth of finishing equipment was ordered for the Wuhan iron and steel complex from West Germany and Japan. However, it turned out that this new equipment could not be operated at full capacity because of lack of electricity, and other complementary inputs. 'Due to acute electricity shortage, [the Wuhan steel rolling mill] could only operate at about 20 per cent of capacity. The lack of argon for the thermoregulator of the continuous caster put that machine out of commission, Wuhan did not produce enough steel to run the mill at full capacity, and there was no silicon steel at all for the silicon steel mill'."

The fiasco at Wuhan was followed by the muddle at Baoshan, where it was proposed to build a six million ton integrated iron and steel complex, primarily with imported equipment. The decision was taken in 1978, but it soon ran into problems: it was found that the location chosen, about 30 km. from Shanghai, was not very suitable. The foreign exchange requirements were found to be much too large, and it was doubtful whether raw materials of the required quality could be supplied except at a rather high cost. The reduced emphasis on steel-intensive heavy industry also led to a drastic revision of the projected demand for steel. All this led to a considerable curtailing of the import plan and cancellation of Phase II of Baoshan altogether. At present only one blast furnace (with a capacity of 4,063 cubic metres), and a seamless pipe plant are contracted for, with the possible addition of a continuous casting mill, and a capacity of 3 million tons of finished steel.¹¹⁶ The degree of participation of the Chinese side has been considerably increased.

The iron and steel story is instructive in throwing light on the limits to technological capability perceived by Chinese leaders. They would rely on import of complete plants only when they are sure that they cannot be constructed by the existing Chinese enterprises and that their technology can be fully mastered by the Chinese within a reasonable period. In the current phase of attempts at readjustment, emphasis has definitely shifted towards augmenting the capacity for absorption of technology rather than the notional capacity for manufacture. The Chinese leaders recognize that 'cooking dishes', that is, learning by doing, may not always be adequate for mastering a sufficiently advanced and complicated technology, and considerable developmental, applied and basic research may be needed to absorb the imported technology and improve it."⁷ One index of the increased importance attached to science and technology is that in 1981 China spent about 1.5 per cent of GNP for various R & D activities."⁸

115 Weil: 'The Baoshan Steel Mill', p. 375.

116 Keisuke Odagawa: 'China's Baoshan Steel Complex Project', *China Newsletter*, No. 48, January-February 1984.

117 The phrase 'cooking dishes' occurs in Zhei Xuan (Deputy Director, Second Technical Science Department, Chinese Academy of Sciences): 'A Probe into the Policy of New Technology Development', paper presented at the Beijing International Conference on Science and Technology, 4-8 October 1983.

118 Simon: 'Rethinking R & D'.

While the status of scientists in society has been upgraded as part of the plan for advancing science and technology, Chinese leaders are also determined that scientists should not remain confined to the ivory towers of their laboratories. There is a policy of sending scientists of the higher research institutes to producing enterprises to help solve actual technical problems."¹¹⁹

The associated policies in the field of science and technology are in consonance with the new emphasis on contractually established responsibility and on establishing positive incentives for undertaking desired tasks, under the overall guidance of the political leadership. For example, many research units have established a responsibility system of management, under which 'the economic and technical feasibilities of proposed major projects are first discussed among specialists in the same line of work before decisions are made. Once a contract is signed, the contracting parties must fulfil the obligations as defined in the contract. Having fulfilled the contractual obligation or the jobs entrusted to them, and received the economic benefits, they use the money to strengthen their research work, improve collective welfare, or pay a bonus'.¹²⁰

In order to encourage the transfer of technology with adequate compensation to the inventors, China has decided to establish a patent system. She joined the World Intellectual Property Organization in March 1980. China has also instituted a system of national awards for meritorious inventions. However, these innovations are not a substitute for but a complement to the earlier system of popularization of science with a view to its scientific use and close cooperation between research institutes, institutes of higher education and productive enterprises. Thus the system of financial incentives for invention and technology transfer and allocation of special funds for innovation are geared to a highly integrated network of cooperation between planners, producers, researchers and educators. The current policies of readjustment and reform have sought to rationalize this system and increase its effectiveness under changing internal and external conditions rather than to replace it with a price-guided mechanism for allocation of resources.

4.6 Readjustment and Employment

The resolution or 'decision' at the third plenum of the twelfth central committee of the Communist Part of China (CPC), adopted on 20 October 1984 reaffirmed the policies of readjustment and reform that the Chinese leadership has been pursuing since 1978.¹²¹ The reform movement has been carried further forward in that the number of products subject to quantitative allocation and fixing of prices by state organs is to be halved. However, energy including oil and coal, steel products, newsprint and many other vital products will still be allocated and priced centrally in consultation with other administrative authorities. But in the case of the other products enterprises will be free to fix their prices in the light of their profitability

119 It is said about the Academy scientists that 'in the Academy they were worms; once released they become dragons'. *Ibid.*

120 *Science and Technology in China*, p. 37.

121 Brief reports on the deliberations of the twelfth central committee of CPC are given in the *Economist*, 27 October-2 November 1984 and the *Far Eastern Economic Review*, 1 November 1984.

criteria—within limits. In particular, prices of farm products will be less subject to control than before though a substantial part of the food grain and other major crops will continue to be procured by state agencies.

The success of the reforms introduced in the agricultural sector in producing successive bumper harvests in 1982, 1983 and in 1984, reducing China's grain imports and thereby strengthening her balance of payments further, in keeping farm prices stable at the higher levels reached in 1980 or thereabouts, and in raising demand for all kinds of consumer products and agricultural producer goods has been a stimulant to further reform. China has continued to advance in the direction of using fiscal and monetary measures as major instruments for guiding the economy and productive enterprises in general.¹²² The number of industrial products subject to state quotas was reduced from 160 to 60, and the number of agricultural products subject to procurement at fixed prices was reduced from 29 to 10. The state would continue to resort to direct allocation for rolled steel, coal, oil, timber, cement, electrical machinery, synthetic fibres, cigarettes and farm quotas would remain for grain, cotton, oij, tobacco, jute, pigs and some varieties of fish.

In spite of the fact that the new system has led to revenue losses for the state, the government is continuing with the new tax system under which enterprises pay a basic tax of 55 per cent on profits, a further 27 per cent as 'regulation tax' on the residual, and additional taxes on bonuses-beyond a certain level.¹²³ Under the general guidance of the central bank, the People's Bank of China, the individual banks have been given certain powers to vary their loan rates with narrow limits. Enterprises have also been given more freedom in their financial transactions, though even in early 1985 all transactions above a ceiling of Rmb 100 had to pass through banks.

Along with these reforms, the Chinese authorities have also set about getting prices in line with their priorities. The freedom granted to farmers and enterprises to vary prices of some products in what might be called free market transactions was a step in this direction. The freeing of more than half of the industrial and farm products from direct allocation will allow enterprises and farmers to charge prices which better reflect supply-demand imbalances and costs of production. However, apparent anomalies will still remain: the profit margin for hot rolled steel was in 1984 about 10 times as high as that for cold rolled steel.¹²⁴ Unless prices at which the centralised allocation for rolled steel is made takes account of this fact, a glut of hot rolled steel and a shortage of cold rolled steel can emerge.

The Chinese reformers have been aware from the start of two major dangers threatening the reforms of prices, enterprise management and economic planning. One is the danger of inflation, and the other is the danger of unemployment. In the wake of the raising of retail prices of non-staple food products from 1979 onwards, retail prices rose by about 6 per cent in 1981, but since then the rise in prices have been held down to about 2 per cent per annum.¹²⁵ One method that has been

122 *The Statesman* (Calcutta), 21 October 1984.

123 Anthony Rowley: 'China Brings Financial Policies More up to date to Serve Liberalisation', *Far Eastern Economic Review*, 10 January 1985.

124 *The Economist*, 27 October-2 November 1984.

125 For a brief but authoritative discussion of problems of price reform, see Liu Zhoufu, Director of the National Price Bureau of China: 'The Price Situation', in *Economic Readjustment and Reform* (Beijing, Beijing Review Special Feature Series, 1982).

adopted for holding down prices is to actually lower the nominal money prices of goods which are priced too high while raising the prices of goods which are judged to be priced too low. For example, while prices of cotton goods were raised, prices of goods made of synthetic fibres were lowered, and so were the prices of many consumer durables whose consumption and production the authorities wanted to encourage. In case of many such consumer durables, there were long queues of purchasers wanting to buy them. This fact also has been used by the authorities to generate savings. For example, prospective TV buyers have to deposit 60 per cent of the price of a set, and wait for six months to get one. In the meantime, the deposits swell the national savings and keep a lid on inflation. Other measures used to curb inflation include import of foods in short supply, and the continuance of massive subsidies on food in spite of deficits in the central government budget.¹²⁶

The other danger which might threaten the drive for modernization and reform of management systems is that of open unemployment—especially in urban areas. It is expected by the Chinese leaders that the surge in farm output and employment will go a long way towards stopping migration from the villages to the cities. The fast rate of growth of the Chinese economy and the changes in the occupational structure are expected to generate enough employment to take care of any labour displacement caused by modernization of techniques. The encouragement provided for collective enterprises and for individual or group enterprises especially in the handicraft and services is also expected to step up the rate of growth of employment. As we have seen, China started in 1978 with an untapped potential for expansion of employment in the service sector because of the small ratio of service income to total income, measured by international standards. Furthermore, the increase in per capita disposable incomes is expected to generate considerable demand for the specialized craft products of China and for services of various kinds satisfying the new demands of the no-longer-poor consumers. The provincial government of Hebei, for example, in February 1981 published a list of trades which would be appropriate for carrying on an individual or groups basis.¹²⁷ These included repair trades of all kinds, handicraft work such as drawing, painting, paper flower making, making of toys and other such craft objects, catering trades, service trades such as barbering, cleaning and dyeing, construction of individual houses and their plumbing or other fittings, small scale transportation trades such as taxi-driving, cart pulling, loading and unloading at railway stations or wharves, retail trades such as sales of groceries, stationery etc. and cultural enterprises. According to the Chinese authorities, 'urban collective leadership is more suited than state ownership to the productive level of trade which are operated mainly by hand or are not highly mechanized'.¹²⁸ Besides

126 For an estimate of the subsidies given by the state to urban workers in China, see Lardy: 'Subsidies'. In claiming that the rural-urban earnings gap has widened in China as a result of state subsidies, Lardy seems to have underestimated the impact of the new agricultural strategy (introduction of the individual or family responsibility system in management, flexibility in prices of farm products outside or above procurement quotas, raising of state procurement prices and encouragement of the growing of cash crops) on farmers' incomes.

127 See Appendix C of Arthur G. Ashbrook, Jr.: 'China: Economic Modernization and Long-Term Performance', in USCJEC: *China under the Four Modernizations*.

128 'Role of Handicraft Industry' in *Economic Readjustment and Reform*, p. 75. See also, in this connection, Xu Dixin and others: *China's Search for Economic Growth: The Chinese Economy since 1949* (Beijing, New World Press, 1982), chapters 1, 5, 6 and 7.

the collective enterprises and individual enterprises, the authorities have also encouraged joint ventures of all kinds:

Guided by state plans, joint operation may be undertaken between enterprises according to the principles of voluntary participation and mutual benefit; the same may be done by units in the town with units in the countryside. When a factory forms a tie of fixed co-ordination with a rural commune, production brigade or team, the latter undertakes to process goods for the former and is paid for it; a factory may entrust a qualified commune, production brigade or team with the task of producing things which it formerly produced itself so that it can free itself to take up experiments in the manufacture of new products; the rural partner may provide a factory with buildings and manpower, while the latter on its part contributes technology, managerial personnel, funds and equipment; or both sides will equally contribute whatever is needed. . . .

Because these trades do not need very big factory buildings or complex equipment, such joint ventures develop very rapidly. For instance, the arts and crafts industry throughout the country now [1982] employs half a million people, but those outside the factories processing things for them number 5.2 million. The workers are especially concentrated in places where traditional goods are produced. Changshu in Jiangsu Province is famous for its lace, the making of which is a major household sideline

- occupation in the country's rural areas, '»

During the current phase of readjustment and modernization, China does seem to have succeeded in generating urban employment at a fast rate as Table 4.14 would seem to indicate. According to these figures, not only has employment growth kept pace with the growth in the urban labour force, but the backlog of unemployment declined substantially between 1979 and 1982. (Most of the unemployed were young people, school-leavers and others, waiting for jobs).

However, the Chinese leaders do not rely on the economic policies alone to tackle the long-run employment problem. The fast rate of population growth in China until the end of the 1960s is likely to reverberate in the demographic pattern through repeated baby booms unless the rate of population growth is reduced substantially. The current Chinese leadership has therefore put the utmost emphasis on the slogan of a one-child family with the objective of reducing the national rate of population growth to a figure below .7 per cent per annum by the end of the century.¹²⁹ Controlling population size is a long-term affair, but the Chinese authorities are hoping, through a variety of positive and negative incentives, to control birth rates within narrow limits in the near future.

There is one problem that may come to the forefront as the reforms introduced by the Chinese authorities work their way through the farms and factories of China. This is the problem of increases in wage and income differentials—whether they are

129 'Role of Handicraft Industry', in *Economic Adjustment and Reform*, pp. 76-77.

130 For discussions of the Chinese population policy and the problems facing it see Liu Zheng and others: *China's Population: Problems and Prospects* (Beijing, New World Press, 1981); *Modernization: The Chinese Way* (Beijing, Beijing Review Special Features Series, 1983), chapter VIII and Ashbrook: 'China: Economic Modernization and Long-Term Performance', Section X.

Table 4.14
Creation of Jobs for Urban Labour Force in China 1977-82
(number of persons in million)

Number of people employed			Total number of people who needed jobs	Year-end number of people not yet employed	Percentage of waiting for jobs to the total urban labour force
In jobs assigned by the state	In collective units or by themselves	Total			
1977	5.00	2.00	3.00		
1978	6.00	2.00	4.00	11.31	5.31
1979	9.02	1.95	7.07	15.38	6.36
1980	9.00	2.48	6.51	13.09	4.09
1981	8.00	1.99	6.03	11.05	3.05
1982	6.65	N.A.	N.A.	Over 9.20	3.04
					About 2.6

Source: *Modernization: The Chinese Way* (Beijing, 'Beijing Review' Special Feature Series, 1983), p. 105.

related directly to price and incentive reforms, or only an indirect result of such reforms. For, when workers and managers are able to share in profits, those attached to more successful enterprises will do better in terms of rewards, than those who happen to work in less profitable enterprises. With large differences in capital intensity between sectors and with a price system which may discriminate against particular sectors not because of low productivity but because of planners' judgements about the desirability or otherwise of the prices of those sectoral products reflecting their costs, there is no necessary link between workers' intrinsic productivity and the profitability of firms. The Chinese authorities have taken account of some of these problems, and rates and regulations relating to wage differentials and bonuses have been adjusted so as to minimize the influence of factors outside the control of managers and workers. Even then, it is quite likely that earnings differentials between workers in different state enterprises may widen.ⁿ

However, the Chinese leaders, as we have pointed out above, have taken steps to raise the terms of trade of agriculture so that rural incomes which were much lower

131 On workers' motivation and on the necessity of stressing the importance of a socialist culture, see Yu Guang Yuan: 'Material Reward and Moral Encouragement', in *Economic Readjustment and Reform*; 'Building Socialist Culture and Ethics', in *Modernization-The Chinese Way*; and Xue Mu-qiao: *China's Socialist Economy* (Beijing, Foreign Languages Press, 1981), Chapter 4. See also Lockett and Littler: 'Trends in Chinese Enterprise Management, 1978-82', and Walder: 'The Remaking of the Chinese Working Class, 1949-81'. Besides moral and material incentives, the Chinese leaders also emphasize the increased role of workers' congresses in controlling any arbitrariness that may creep into self managed enterprises. Besides the references cited above, see also Chapter one of *Economy* (Beijing, China Handbook Series, Foreign Languages Press, 1984).

than urban earnings are advancing faster. Moreover, the relative privileges enjoyed by state enterprises as against collective enterprises have also been lessened, so as to bring the earnings of workers in the latter type of enterprises and those of self-employed people closer to the earnings of workers in state undertakings. These measures may therefore lessen rather than aggravate earnings differentials of workers in the country as a whole. What may happen to income differentials as between households and persons (including non-workers such as the children, the sick and the old) will depend on demographic patterns, morbidity rates and participation rates. As yet not many systematic data are available to draw any firm conclusions regarding the impact of economic restructuring on such factors.

Public Intervention and Industrial Restructuring in India

5.1 Some Basic Structural Features of the Indian Economy

India is a large, densely populated country with one of the lowest incomes per capita among all countries. It is also a land with a very long tradition of handicraft production and, among the developing countries, with one of the oldest modern manufacturing sectors. It has a high rate of illiteracy, and paradoxically enough, one of the largest pools of educated manpower with high levels of education and scientific achievement.

All these characteristics have provided opportunities for further development and proved to be major constraints on development in other directions. In some ways, the constraints have turned out to be much more binding for industrial than for agricultural development. Much of the public intervention in India has been provoked by what is and was seen to be the failure of the private sector to surmount some of these basic problems and advance further along the path of industrial development.

Table 5.1 brings out the structural characteristics of India's national income and their evolution during the 1970s. The share of the secondary sector, and especially of manufacturing remains very small, although it grew by a few percentage points during the decade. The share of agriculture in NDP declined over the decade. However, it was not the secondary but the tertiary sector which made up for most of that decline. We have separately reproduced the figure for the share of the transport, storage and communication sectors to indicate that it is services of an intangible kind such as government administration, trade, banking and insurance which have grown fastest within the tertiary sector total. Even the marginal change in the structure of national income has not been paralleled by a change in the occupational structure. The vast majority of the people (70 per cent or above) derive their livelihood from agriculture (see Table 5.2). Of the rest, only a minority are employed as salary or wage earners in registered or large-scale enterprises or organizations, and the majority are self-employed or employed in unregistered, very often household-based enterprises. As Table 5.3 reveals, fully 25.9 per cent of the work force is casual labour, that is, employed from day to day, or week to week, with no permanency of employment. And the majority of the work force is self-employed. Only a small minority have regular salaried or wage employment. The cut-off points (ages 15 and 59) of the work force included in Tables 5.2 and 5.3 are rather arbitrary in a poor country such as India. If the very old and very young were included, the importance of casual labour and self-employment would go up even further.

Unlike in developed or middle income countries, the manufacturing sector in India consists predominantly of small-scale enterprises, and cottage or household enterprises, in terms of numbers employed. Even in respect of income generated, it was

Public Intervention and Industrial Restructuring

[illegible]

Table 5.2

India: Occupational Distribution of the Labour Force During 1972-73 and 1977-78
(Figures in Percentages)

Occupation (Industry)	1972-73			1977-78		
	Male	Female	Total	Male	Female	Total
1. Agriculture, hunting, forestry and fishing	68.9	84.4	74.0	66.9	80.2	70.7
2. Mining and quarrying	0.6	0.3	0.5	0.6	0.3	0.5
3. Manufacturing	9.9	6.5	8.8	10.5	8.6	10.0
4. Electricity, gas and water supply	0.2	0.1	0.2	0.4	0.1	0.3
5. Construction	2.1	1.3	1.8	2.2	0.9	1.8
6. Trade, restaurants and hotels	6.5	2.2	5.1	7.4	3.0	6.2
7. Transport, storage and communication	2.6	0.1	1.8	2.9	0.2	2.2
8. Financing, insurance, real estates and business services	0.7	0.1	0.5	0.7	0.1	0.5
9. Community, social and personal services	8.5	5.0	7.3	8.4	6.6	7.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Government of India, Planning Commission, *Sixth Five Year Plan 1980-85* p. 219. The figures are based on the 27th (1972-73) and 32nd (1977-78) rounds of the National Sample Survey.

estimated by the Planning Commission that the share of the unregistered enterprises including village enterprises and registered enterprises with an investment in plant and machinery up to Rs. 2 million or specially defined ancillary units with investment in plant and machinery up to Rs. 2.5 million in the contribution made by the manufacturing sector was around 49 per cent in terms of gross value of output and 51 per cent in terms of value added.¹ An idea of the total amount of employment provided by such enterprises can be obtained from Table 5.3.

Since casual workers outnumber regular wage or salary-earners it is expected that there would be sporadic unemployment among the former, who are generally poorly paid. Despite the prevalence of self-employment and family labour, a positive correlation is found at the all-India level between the degree of unemployment and the level of poverty, or a negative correlation between monthly expenditure per head in a household and the incidence of unemployment among its members (Table 5.4). This

1. Government of India, Planning Commission: *Sixth Five Year Plan 1980-85* (New Delhi, Planning Commission, 1981), p. 187.

Table 5.3
India: Distribution of Workers by Employment Status 1977-78©
(Figures in Percentages)

	Rural Male	Rural Female	Urban Male	Urban Female	Total
1. Bonded labour	0.3	0.1	Negligible	Negligible	0.2
2. (a) Self-employed in agriculture	51.6	51.1	5.3	12.1	43.2
(b) Self-employed in non-agriculture	11.4	9.3	33.4	32.1	14.9
(c) Self-employed total""	63.0	60.4	38.7	44.2	58.1
3., (a) Regular salaried/wage employees in agriculture	4.3	1.4	0.9	0.9	3.0
(b) Regular salaried/wage employees in non-agriculture	6.8	2.5	48.6	30.7	12.8
(c) Regular salaried/wage employees, total	11.1	3.9	49.5	31.6	15.8
4., (a) Casual labour in agriculture	20.5	31.2	2.6	10.2	20.1
(b) Casual labour in non-agriculture	5.1	4.4	9.2	14.0	5.8
(c) Casual labour, total	25.6	35.6	11.8	24.2	25.9
Grand Total	100.0	100.0	100.0	100.0	100.0

Notes: (i) The figures relate to the age group from 15 to 59 years.

(ii) 'Self-employed' include helpers in household enterprises.

Source: Government of India, Planning Commission: *Sixth Five Year Plan 1980-85*, p. 219. The figures are derived from 32nd Round of the National Sample Survey conducted in 1977-78.

association has also been confirmed by an analysis of State-level data for Gujarat and Maharashtra.²

We have to note the further fact that apart from a very patchy employment guarantee scheme in Maharashtra and a rudimentary unemployment insurance scheme in West Bengal, there is virtually no social security available for poor people in the

2. P. Visaria: 'Poverty and Unemployment in India: An Analysis of Recent Evidence', *World Development*, 9(3), 1981. This finding is in apparent contradiction to J.N. Sinha: 'Full Employment and Anti-Poverty Plan', *Economic and Political Weekly* (henceforth EPW), 12 December 1981. But Sinha considers differences as between different Indian States, which are large units by international standards. Some states have a high agricultural productivity (per person) and a high rate of unemployment in rural areas, some have a low agricultural productivity (per hectare and per person), and a low rural unemployment, some have a relatively high level of education and a high rate of both rural and urban employment, and so on. But within states, the finding of a high degree of association of poverty and unemployment rate seems to be robust.

Table 5.4

Incidence of Unemployment (Persondays Unemployed as Per Cent of Persondays in the Labour Force) by Monthly Per Capita Expenditure (MPCE) Rural and Urban India During October 1972-September 1973

MPCE group (Rs.)	Percentage of households in the MPCE Group							
	Males		Females		All Persons			
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Upto 11.00	17.5	32.1	29.4	25.8	22.4	29.2	0.7	0.3
11.00-20.99	11.9	15.5	17.7	17.0	14.1	15.9	9.8	4.5
21.00-33.99	8.2	10.9	13.1	15.1	9.8	11.9	30.1	19.2
34.00-54.99	6.1	9.3	9.6	12.9	7.1	10.0	35.2	27.4
55.00-99.99	4.5	6.9	7.0	13.6	5.2	7.9	19.0	28.3
100 & above	3.0	4.2	3.3	10.3	3.2	4.9	5.1	20.2
All	7.2	8.0	11.3	13.5	8.2	9.0	100.0	100.0

Source: P. Visaria: 'Poverty and unemployment in India: An analysis of recent evidence', *World Development*, 9(3), 1981, p. 280. The data are taken from the 27th round of the National Sample Survey.

country. Thus providing some kind of employment to the poor has been seen to be the only way of making some provision for their survival in normal times. This has been a main consideration behind the Indian government's attempt to protect industries whose technologies or methods of organisation are known to be outmoded, and discourage any measures which might spell widespread technological unemployment. However, other forces have acted to obstruct such attempts and reverse the direction of some of the policy initiatives.

For any economy to develop rapidly in the modern world, a necessary condition is that it should generate a high rate of saving and investment. If it runs up balance of payments deficits in the process of development, it is important that the deficits are covered smoothly either by long-term private foreign investment on a continuing basis or by official aid or loans on easy terms. What has India's record been in respect of the rate of saving and investment?

In the 1970s, official data showed the rate of saving of the Indian economy going up considerably. However, there was controversy regarding the extent of rise in the rate of saving, especially since the rate of growth of the economy did not seem to respond much to this rise. An official Working Group was appointed by the Government of India to look into this question. This group produced a set of figures' of

3. *Capital Formation and Saving in India 1950-51 to 1979-80*: Report of the Working Group on Savings appointed by Department of Statistics, Ministry of Planning, Government of India (Bombay, Reserve Bank of India, February 1982).

rates of savings and capital formation from 1950-51 to 1979-80. We have reproduced some key figures in Table 5.5 from the report of this Working Group. According to these estimates, the ratio of saving to GDP went up by about 3.4 percentage points with the beginning of the Second Five Year Plan, and barring the abnormal years of 1965-66 and 1966-67, when real GDP fell drastically because of massive harvest failures, stayed at that level until the end of the 1960s and then started an upward climb in the 1970s. By the end of 1970s the ratio had stabilised again between 21 and 24 per cent.

However, there have been differences of opinion about the measurement procedure, and about the significance of the measured increase in the ratio of gross saving to GDP. The methods adopted by the Central Statistical Organisation have been criticised, *inter alia*, on the grounds that they tend to exaggerate the productivity-increasing aspect of accumulation of assets by treating all purchases of equipment and all construction by government administrative departments as capital formation and that they greatly overestimate the real saving by households by treating financial assets acquired by households as a result of government purchases of foodgrains as financial saving (there is a bunching effect which grows progressively as agricultural output and foodgrains and other crops procured increase because of government purchases of agricultural crops in the beginning of the financial year⁴). The Report of the Working Group on Savings did not resolve these doubts. It, however, indicated that net savings were much lower than gross savings because of the large element of capital consumption to be accounted for. The fixed capital consumption increased, for example, from 3.4 per cent of GDP in 1950-51 to 6.2 per cent in 1979-80. Moreover, it was argued in the report and by other commentators that the productivity increasing effect of capital formation had been greatly impaired by the capital-intensive nature of industrial growth and by a decrease in the efficiency with which capital was used.⁵

As the last column of Table 5.5 indicates, for most of the 33 years since 1950, India has had a small but persistent deficit in her balance of payments. In this respect, as in many others, India's position has been intermediate between South Korea and China. A more comprehensive picture of the Indian balance of payments position can be obtained from Tables 5.6 and 5.7.

India's balance of payments position improved in the middle years of the 1970s, partly because of a primary commodities boom, and because of homeward remittances sent by Indians going to the Middle East for work. However, the balance of payments position deteriorated sharply from 1979-80 onwards. In 1981 India entered into an agreement for borrowing 5 billion SDRs (equivalent to about U.S. \$ 5.5 billion at the time) from the IMF under its Extended Fund Facility (EFF). However, an increase in India's oil production, and a fall in oil prices in 1982 and 1983 led to some improvement in her current account balance. In 1984, the Government of India announced its decision not to avail of the last instalment of the IMF loan amounting to U.S. \$ 1.1 billion.

One feature of India's balance of payments which should be noted is the negligible contribution of private capital inflows towards easing the current account deficit.

4. Mihir Rakshit, 'Income Saving and Capital Formation in India: A Step Towards a Solution of the Saving-Investment Puzzle', *EPW*, Annual Number, April 1982.
5. S.L. Shetty and K.A. Menon, 'Savings and Investment without Growth', *EPW*, 20 May 1980.

Table 5.5

Gross Domestic Capital Formation and Saving in India, 1950-51 to 1979-80

Years	Gross domestic capital formation	Gross domestic saving	Gross domestic product at market prices	Ratio of (1) to (3)	Ratio of (2) to (3)	Saving in investment gap (4) - (5)
	(Rs.) million at current prices			Percentage of GDP		
	(1)	(2)	(3)	(4)	(5)	(6)
1950-51	9,750	9,540	95,640	10.2	10.0	.2
1951-52	10,050	11,880	100,210	10.0	11.9	-1.9
1952-53	8,060	7,720	97,590	8.3	7.9	.4
1953-54	9,220	9,090	104,510	8.8	8.7	.1
1954-55	10,540	10,700	96,840	10.9	11.0	.1
1955-56	14,300	14,690	102,610	13.9	14.3	-.4
1956-57	15,990	19,590	118,160	16.6	16.6	-3.1
1957-58	13,700	18,430	119,860	11.4	15.4	-4.0
1958-59	14,090	17,850	134,380	10.5	13.3	-2.8
1959-60	17,650	19,960	139,790	12.6	14.3	-1.7
1960-61	20,630	25,440	150,180	13.7	16.9	-3.2
1961-62	20,930	24,380	159,770	13.1	15.3	-2.2
1962-63	24,760	29,160	170,990	14.5	17.1	-2.6
1963-64	28,260	32,660	196,650	14.4	16.6	-2.2
1964-65	31,350	37,350	130,440	13.6	16.2	-2.6
1965-66	37,910	43,900	241,120	15.7	18.2	-2.5
1966-67	45,140	54,370	276,620	16.3	19.7	-3.4
1967-68	44,970	53,340	322,940	13.9	16.5	-2.6
1968-69	46,970	51,130	332,790	14.1	15.4	-1.3
1969-70	60,440	62,850	368,510	16.4	17.1	-.7
1971-72	74,980	79,760	433,560	17.3	18.4	-1.1
1972-73	77,690	80,660	478,650	16.2	16.9	-.7
1973-74	113,920	117,840	589,400	19.3	20.0	-.7
1974-75	126,530	133,060	695,950	18.2	19.1	-.9
1975-76	148,420	147,250	741,620	20.0	19.9	.1
1976-77	177,380	164,290	805,940	22.0	20.4	1.6
1977-78	194,980	180,330	902,130	21.6	20.0	1.6
1978-79	233,760	231,410	977,040	23.9	23.7	.2
1979-80	250,550	230,180	1,085,460	21.2	21.8	-.6
1980-81	292,140	314,730	—	22.9	24.7	-1.8
1981-82	341,460	371,590	—	23.0	25.0	-2.0
1982-83	366,700	395,800	—	22.3	24.1	-1.8

Source: *Capital Formation and Saving in India 1950-51 to 1979-80*: Report of the Working Group on Savings.

Table 5.6
India's Balance of Payments 1951-52 to 1975-76
(annual averages, figures in Rs. million)

	1951-52 to 1955-56	1956-57 to 1960-61	1961-62 to 1965-66	1966-67 to 1970-71	1971-72 to 1975-76
I. Current- account					
1. Imports c.i.f.	7300	10800	12217	18182	31541
2. Exports f.o.b.	6220	6130	7470	13025	26318
A. Balance of trade	-1080	-4670	-4747	-5147	-5223
B. Net invisibles, excl. transfers	+ 380	+ 450	- 368	-1531	- 784
C. Transfer payments:					
(i) official	+ 220	+ 380	+ 817	+ 408	+ 658
(ii) private	+ 400	+ 400	+ 408	±1137	+ 2618
D. Balance on current account	- 80	-3440	-3890	-5133	-2731
II. Capital account					
1. Private transactions	-40	- 60	+ 15	- 122	- 265
2. Banking transactions	—	+ 10	- 26	- 14	- 59
3. Official transactions	+ 150	+ 2320	+ 3947	+ 6795	+ 5352
4. Net drawings from the IMF	- 80	+ 110	+ 152	- 535	+ 1508
5. Movements in reserves	+ 250	+ 1200	+ 4100	+5681	+ 4564
III. Errors and omissions	-200	-140	-210	-548	-1833

Source: Deepak Nayyar, 'India's Balance of Payments', *EPW* Annual Number, April, 1982.

In most years, there has been a net outflow of private capital from India. However, special measures taken by the government in the way of fiscal incentives and higher rates of interest to encourage non-resident Indians to hold rupee and foreign exchange accounts in India have led to an inflow of such funds from 1980-81 onwards. To what extent such funds prove to be long-term investments in India and how far they are in the nature of short-term capital movements is yet to be seen.

The precariousness of India's balance of payments and the necessity of negotiating official loans with foreign governments and international bodies such as the IBRD (World Bank) and its soft-loan window, IDA, have meant that on the one hand, various kinds of import and exchange restrictions have become part of the tool box for managing the external payments deficit and on the other hand, imports have often been conditional upon accepting various types of tying arrangements or other conditions required by foreign governments or other official lending agencies. India secured an EFF loan from the IMF in 1981. This required an easing of import restrictions and the implementation of a policy of increasing the relative prices of scarce goods and services so as to keep the government deficit down and to allow market forces to bring about a better allocation of resources.

Table 5.7
India's Balance of Payments 1976-77 to 1981-82
(Rs. million)

	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
1. Imports c.i.f.	48169	55410	73975	95757	125436	138865
2. Exports f.o.b.	51331	54335-	55549	62014	65764	77655
3. Balance of trade	+ 3162-	1075-	18426-	33743-	59672-	61210
4. Non-monetary gold movement (net)	53	53	264	52	—	—
5. Net invisibles	8240	14221	15714	26032	37486	33031
6. Current acct. (net)	+ 11455	+ 13199-	2448-	7659-	22186-	2817?
7. Capital trans.						
a) private (net)	- 27+	855-	322-	218+	970+	819
b) govt, (net)	- 4486-	4876+	115+	2265-	1874-	2350
c) amortization payments (gross)	- 3620-	4811-	4639-	5349-	6861-	6538
8. Errors and omissions	- 3241-	151+	5884+	106-	1580	3955
9. Total deficit or surplus financed by:	- 1781+	2005-	3568-	12507-	31479-	40674
10. External assistance						
a) loans	12373	9840	8610	10263	11842	13670
b) grants	.3369	3705	3697	4674	5084	4453
11. Drawings from IMF (gross)	15742	13545	12307	14937	16926	18123
12. Allocation of SDRs	—	—	1256	1263	1205	—
13. Decline (--) in or increase (+) in reserves	-13961+	15550+	9995+	3693-	5160-	16183

Source: Government of India, *Economic Survey*, 1983-84.

5.2 Industrial Growth and Structural Change Within the Industrial Sector

In Table 5.8 are presented the index numbers of India's industrial production since 1960. Even a casual scrutiny of the figures would show that the average rate of industrial growth was lower in the 1970s than in the 1960s and that the major deceleration took place after 1965. Growth rates were above average in the years 1975-78 but below average in the subsequent two years. In the years 1981-83 the average rate of growth has been around 5 per cent per annum.

Even this rather moderate rate of growth (compared with the rates achieved in South Korea and China) has been attended with a significant change in the commodity composition of products included in the index of industrial production. This is easily indicated by the figures of weights of the different groups of products in the indices of industrial production with base years 1960 and 1970, respectively.

Weights	Basic goods	Capital goods	Intermediate goods	Consumer goods	
				Durable	Non-durable
With 1960 base	25.11	11.76	25.88	5.68	31.57
With 1970 base	32.28	15.25	20.95	3.41	28.11

In this classification, basic industries include mining and quarrying, iron and steel, fertilizers, cement, heavy inorganic chemicals; capital goods include hand tools, machine tools, electric motors and other prime movers, industrial machinery, etc.; intermediate goods include cotton yarn, jute textiles, tyres and tubes, man-made fibres, dyestrips, petroleum refinery products, etc.; and consumer goods include processing of food, cotton weaving (mill sector), paper and paper products, motorcycles and bicycles, telecommunication equipment, etc. Some of the products are illogically classified,—fertilizers are clearly intermediate goods, for example. All commercial office and household machines were put among consumer durables in the 1960 index. But by and large, one can use these figures for analysing the major features of changes in the composition of industrial output in the factory sector.

The decline in the importance of consumer goods is expected as the industrial sector becomes more complex. An increasingly larger proportion of the final value even of essential consumer goods including foodgrains is fabricated in industries upstream. (For example, while inorganic fertilizers had a weight of 0.46 only in the 1960 index, it has a weight of 1.39 in the 1970 index. Its weight has increased even further recently, for its index of production stood at 458.7 in 1983 as against the general index of 179.7 and the groups index for basic goods of 214.8 in the same year). The small proportion of consumer durables in total output can be explained mainly by the low level of absolute income in India. What is more surprising is that the share of consumer durables should have actually declined over the period 1960-70 (as reflected by the lower weight accorded to the group in the 1970 index). Part of the explanation probably lies in the inclusion in the 1960 classification of some items under consumer durables which did not properly belong there. Since 1970, and especially since 1976 or so, consumer durables have generally grown faster than consumer non-durables: in 1983 the index (with base 1970) for the former was 168.3 and that for the latter was 154.7.

The fall in the weight of the intermediate goods group in the 1970 index, and the continued retardation of this group in relation to the other groups are almost entirely accounted for by the poor performance of cotton spinning and jute textiles. The relative decline of cotton spinning is connected with the stagnation of major sectors of the cotton textiles industry. This stagnation in its turn is linked to lack of technical progress in cotton textiles to counter the challenge of synthetic fibres, the slow rise in incomes of poor people leading to a stagnation in demand for coarse cloth, and pervasiveness of restrictive practices in the industry obstructing the growth of markets at home and abroad.⁶ The poor performance of a large number of firms in the cot-

6. A.K. Bagchi, 'Structural Change in the Cotton Textile Industry in India: Some Issues of Analysis and Policy', in V. Padaki and V. Shanbhag (eds.): *Industrial Sickness: The Challenge in Indian Textiles* (Ahmedabad, Chimanbhai Lalbhai Centre for Management, 1984).

Table 5.8
Index Numbers of Industrial Production in India, 1960-82

	Basic goods	Capital goods	Intermediate goods	Consumer goods	All industries
Base: 1960 = 100					
1961	112.7	118.0	105.8	106.6	109.2
1962	128.2	153.0	113.6	108.0	119.7
1963	146.5	170.0	122.9	110.4	129.7
1964	152.1	206.1	132.2	118.6	140.9
1965	164.3	244.2	140.1	127.5	153.7
1966	172.9	210.1	136.7	131.3	152.4
1967	176.4	205.2	139.6	125.6	151.4
1968	193.9	210.9	148.2	131.9	160.9
1969	212.0	214.0	154.4	145.3	172.5
1970	221.7	224.6	158.8	154.7	180.8
Base: 1970					
1971	104.6	105.4	104.0	103.4	104.2
1972	113.0	106.2	111.2	108.2	110.2
1973	109.5	123.6	114.2	107.8	112.0
1974	113.8	129.5	112.3	109.7	114.3
1975	129.0	130.1	113.7	107.4	119.7
1976	147.5	143.8	122.2	118.4	131.4
1977	155.0	151.7	125.8	126.0	138.3
1978	162.4	156.8	135.8	138.3	147.8
1979	166.2	160.4	139.5	135.9	149.5
1980	164.6	168.1	140.7	135.9	150.6
1981	188.6	181.1	145.9	147.9	164.6
1982	203.6	180.1	148.6	155.5	172.0
1983	214.8	187.9	160.3	156.1	179.7

Source: Reserve Bank of India, *Reports on Currency and Finance*, various years.

ton and jute textiles industries has contributed in a major way to the problem of industrial sickness whose amelioration has been on the agenda of government policy since the beginning of the 1970s.

The problems of industrial restructuring in India involve not only the question of changes in product composition but also those of changes in the size distribution of factories and employment provided by them, changes in the relative position of artisanal and household industries and the degree of efficiency of resource use. The

structure of employment, value added, fixed capital, etc. within the factory sector is illustrated by figures given in Table 5.9. The table shows that there are enormous variations in the ratios of fixed capital to the number of persons employed or to the value added as between different size-groups of firms. (It would, however, be misleading to conclude that firms which are small in terms of employment offered or even capital employed are necessarily labour-intensive, for there are small firms with high degrees of capital intensity.)' In order to assess the position of different size-groups of enterprises in respect of employment offered, we have to add that although small-sized units offer only a quarter of the employment generated in the factory- sector, the village and small industries (that is, including small factories, household units and artisanal units which are not registered factories) together offered employment opportunities (full-time and part-time) to about 23.58 million persons in 1979-80. This is about five times the employment provided in the large and medium-scale factories (with more than Rs. 2 million invested in plant and machinery per factory) which amounted to 4.5 million in 1979-80.⁸ Any policy formulated by the government for industrial restructuring has to take into account its impact on tiny or small factories as well as village and small industries.

5.3 Industrial Policies Towards the Private Sector and their Bearing on the Industrial Structure

The Government of India has pursued a veritable congeries of policies with a bearing on the industrial structure. The objectives of the policies were not always, or even generally, the attainment of a well-defined structure of industries in terms of product composition, employment or organisation. But most of the policies have had some impact on all these aspects, and naturally, some of the policies have appeared to get in one another's way.

A major instrument of policy and planning has been the Industrial Development and Regulation Act, passed in 1951, under which entrepreneurs waiting to undertake industrial investment above a certain limit have had to seek the government's approval. This Act has been revised from time to time so as to raise the limit of investment which needs to be licensed, and latterly, so as to permit expansion beyond the capacity licensed. In July 1980, for example, the Government of India decided to sanction retrospectively capacity increases in selected industries resulting from improved technology or higher labour productivity, permit automatic expansion of 5 per cent per year of all units that had to seek and could obtain industrial licence and view favourably the setting up of plants geared to 100 per cent, production for export.' This policy change has been taken further in more recent times. In April 1982, industrial capacity of licensed units was refixed on the basis of highest production achieved during the five years up to 1981-82 (even if such production exceeded previously licensed capacity). The ceiling on amount of investment in fixed assets,

- 7 S.L. Shetty, 'Industrial Growth and Structure, as seen through Annual Surveys of Industries', *EPW*, 2 October and 9 October 1982.
- 8 Government of India, Planning Commission: *Sixth Five Year Plan 1980-85* (New Delhi, Planning Commission, 1981), p. 187.
- 9 Reserve Bank of India: *Report on Currency and Finance 1979-80*, Vol. 1 (Bombay, 1980), p. 43.

viz., land, building, plant and machinery which was exempted from licensing requirements was raised from Rs. 30 million to Rs. 50 million.¹⁰ In 1982-83 and 1983-84, these policies were continued and further strengthened. In 1983-84, the capacity of industrial units was re-endorsed on the basis of the highest level of production already achieved during the five years ending 1982-83 plus one-third thereof. In case of units whose output in 1982-83 was higher than the capacity already re-endorsed, capacity would be re-endorsed as that output plus one-third thereof. Further re-endorsement of capacity has been announced in the case of units which have already achieved higher outputs than the capacity re-endorsed in 1983-84." Thus, for practical purposes, in case of units which are able to attain higher and higher levels of output, the industrial licensing requirement is no longer a binding constraint.

Table 5.9

Capital, Output, Employment and Structural Ratios by Size-Group of Capital Employed in Industrial Units in India, 1975-76

	Tiny*) sector	Small*) scale sector (exclud- ing tiny units)	Large scale sector	Unclas- sified by size	Total factory sector
Number of factories	33,5%	20,778	6,149	11,182	71,705
Number of employees (in thousands)	891	1,145	3,991	354	6,381
Fixed capital (Rs. million)	2,170	6,990	126,440	4,690	140,290
Fixed plus working capital (Rs. million)	6,150	12,930	179,640	5,600	204,520
Value added (Rs. million)	3,280	6,990	50,580	3,020	63,870
<i>Structural ratios</i>					
Fixed capital per employee	2,435	6,106	31,680	—	21,987
Fixed plus working capital per employee	6,901	11,290	45,008	—	32,021
Value added per employee	3,677	6,103	12,671	—	10,009
Emoluments per employee	2,040	3,092	7,063	—	5,427
Total capital/value added	1.88	1.85	3.55	—	3.20
Fixed capital/value added	0.66	1.00	2.50	—	2.20

Note- (a) The 'tiny sector' and the 'small-scale sector' comprise factories with less than Rs. 100,000 and with between Rs. 100,000 and Rs. 1 million, respectively, invested in land, buildings, plant and machinery.

Source: Ministry of Industry, Office of the Economic Adviser, Government of India, *Basic Information from Annual Survey of Industries 1975-76*, (mimeo).

10 Reserve Bank of India: *Report on Currency and Finance, Vol. I, 1982-83* (Bombay, 1983), p. 55.

11 Government of India: *Economic Survey 1983-84* (New Delhi, 1984), p. 30.

India also has had on her statute-book, since 1969, a Monopolies and Restrictive Trade Practices Act (MRTP Act).¹² This Act sought to define two major types of monopolistic organisations. One is a large business house which, through a set of interconnected undertakings, owns more than a certain specified amount (Rs. 200 million to start with) of assets. The other is a dominant undertaking, which, either by itself or through a set of interconnected undertakings, supplies a substantial proportion (usually, one-third or more) of a particular good or service within India. The Act also defines a set of restrictive practices, which have the effect of raising prices or costs to others, and restrict competition unduly. These practices have to be registered with the Commission (the MRTP Commission) set up to supervise the Act. While the MRTP Commission has the duty of supervising the large business houses and dominant undertakings, and correcting restrictive practices, the onus of proving interconnection between different enterprise or of existence of restrictive practices acting against the public interest rests with the government and the government's ruling can be challenged in the courts.

The companies or firms which come within the purview of the MRTP Act had to seek special permission when they wanted to invest in industry. But from the beginning several safeguards were built against the apparent rigours of the legislation. The government had the option of referring, or not referring, a particular case to the MRTP Commission. Exemption was granted to the MRTP companies for investment in certain specified industries (those which were supposed to require bulky investment and high technology). On top of all this, *ad hoc* exemptions were granted by the government to MRTP companies seeking to invest in particular fields.

For a long time, India did not have any special legislation relating to foreign companies. There were restrictions against movement of funds across the border, but these were governed by general foreign exchange control regulations, and were not especially directed against foreign companies. In 1973, a new section (Section 29) of the Foreign Exchange Regulation Act (FERA in brief) for the first time specified the limits of equity holding by which foreign companies were to be defined and their behaviour would be regulated. Some of the important guidelines embodied in FERA 1973 are noted below.

Virtually all companies (except shipping and airline companies) which were branches or subsidiaries of foreign firms and were operating in India were directed to bring down the participation of foreign shareholders to at most 74 per cent of the equity capital registered in India. Internal trade by FERA companies which was not directly related to their manufacturing operations was placed under restriction. Except in the case of specially exempted companies such as tea producing companies or companies claiming to produce goods that required 'sophisticated technology', or exporting a large fraction of their outputs, the FERA companies were obliged to bring down the shareholding of foreigners to 40 per cent or below. But they were allowed to earn grace marks by expanding the outputs of products listed in Appendix I (the so-called 'core sector' of industries) of the Industrial Policy Statement of the Government of India. If the FERA companies invested their funds ex-

12 For a lucid analysis of the anti-monopoly legislation, see N.K. Chandra: 'Monopoly Legislation and Policy in India', *EPW*, Special Number, August 1979; see also A.N. Oza: 'Recent Amendments to the MRTP Act', *EPW*, 16 October 1982.

clusively in the core sector, and/or if they deployed sophisticated technology, and/or if they exported most of their output, the foreign equity participation was allowed to remain as high as 74 per cent of share capital.

A few companies (the IBM and Coca Cola being celebrated examples) which came under the purview of the FERA 1973 chose to withdraw from India rather than comply with the new guidelines. However, most of the FERA companies chose to dilute their foreign equity-holding by expanding in India rather than divesting their foreign shareholding.¹³ Many of the FERA companies, especially drug companies, had been violating the industrial licensing regulations by creating capacity (particularly for production of formulations) much above their licensed capacity or refusing to divulge their capacity. The lax enforcement of the MRTP Act further favoured their expansion. On top of that, where the FERA companies were subsidiaries of large transnational conglomerates, interconnection through control by companies registered abroad was simply not recognized by the MRTP Act.¹⁴

Moreover, manipulation of political and judicial processes often provides opportunities for monopolies to perpetuate themselves. Decisions of the government including the MRTP Commission can be, and have been, challenged in the courts. Even when such suits fail in the courtroom, they provide the litigants with the opportunity to have the decisions delayed, and in the meantime, they can try and influence politicians or bureaucrats to change their original decision. This willingness on the government's part to introduce a greater element of competition by creating larger capacity or imposing an obligation to export part of the product does not always bear fruit. (The export obligation is widely evaded and the evasion is often condoned, even when it is detected.)¹⁵

Despite all these qualifications it is probably true that the MRTP Act has restricted the growth of monopoly houses below the level they would have attained had the Act not been there. The government has exempted units investing in designated backward districts from the more rigorous provisions of the MRTP Act and given them fiscal or financial concessions. This has provided one route for expansion of MRTP units. Some of the so-called backward districts are contiguous to developed units, and in any case, many units move only their labour-intensive operations or assembly work to factories in the backward districts. This means that the objective of development of backward areas is only partially fulfilled. In March 1985, the Government of India raised the limits of a company or a business house to come under the purview of the MRTP Act from an asset level of Rs. 200 million to Rs. 1000 million. This would probably allow the majority of the erstwhile MRTP companies to expand substantially without inviting the restrictions of the MRTP Act. Many of the erstwhile FERA companies also would be able to expand without restriction under this provision.

13 S. Chaudhuri: 'FERA: Appearance and Reality', *EPW*, 21 April 1979; idem: 'Financing of Growth of Transnational Corporations in India, 1956-75', *EPW*, September 1979.

14 Nagesh Kumar: 'Regulating Multinational Monopolies in India', *EPW*, 29 May 1982.

15 For a vivid illustration of how a single manufacturer of safety razor blades in India has been able to manipulate the political machinery and judicial processes to defeat all challenges for the last 25 years, (including those mounted by other MRTP companies and subsidiaries of transnationals), see 'The Cutting Edge of Monopoly', *The Statesman* (Calcutta), 4 and 5 October 1984.

The government has also pursued a positive policy of supporting small-scale industrial units. The original policy, adopted after independence, was meant to protect handlooms against the competition of mills. This policy was later extended and a large number of items was reserved for production by small-scale units. By the beginning of 1983, the number of items reserved for production by small-scale units had gone up to 837 and the list was further extended in 1984.

The criterion for classifying a firm as a small-scale unit has primarily been that of investment in plant and machinery; and the ceiling on the amount of investment which qualifies a unit to be classified as a small-scale one has been raised gradually. Originally it was defined as a firm in which investment in fixed assets should not exceed Ks. 500,000. Then an enterprise in which investment in plant and machinery is not more than Rs. 2 million was defined as a small-scale unit. If a firm served as an ancillary to a large enterprise, it qualified as a small-scale unit up to a limit of Rs. 2.5 million invested in plant and machinery. In March 1985, a small-scale unit was redefined as one with an investment in plant and machinery up to Rs. 3.5 million; an ancillary unit would now qualify as a small-scale unit provided its investment in plant and machinery is Rs. 4.5 million or less. The raising of the limit on investment for defining small-scale units is partly meant to take account of inflation, and partly to encourage the growth of modern small-scale enterprises, which are often capital intensive.

The small-scale units so defined, enjoy a number of concessions from the government.¹⁷ These include complete or partial exemptions from excise duties, loans from banks and term-lending institutions on concessional terms, purchases by government agencies on a preferential basis, supply of scarce raw material on a priority basis to units registered with the government or public corporations concerned with small-scale units, provision of cheap infrastructural facilities at industrial estates and through marketing organisations, and exemptions from industrial licensing provisions and from some of the clauses of the Companies Act. Besides these, very small units owned or operated by designated sections of the population (tribal people or landless workers) are given subsidies and bank loans on concessional rates under the Integrated Rural Development Programme.

The effectiveness of such schemes can be judged in several ways. One can ask whether all the so-called tiny units (those with an investment in fixed assets amounting to less than Rs. 200,000), other small-scale units and cottage or artisanal units which are meant to be covered by the schemes are actually covered by them. The answer is, 'No'. Only a fraction of such units actually enjoy the benefits of the various concessional schemes. But it seems that a majority of small-scale units which are registered as such with the various state directorates and other organisations looking after small-scale units enjoyed some kind of financial assistance from commercial banks. According to the Working Group on Small-Scale Industries for the Five Year Plan 1978-83, the total number of small-scale units (including unregistered, closed

16 Government of India, *Economic Survey, 1982-83*, p. 26.

17 For a reasonably complete list of such concessions, see S.K. Goyal, K.S. Chalapati Rao, and Nagesh Kumar: *Small Scale Sector and Big Business* (mimeo; New Delhi, Indian Institute of Public Administration, 1984), Chapter 1.

and untraceable units) was between 400,000 and 500,000 and of these about 314,000 units were assisted by commercial banks.¹³

The second question is whether units, which are not meant to benefit from concessional assistance, nevertheless enjoy it. The answer is 'Yes, they do'» Under the law, units belonging to houses or firms registered with the MRTP Commission or falling under the purview of Section 29 of the FERA 1973 are not supposed to enjoy the advantages conferred on small-scale units. But in fact there are a number of units controlled by MRTP groups or FERA companies which enjoy concessional loans, are exempt from licensing provisions and are given government subsidies because their investment in fixed assets is less than Rs. 2 million. The machinery for verifying the actual value of assets or the proportion of output to be sold to other units is very defective. Thus it is difficult to verify the claims of units which allegedly possess assets worth less than Rs. 2 million or which allegedly own assets less than Rs. 2.5 million and sell 50 per cent or more of their output to other industrial units. Moreover, in various surveys, it has been found that a third or more of the small-scale units are simply untraceable.²⁰

The bigger of the small-scale units have been enjoying the major part of concessional bank loans²¹ and the outputs of power looms have been growing at the expense of both mills and handlooms.²² But there are other artisanal industries for which government subsidies and infrastructural help have been provided. So it is unclear as to whether the really tiny units or village industries are gaining or losing at the expense of the larger small-scale units. There is a little more definite information about registered factories which are covered by the Annual Survey of Industries (ASI). The ASI covers on a census basis all factories employing 100 or more workers without power and 50 or more workers with power, and takes a 50 per cent sample of all those factories which employ 20 or more workers without power, or 10 or more workers with power. Defining the former group as large scale factories and the latter group as small-scale factories, we get the figures of output given in Table 5.10. It will be noticed first how small the contribution of the smaller factories is to the total capital, employment or value added. But it will also be seen that the capital intensity of the larger factories is much greater than that of the small-medium factories. If we look at the growth rates, we find that the rates of growth of the value added of the two groups are practically the same, but the rates of growth of fixed capital and especially employment of the smaller factories are higher. Since the gross outputs, fixed capital and labour are growing faster in the case of smaller factories, whereas value-added is not, it is suspected that the smaller factories are also getting relatively more inefficient over time. Although there are small factories which use modern,

18 R. Varma: 'Employment and Production in Small-Scale Industries: Some Findings of the Reserve Bank Survey', *Reserve Bank of India Occasional Papers*, Vol. 1. No. 2, December 1980.

19 Our analysis here follows Goyal, Chalapati Rao and Kumar: *Small-Scale Sector and Big Business* Chapters III and IV.

20 *Ibid.*, p. 156.

21 'Finance for Small-Scale Enterprises in India', *Reserve Bank of India Bulletin*, November 1982, p.12.

22 Government of India, Planning Commission: *Draft Five Year Plan 1978-83*, p. 183; and Government of India, Planning Commission: *Sixth Five Year Plan 1980-85* (New Delhi, August 1983), Table 8.1.

efficient technology, it may be that what are classified as small factories are really the residual sector consisting of units, which are too inefficient to expand or adapt to changing conditions.

Table 5.10
Growth of the Large, Small and Medium Factories, India 1971-79

Year	Large factories			Small and medium factories		
	Fixed capital (Rs. mil)	Employment (‘000)	Value added (Rs. mil)	Fixed capital (Rs. mil)	Employment (‘000)	Value added (Rs. mil)
1971	83,240	4,311	28,090	4,280	905	340
1972	88,000	4,601	31,230	3,430	835	315
1976-77	163,720	5,433	65,960	7,990	1,253	689
1977-78	184,780	5,629	71,990	9,860	1,465	917
1978-79	217,100	5,747	85,280	11,760	1,501	1,026

Source: Government of India, Central Statistical Organisation, *Annual Survey of Industries*, various issues.

The *Annual Surveys of Industries* provide data on factories rather than firms. The data available in the balance sheets of public (and private) limited companies could throw light on the performance of firms. The Reserve Bank of India has carried out studies of finances of non-governmental, non-financial small and large public limited companies going back to the middle of the 1950s.²³ The companies have been classified according to the sizes of their paid-up capital and according to the industries in which they mainly operate (it is not clear how really diversified companies are accredited to a particular industry). Small companies are those which have paid-up capital less than Rs. 5 million, medium companies are those with paid-up capitals between Rs. 5 million and Rs. 10 million, and large companies are those with paid-up capitals of Rs. 10 million and above. It would appear that by and large, the ratios of gross and net profit to net assets and sales increased from the small to medium to large-sized companies. Without a proper analysis of variance it is not possible to say whether in every industry there are strong economies of scale in the sense of an increase in profitability with increase in the size of paid-up capital (the size of fixed

23 Four such recent studies are 'Finances of Medium and Large Public Limited Companies, 1978-79', *Reserve Bank of India (RBI) Bulletin*, November 1981; 'Finances of Large Public Limited Companies 1980-81', *RBI Bulletin*, 1982; 'Finances of Medium and Large Public Limited Companies', *RBI Bulletin*, July 1983; and 'Finances of Large Public Limited Companies, 1981-82', *RBI Bulletin*, October 1983. Profitability data for the period up to 1980-81 are given in a summary form by Sau: 'Profit Rates in Private Corporate Sector', *Economic and Political Weekly*, Review of Management, November 1983. A summary of the studies from 1950-51 to 1962-63 is available in *Financial Performance of Joint Stock Companies in India 1950-51—1962-63* (Bombay, Reserve bank of India, 1967).

assets might provide a better scalar index). But when the differences seem to have persisted over a 30-year period,* one can conclude that there are genuine economies of scale in the performance of private sector companies, in the sense that either industries in which economies of scale are significant are more profitable than those in which they are not, or that in most industries a larger size does confer an advantage at least up to a certain upper limit (which may not have been reached in many of these industries) or that the interaction of the industry and size effects confers an advantage on the larger firms.

Whether such company-wise economies of scale are also enough to make for a greater degree of concentration of economic power in the sense that conglomerate business houses or firms have grown faster than the rest of the industrial sector is difficult to make out. Studies of the degree of concentration of private economic power in Indian industry have failed to discern any noticeable rise or decline in the countrywide concentration of economic powers. A computation of the rates of growth of the assets of the top ten industrial houses (ranked according to the size of assets in 1981) revealed that they grew at rates ranging between about 9 per cent and 17 per cent per year over the period 1972-81.²⁶ The rates of growth are higher than that of income derived from registered factories at current prices but not substantially higher. Some of the large industrial houses also operate enterprises in the tertiary sector whose rate of growth has been higher than that of the industrial sector. The degree of concentration of economic power, in recent years may have risen, but not greatly.

Our rapid survey of the size structure of production units, firms and private conglomerate houses would tend to show that government policies and the forces of inertia and friction have acted together to rule out any dramatic changes in these size distributions. But there is some evidence that the large and medium-sized firms have gained at the expense of smaller enterprises and that small enterprises using a more modern technology have gained at the expense of artisanal enterprises. (The effect has been most dramatically seen in the growth of powerlooms as against handlooms," and of mills using synthetic fibres and mixed fibres as against mills using cotton only.) Moreover, within the large-scale industrial sector ordinary wage-earners have generally lost out in relation to salary-earners and receivers of profit and interest incomes, for the share of wages in value added has generally declined over time.²⁸

24 The earliest of the RBI studies of company finances goes back to 1950-51 but the size-wise classifications are available only from 1956-57 onwards.

25 See, for example, N.K. Chandra: 'Monopoly Capital, Private Corporate Sector and the Indian Economy: A Study in Relative Growth, 1931-76', in A.K. Bagchi and N. Banerjee (eds.): *Change and Choice in Indian Industry* (Calcutta, K.P. Bagchi & Co., 1981).

26 The data were taken from *Company News and Notes* (Government of India, Department of Company Affairs, New Delhi), February 1978 and August 1983. The top ten houses were: Tata, Birla, Mafatlal, J.K. Singhania, Thapar, ACC, ICI, Sarabhai, Bangur and Kirlskar. The lowest rate of growth was registered by Bangur and the highest by Sarabhai.

27 See in this connection M. Eapen and R. Nagaraj: 'Textiles and Industrial Growth', *EPW*, 19 March 1983 and L.C. Jain: 'Handlooms Face Liquidation: Powerlooms Mock Yojana Bhavan' *EPW*, 27 August 1983.

28 S.L. Shetty, 'Industrial Growth and Structure as Seen Through Annual Surveys of Industries', *EPW*, 2 and 9 October 1982, pp. 1613-14.

Another area of government policy which needs to be looked at is the set of policies to tackle industrial sickness. Failure of particular business units is a well-known phenomenon in any market economy. In India, however, business failures seem to have acquired an epidemic character since the end of the 1960s, and the Government of India (and to a much less extent, the constituent State governments) has taken a series of measures for reconstructing these 'sick' units and resurrecting them wherever possible. According to RBI estimates,²⁹ the number of large industrial units availing of bank credit of Rs. 10 million or more rose from 422 at the end of June 1981 to 439 at the end of June 1982. The total bank credit outstanding against such units rose from Rs. 14,532.9 million to Rs. 17,284.0 million over the same period. (These estimates presumably exclude those units which had already been taken over by the public sector or sick public sector units.) In the small-scale sector the number of sick units rose from 22,360 at the end of June 1981 to 26,973 at the end of June 1982. The total bank credit outstanding against such units rose over the same period from Rs. 3,218.2 million to Rs. 3,936.7 million. Out of the 26,973 small sick units, the banks considered only 5,316 units to be potentially viable, and they adopted special 'nursing' programmes for 1,982 units.

One of the earliest measures taken by the Government of India for tackling the problem of industrial sickness was to set up the Industrial Reconstruction Corporation of India (IRCI) which began functioning in April, 1971. By 30 January, 1983, the IRCI had disbursed Rs. 15,394 million in loans to 153 sick units, the majority of which were situated in the State of West Bengal.³⁰ Out of these only 9 units had paid back the corporation's dues in full. Thus the majority of sick units have had to be closed down or kept alive by other means. The major instrument for keeping many of these units alive (apart from continued extension of bank financing way beyond the point when the net worth of the unit has become negative) has been government takeover under the Industrial Development and Regulation Act of 1951. As we shall see, part of the observed lacklustre performance of the public sector is accounted for by the poor performance of erstwhile sick units which were taken into the fold of the public sector.

One reason for sickness was perceived to be an absence of modernization. In February, 1977, a soft loan scheme was introduced for operation by the apex term-lending institutions, viz., the Industrial Development Bank of India (IDBI), the Industrial Credit and Investment Corporation of India (ICICI), and Industrial Finance Corporation of India (IFCI). Under this scheme, loans with softer conditions of repayment were to be given for modernization to five selected industries, viz., cotton textiles, sugar, cement, jute textiles and certain engineering industries. Apart from softer repayment conditions, it was also laid down that the term-lending institutions would not enforce the clause under which loans above Rs. 5 million (loans above Rs. 10 million from June, 1980 onwards)³¹ could be converted into shares. From June 1980, the government decided to extend the scheme to all industries. From the inception of the scheme up to the end of June 1983, IDBI, ICICI and IFCI had sanctioned

29 RBI: *Report on Currency and Finance, 1982-83* (Bombay, 1983), Vol I, pp. 53-55.

30 Industrial Reconstruction Corporation of India Ltd.: *Twelfth Annual Report, 1982-83* (Calcutta, 1983), Annexure A.

31 Industrial Development Bank of India: *Annual Report 1980-81* (Bombay, 1981), pp. 20, 28.

Rs. 10,240 million for 592 proposals under the soft loan scheme and disbursed Rs. 5,740 million.

Besides the soft loan scheme, another financial scheme is operated by the Government of India for modernization. In March 1976, the Government of India established a Technical Development Fund (TDF) from which foreign exchange was to be granted for small value imports of balancing equipment, technical knowhow, foreign consultancy services and drawings and designs. A simplified procedure for issue of import licenses under the scheme was also devised." In January, 1977, the IDBI introduced a scheme for granting rupee loans expeditiously to industrial units receiving import licences under the TDF scheme. Up to the end of June, 1983, IDBI sanctioned loans aggregating Rs. 680 million in respect of 408 proposals and disbursed Rs. 540 million under the TDF scheme. Besides the above schemes, the IDBI and the leading commercial banks have schemes for rehabilitating sick units and for launching new entrepreneurs who have training or the aptitude for business but lack funds.

The financial institutions, with specific directives from the government have made active efforts to help restructure and modernize industry. If, in spite of all this, industrial units continued to fall sick or perform badly after take-over by the government, reasons are to be sought in the macro-economic environment as well as managerial or informational failures. Some of these problems have already been referred to. They include inadequate demand for the necessities, insufficient tempo of growth of public investment, repeated balance of payments problems causing a kind of stop-go cycles in growth, and obsolescence caused by lack of technical progress or replacement of worn-out equipment.³² However, besides these problems, there is the opportunistic response of many industrialists and traders to emerging difficulties and associated governmental concessions. The history of many sick units reveals that the owners have siphoned off profits by way of inflation of raw material costs, and have taken concessional loans without really modernizing the units and without inviting any penal sanctions.³⁴ Such behaviour also explains the phenomenon that many industrial units continue to obtain loans from suppliers for a long time after they have been financially unviable.^a Since these practices are common to units involved in manufactures and pure traders alike, and since conglomerates contain trading, manufacturing and financial units, it is not easy to classify such behaviour as just typical of short-sighted traders (many small suppliers, not connected with conglomerates of course, get the short end of the stick when an industrial unit goes sick).

Thus the governmental initiatives for restructuring the industrial sector in India are highly complex, and private interests take advantage of the concessions to defeat

32 Industrial Development Bank of India: *Annual Report 1977-78* (Bombay, 1978), pp. 37-38.

33 For detailed discussion of problems caused by lack of suitable investment or modernization in the steel industry, see R. Sengupta: 'Technical Change in Public Sector Steel Industry', *EPW*, 4 February 1984, and D.N. Ghosh: 'Indian Steel Industry: Need for New Approach', *EPW*, 14 April 1984.

34 The fall in the proportion of value-added to gross output over the 1970s revealed by ASI data (Shetty: 'Industrial Growth and Structure as Seen Through Annual Survey of Industries'), may not thus always reflect a fall in productivity. For a study of the problems caused by opportunistic behaviour of traders and industrialists, see S.K. Sen: 'Crisis and Profitability in Jute Industry' *EPW*, Review of Management, February 1983.

35 See, in this connection, 'Textile Mills, No Tears for Traders' (by a special correspondent), *EPW*, November 5-12, 1983.

the governmental objectives. The working of many forces at cross purposes produces a movement in slow rhythm.

How does the existence of a large and growing public sector modify this picture? And what have been the roles of the more liberal trade and technology import policies pursued in recent years and of the large science and technology establishments supported by government funds in the process of industrial restructuring?

5.4 The Public Industrial Sector and Industrial Restructuring

One measure of the importance of the public sector to the economy is its share in the national investment. The share of the public sector in gross domestic capital formation, according to estimates made by the Working Group on Savings, increased from 23 per cent in 1950-51 to 50.1 per cent in 1965-66, declined to 34.9 per cent in 1969-70, increased to 48.2 per cent in 1976-77, declined again and was 47.2 per cent in 1979-80.³⁶ This, however, overestimates the growth in the importance of the public sector in capital formation in the industrial sector, for the proportion of construction to investment in machinery and equipment is in general higher for the public than for the private corporate sector and is not very far behind the proportion of construction in household sector capital formation. If we take the proportion of public sector investment in machinery and equipment to national investment in machinery and equipment, it is estimated to have risen from 23 per cent in 1950-51 to 38 per cent in 1965-66, declined to 31 per cent in 1965-66, and reached 45 per cent in 1979-80. According to estimates prepared by the Central Statistical Organisation (CSO) of the Government of India," the public sector accounted for about 38 per cent of the gross domestic fixed capital formation in the form of machinery and equipment in 1970-71, 47 per cent in 1976-77, 40 per cent in 1979-80 and 40 per cent in 1980-81. This still is an overestimate of public sector's contribution to productive investment, for a major part of the public sector investment in machinery and equipment is for purposes of defence. But the estimate is fine enough for our purpose.

The expansion in public sector investment in machinery and equipment has not been commensurate with the resultant increase in value added, for most of the investment has gone into rather capital-intensive industries. Nor has it been commensurate with increases in profits. The long gestation lags characteristic of public sector investment have been partly responsible for this. Other reasons include rising capital intensity in particular industries, and lack of adequate balancing or modernization investment in industries such as iron and steel and railway equipment which account for such a large proportion of the public sector investment in industry.³⁷

For the Sixth Five Year Plan period the major part of the investment in industry and minerals sectors is supposed to be in the private sector. Over the period 1980-85, while private sector investment in industry and minerals is supposed to be Rs. 303.23 billion the total public sector outlay (including outlays by state governments) is supposed to be Rs. 150.18 billion, of which Rs. 17.83 billion is for village and small

36 *Report of the Working Group on Savings*, Statistical Annexure 7.

37 Central Statistical Organisation (CSO): *National Accounts Statistics, 1970-71—1980-81*, (New Delhi, CSO, Department of Statistics, Ministry of Planning, Government of India, 1983), Statement 15.

38 *Ibid*, Statistical Annexure-II.

scale industries." The greater importance attached to the private sector is connected with the move towards encouraging competition and investment by opening up the economy and providing greater incentives for private saving and investment.

In the meantime, public enterprises continue to dominate the more capital-intensive industries (although even there private investment is being encouraged). The measured profitability of public sector industry has been generally low compared with that of the large and medium private firms. This has happened in the face of an elaborate system for evaluation of projects prevailing in the non-departmental central government enterprises.³⁹ One reason is that in spite of the elaborate vetting procedure, there is insufficient co-ordination between different ministries. Another is that many projects are cleared despite obvious expected problems with the investments proposed.⁴⁰ Thus many of the investments were misconceived in the first place. Once the investments were decided on, and particular technologies were chosen, inadequate attention was paid to the absorption of technology. This problem will be taken up in the next section for more detailed discussion.

However, several other problems besides managerial failures have dimmed the financial performance of many public sector enterprises and limited their contribution to the development of the economy including industrial restructuring. One basic problem bedevilling the performance of public sector enterprises is that the external payments position of India has been quite precarious for most of the years under consideration. Thus availability of balancing foreign exchange in the form of aid or loans—mostly tied loans for industrial projects—has been crucial for many investment decisions. This has tended to raise the cost of the projects in several ways. Tied aid or loans from technology or equipment suppliers have meant that India has not been able to shop in the cheapest market. The technology suppliers have also often dictated the choice of the equipment other than that directly involved in the technology agreement and the choice of the contractors or consultants (unlike South Korea, India has not had a firm policy of designating a local firm as the prime consultant). Moreover, uncertainty about the exact package of consultants and equipment and interruptions in work until the needed foreign exchange has been found have again raised costs.

Since public sector firms have specialized in basic capital, and to a smaller extent, intermediate goods industries, variations in growth rates have affected their markets more than that of the typical private sector firm. A real coordination between public sector firms could have alleviated this problem as well as the problem of inadequate utilization of R & D facilities scattered in scores of laboratories.⁴²

39 Government of India *Sixth Five Year Plan, 1980-85*, pp. 37 and 57.

40 See for a lucid summary of the system, T. Majumdar, 'India', in P.K. Basu and A. Nove (eds.): *Public Enterprise Policy on Investment, Pricing and Returns* (Kuala Lumpur, Asian and Pacific Development Administration Centre, 1979).

41 Examples of projects which have been cleared with collaboration arrangements other than those recommended by technical experts or in the teeth of foreseeable problems of power shortage, etc. are the Thal-Vaishet project for production of urea with natural gas as feedstock and the NALCO project in Orissa for production of aluminium. See in this connection, B.M.: 'Fall-Out of Thal-Vaishet', *EPW*, 4 April 1981, and K. Srinivasan, V. Vyasulu, and Rajagopalan: 'the Orissa Aluminium Complex: Points Towards a Debate', *EPW*, 5 December, 1981.

42 For discussion of some of these problems, see A.K. Bagchi: 'Public Sector Industry and the Quest for Self-Reliance in India', *EPW*, Annual Number, 4 April 1982.

The problem of management of the Indian public sector is complicated by the fact that it now straddles all sectors of the economy while at the same time it coexists with private enterprise and private interests at every level. The interdependence of the government controlled financial institutions and the myriads of private firms to whom they lend money is fairly obvious, though sometimes economists or policy makers argue as if these financial commanding heights can bend the private economy to their will in any way they like. Even within the sector which is concerned with manufacturing, processing or extractive activities or with consultancy or construction catering to the secondary sector, the shaping of the public sector by demands of the private sector and by the history of the firms which were previously in private hands but are now incorporated in the public sector has important implications for its performance. To put it in another way, the creation of the public sector and the shape it has taken is not always the result of deliberate planning but is the resultant of diverse forces leading to nationalization of firms or their re-shaping under government direction.

The Bureau of Public Enterprises (BPE) of the Government of India oversees only a subsection of the totality of public enterprises under central government control. Nationalized banks and financial institutions, departmental enterprises such as railways and posts and telegraphs, defence-related establishments such as nuclear power plants, and ordnance and aircraft factories are all outside the purview of the BPE'. However, even within the group of enterprises covered by the BPE, the diversity in wages, productivity, capital/labour and capital/output ratios is enormous.** In 1981-82, for example, while a worker employed in Banarhat Tea Company Ltd. earned only Rs. 339 per month, and a worker employed in Manganese Ore (India) Ltd. earned Rs. 422 per month on an average, an employee of Bridge and Roof Co. (India) earned Rs. 6801 per month, and an employee of Engineering Projects (India) Ltd. earned Rs. 6843 per month. The level of wages was certainly not correlated with the degree of profitability of the firms, for all the enterprises except Manganese Ores (India) Ltd. were losing concerns in 1981-82, and Engineering Exports (India) Ltd. had lost its total capital several times over and had been kept going only with enormous subsidies from the central government. By and large, mines and other extractive industries located in traditionally low-wage areas paid low wages to their workers, and the highest pay-packages were obtained by some very capital-intensive manufacturing enterprises and by construction or consultancy firms which had become involved in overseas ventures (allowances for foreign posting would explain part, not the whole, of the wage and salary differentials as between companies with and those without, operations in foreign countries). It is also interesting that the companies trading in particular products such as tea or manganese or other minerals pay much higher wages to their workers than those producing the commodities concerned. This highlights the role of trading margins in enhancing the final prices of the products. There are also extreme variations in capital/value added and capital-labour ratios among the public enterprises. To take two examples more or less at random in 1981-82, Indian Petro-chemicals Corporation Ltd. had a capital/labour ratio of Rs. 709,346 per man and a value-added to capital ratio of 35.1 per cent whereas Burn Standard

43 The data are derived from Government of India: *'Public Enterprises Survey, 1981-82'* Vol. 3 (New Delhi, Bureau of Public Enterprises, Ministry of Finance, 1982).

Co. Ltd. had a capital/labour ratio of Rs. 23,738 per man and a value-added to capital ratio of 75.4 per cent. Even within the group of companies manufacturing similar products, the differences in these ratios are enormous. Table 5.11, for example, shows the variation in these ratios among central government enterprises producing fertilizers. The capital employed includes the value of capital stock whose historical cost has not been adjusted to take account of inflation or requirements of modernization, and may be misleading. But allowing for such deficiencies, it appears that the older capital stock is generally associated with a lower value of capital per man and partly at least reflects the inability of many of the older enterprises to carry out needed modernization or replacement of worn-out capital.

Table 5.11

Percentage of Value-Added to Capital (V/K) and Capital Per man (K/L) Employed (in Rs.) in Fertilizer Companies Owned by the Central Government

	1979-80		1980-81		1981-82	
	V/K	K/L	V/K	K/L	V/K	K/L
Fertilizers and Chemicals						
(Travancore) Ltd.	42.8	186,311	41.0	210,252	45.3	188,439
Fertilizer Corp. of India	13.0	166,575	3.4	460,646	13.0	378,194
Hindustan Fertilizers Corp. Ltd.	13.9	196,184	4.0	169,807	25.3	120,382
Madras Fertilizers Ltd.	44.0	669,584	50.4	693,546	65.7	587,649
National Fertilizers Ltd.	11.3	977,799	13.1	925,102	13.3	951,364
Rashtriya Chem. & Fertilizers Ltd.	31.2	394,175	35.5	380,675	43.0	418,527

The Government of India has naturally tried to enhance the efficiency of the companies and their profitability. In recent years, one major instrument aimed at resource conservation, a higher degree of energy efficiency, and a lower degree of subsidization of private profit by the government has been the upward adjustment of many administered prices. Among the major products or services provided by the government have been coal, petroleum, steel, electricity and rail transport. In recent years the government has drastically increased the prices of most of these services: For example, between 1975-76 and 1982-83, the index number of wholesale prices of fuel, power, light and lubricants rose from 219.2 to 455.4 whereas the index number of wholesale prices of all commodities rose from 173.0 in 1975-76 to 288.3 in 1982-83. The index number of prices of iron, steel, and ferro-alloys rose from 183.5 in 1975-76 to 386.0 in 1982-83.⁴⁴ The government fixes the prices of commodities which are not

⁴⁴ The figures are reproduced from RBI: *Report on Currency and Finance, 1982-83*, Vol II, Statement 22.

necessarily produced by public sector enterprises. For example, certain percentages of the outputs of cement, certain types of cloth, and of sugar have to be distributed through approved distribution channels and the prices of these quota-bound outputs are fixed by the government, but the rest can be sold in the free market. Prices of fertilizers are also fixed by the government.

In the wake of the second oil price rise and in particular from 1979-80 onwards, the government raised most of the administered prices for the products of both the public sector and private sector enterprises. These price adjustments were aimed at raising profitability of public sector undertakings or lowering their deficit and thereby lowering the government budget deficit, economizing on the use of these commodities or services, and stimulating private investment by making it profitable to sell a larger output, especially in the free market (as in the case of cement). Such price adjustments were also recommended by the IMF when it granted a loan of SDR 5 billion to India under the Extended Fund Facility.***

Since many of the products or services subject to price regulation are basic or intermediate goods needed for producing most other commodities, it may be expected that raising their prices drastically would have serious inflationary implications. In fact, official and semi-official reports have found administered prices to be responsible for a large fraction of the price rise in India in recent years.<> If only the rise in prices of items such as petroleum, coal and electricity is taken into account, and the influence of temporary gluts of sugar and steel is discounted, then the impact of administered prices applying primarily to public sector enterprises may well be greater.

Thus deliberate raising of prices of public sector enterprises, while increasing the profits of the public sector and making further resources available for investment may well have major undesirable side-effects and erode these profits in the longer term. The availability of a surplus for further investment may not lead to a greater degree of efficiency and a larger volume of investment of the right kind either, since investment in such industries as electric power and steel involves long lags," and public sector surpluses are often regarded as a pool to be divided between employees, suppliers and other interested parties.^

The recurrence of balance of payments crises and periodic budgetary crises have also led to curtailment or postponement of necessary investment programmes. For example, following the second oil shock and especially the taking of the EFF loans, India embarked on a vigorous programme for increasing the output of oil. As a result, output of crude oil increased' from 11.77 million tons in 1979-80 to 21.06'million

45 *The IMF Memorandum*, published in Calcutta by the Communist Party of India (Marxist), 1981. The first instalment of the loan was granted to India in the last quarter of 1981. But the Government of India had been pursuing policies on the lines recommended by the IMF for structural adjustment before the loan conditions became effective.

46 *Annual Report of the Reserve Bank of India for 1983-84* (Bombay, Reserve Bank of India, 1984); and S.P. Gupta and T.G. Srinivasan: 'Inflation and Role of Administered Prices', *EPW*, 8 September 1984.

47 For an analysis of the typical problems that are faced in the commissioning and stabilization of power plants in India, see Public Accounts Committee, 1981-82, (Seventh Lok Sabha), *Eighty-Second Report, Badarpur Thermal Power Project-Stage II* (New Delhi, Lok Sabha Secretariat, 1982).

48 Cf. R. Sobhan and M. Ahmed: *Public Enterprise in an Intermediate Regime* (Dhaka, Bangladesh Institute of Development Studies, 1980), Chapters 2 and 9.

tons in 1982-83. The trend rate of growth was maintained in 1983-84 as well." However, this substantial increase in oil production has gone primarily to meet increased domestic demand, and did not lead to any sizeable decline in imports of crude oil and petroleum products which hovered between 20 million and 23 million tons until 1982-83. According to the Advisory Board on Energy which was constituted by the Government of India in March 1983, extraction of oil from existing structures has not been matched by adequate exploration of new oil-bearing structures. As a result, the ratio of output to known reserves has risen substantially.*•

Table 5.12

Foreign Exchange Earnings and Expenditures by Central Government
Non-Departmental Public Enterprises
(Rs. million)

	1978-79	1979-80	1980-81	1981-82
Foreign exchange earnings by public enterprises	18,341.6	19,099.8	22,167.5	27,463.2
Foreign exchange utilization by public enterprises	18,746.6	35,047.2	48,572.0	56,677.3

Sow/re: Government of India, *Public Enterprises Survey*, 1979-80, Vol. 1, 1981-82, Vol 1.

From the late 1960s, the Government of India pursued a policy of encouraging the growth of exports by granting subsidies to exporters in various forms. From 1975-76, these policies were combined with a selective loosening of controls on imports of goods and technology. Public enterprises have been beneficiaries of such policies along with the private sector. Exports by public enterprises including exports of services have increased over time, but they have remained net users rather than net generators of foreign exchange earnings.

The net utilization of foreign exchange by public enterprises increased substantially from 1979-80. Part of it was caused by the rise in oil prices since the major oil refineries are all in the public sector. But a scrutiny of foreign exchange utilization by individual public enterprises shows" that practically all the enterprises concerned increased their foreign exchange expenditures in 1981-82 compared with 1980-81.

The fortunes of the public sector as well as the private sector have been affected by the policies pursued by the government in relation to import of goods, services, technology and capital and policies aimed at encouraging exports. While India had a restrictive foreign trade regime from the 1940s, there were few really binding restrictions on investment of foreign capital. As we pointed out earlier, until the passing

49 Government of India, Ministry of Energy, Department of Petroleum, *Report 1983-84* (New Delhi, 1984) and earlier issues.

50 Government of India, Ministry of Energy: *A Note on the Activities of the Advisory Board on Energy* (New Delhi, September 1983).

51 See, for example, statement 21.4 in Government of India: *Public Enterprises Survey*, 1981-82, Vol. I.

of the FERA in 1973, a foreign firm was not legally defined either. Although the aim of the original Act might have been to restrict the extent of foreign capital participation and control in Indian enterprises, exemptions were given to numerous firms coming under the purview of FERA on the ground that they were using high technology or promoting exports; and those which were not granted such exemptions generally managed to expand by selling fresh shares to Indians, while effective control still remained in foreign hands.

Indian firms were often linked to foreign enterprises by a more powerful chain—that of technical collaboration. Public sector enterprises as well as private firms had collaboration agreements with transnational corporations and other firms based abroad, and despite official frowning on repetitive agreements, many of the collaboration agreements have lasted for more than a decade in one form or other. Permission for foreign collaboration has been generally granted with a greater degree of liberality since the middle of the 1970s.

Despite a generally welcoming attitude towards the induction of foreign technology, it was felt in official circles that technologies in many industries had become outdated and that the capital goods produced in India under a protectionist regime very often embodied technologies which are years, if not decades, out of date.ⁿ It was also thought that many firms suffered from underutilization of capacity because of lack of domestic demand, and lack of needed raw materials or spare parts because of inadequate domestic supplies. The Government of India had already been operating, from the end of the 1960s, a scheme of export subsidies in the form of duty drawbacks, or cash compensation for unrefunded duties, or replenishment of foreign exchange to established exporters for importing scarce commodities needed by them. These export incentives were now linked up to the objective of modernization through the permission to import selected items of capital goods, granted liberally to exporters.^{ss} If these policies succeeded, the exporting units or units whose products were exported through export houses would achieve a higher utilization of capacity and would at the same time be able to adopt modern technology.

From 1982 onwards, special tax and interest rate concessions were given for investment of funds in India by non-resident Indians or by foreign nationals of Indian origin (NRIs, in brief). "The new deposits of maturities of one year and above held in non-resident external accounts were to carry interest of 2 per cent above the rates permissible on local deposits. Interest income derived by them from investment in notified savings certificates was exempted from income tax."^{ss} Other tax exemptions also applied to wealth held by NRIs or gifts made by them. In 1983 further tax concessions were made in the form of a flat rate of 20 per cent (plus surcharge) on income derived from designated categories of NRI investments. Long-term capital gains accruing on such assets would attract the same rate of tax.

52 To take an example, the electromechanical Strowger exchanges and telephone instruments produced by the Indian Telephone Industries were inducted around 1948 and are still the mainstay of the Indian telecommunications industry. See *Far Eastern Economic Review*, 6 September 1984, pp. 85-86.

53 For a description of the export incentive schemes in force in 1983, see Government of India, Ministry of Commerce: *Annual Report 1982-83* (New Delhi, 1983), Chapter III,

54 Government of India: *Economic Survey, 1982-83*, p. 43.

During the year 1983-84, NRIs were also allowed to import machinery under the open general licence (OGL) for setting up small-scale units. They were also allowed to import their initial requirements of raw materials up to a maximum of Rs. 500,000.⁵⁵

While the fiscal concessions made to the NRIs were clearly meant to attract foreign exchange and help alleviate the balance of payments problems, more liberal import of machinery permitted to the NRIs was linked with the policy which had been pursued for the preceding two or three years of relaxing controls on import of capital goods and materials.⁵⁶ As pointed out earlier, more liberal import of capital goods and raw materials are meant to encourage modernization, better utilization of capacity and higher exports where the imports are linked to better export performance. (However, there are categories of production destined for the domestic market which are deemed to be exports for the purpose of availing of export subsidies.)

Given the fact that India has a large capital goods industry and many of the imported capital goods will compete with domestically produced goods, such imports may in fact lead to a greater degree of underutilization of capacity at least in some sectors of the economy. Moreover, some of the industries which need modernization most such as iron and steel, or fertilizers are in the public sector, and most of the concessions for import of capital goods are for imports on a small scale at a time. In general, the private sector has been able to take most advantage of the liberalization of imports.

Moreover, larger imports of capital goods *per se* do not go into the heart of the problem, viz. that of inadequate absorption of imported or domestically produced technology. While India has, as we shall see, made a large effort in the first stage of innovation, viz. invention of new processes or new products through her network of laboratories, this effort has not been followed up with the other stages—of commercialisation of the innovation, of its successful embodiment in a plant and so on. In the case of imported technology the problem is no different—very often the original design itself was defective and the plant was badly unbalanced. Even when this was not so, the inadequate maintenance of plant and machinery, insufficient attention paid to overall control of the plant and inventories, and lack of any attempt to upgrade the technology through shop-floor practices led to a deterioration in the actual technology employed. As a result, measured factor productivity in many of the key process industries such as iron and steel, thermal plants and fertilizers have tended to decline or remain stagnant over time.⁵⁷ Reliance on import of capital goods to upgrade technology without tackling the more basic problems would tend to postpone the modernization of many of the older plants while obstructing effective absorption of the new technology—whether indigenously developed or imported.

55 Government of India: *Economic Survey, 1983-84*, p. 70.

56 For summaries of the policies pursued see 'Import Policy—I (by Goyal) and 'Chimera of Export Growth', *EPW*, 30 April 1984, A. Goyal: 'Red Carpet for Capital Goods', *EPW*, 19-26 May 1984, A. Sanyal: 'Accumulating Changes in the Nature of Controls in the Indian Economy', and B. Dhar: 'The New Import-Export Policy', *Social Scientist*, May 1984.

57 See, in this connection, R. Sengupta: 'Technical Change in Public Sector Steel Industry', *EPW*, 4 February 1984 and A. Ghosh: 'Efficiency Productivity of Indian Manufacturing Industry: A Few Case Studies', *EPW*, Annual Number, 1984.

The government has also granted exemptions or concessions to various categories of importers of second-hand machinery. This would further complicate the problem of absorption of technology, since the engineering specifications of such machinery are often not available, and since the frontline manufacturers of capital goods very often discontinue the production of spare parts or components of older vintages of machinery.⁵⁸ The evasion of the problem of upgradation of large-scale process technology is well illustrated by the relaxation made in the case of import-of diesel generating sets. Usually because diesel generating sets of capacity between 500 KVA and 1000 KVA are domestically available, such sets were not allowed to be imported. However, manufacturer-exporters have been allowed to import diesel generating sets above 500 KVA capacity against their import-replenishment quotas without going through the normal procedure for clearance.⁵⁹ In addition, NRIs also have been allowed to import generating sets of 500 KVA and above. Another very good example of the mismatch of technology policies and actual conditions is the telecommunications industry: while a very large proportion of telephones in the country remain out of order because of instrument faults, the government plans to go ahead with a massive investment in communications satellites and electronically operated exchanges, without paying serious attention to the faults in the cables and receiving instruments.⁶⁰

How do all these initiatives for inducing new technology, increasing exports and capacity utilization through a finely-modulated policy of liberalization of imports and encouragement of exports dovetail into India's policy of encouraging indigenous innovation? India has a large establishment concerned with scientific and technological research. Before the Second World War, scientific research was carried on in the colleges and universities of India, and in such private institutions as the Indian Association for the Cultivation of Science, Calcutta and the Indian Institute of Science, Bangalore. This research was of a surprisingly high quality, given the meagreness of resources. Besides, there were a few government sponsored technological research institutions for research in agriculture, leather, tanning processes, sugar technology, etc. with only a limited funding support. During the Second World War and after the government took steps to establish the Council of Scientific and Industrial Research, the Atomic Energy Commission, and a series of laboratories under their control and under the control of the Department of Defence. The model followed was generally that of the Department of Scientific and Industrial Research in Britain. Thus basic research was given a cognate importance with applied research and effectively accorded greater priority than developmental work in most of the laboratories. While the problem of establishing effective links of research in the laboratories and developments on the factory floor was recognized and was stressed

58 For discussion of some of the actual problems involved in the purchase and operation of second-hand machinery by less developed countries, see C. Cooper, R. Kaplinsky and R. Turner: 'Second-hand Equipment in Developing Countries: Jute Processing Machinery in India, in A.S. Bhalla (eds.), *Technology and Employment in Industry* (Geneva, International Labour Office, 1975).

59 'Chimera of Export Growth', *EPW*, 30 April, 1984.

60 See, in this connection, 'Focus on Telecommunications/Office Technology: India', *Far Eastern Economic Review*, 6 September, 1984, p. 85.

in reports of various committees appointed later on,⁶¹ such links worked rather intermittently, if at all, in most cases.

The CSIR laboratories, universities and Indian Institutes of Technology, the Atomic Energy Commission⁶² (later named the Bhabha Atomic Research Centre after the first director of the Atomic Energy Commission) and the defence laboratories were later joined by the Indian Space Research Organization. Apart from the production of nuclear energy, most of these laboratories had no direct link with particular factories. In the public sector, however, in a few cases design and research organisations were linked directly to particular plants. Such, for example, was the case with the Planning and Development Division of the Fertilizer Corporation of India and the Central Engineering and Design Bureau of Hindustan Steel Ltd. Later, however, it was decided to delink these divisions or bureaus from their parent companies and launch them as separate consultancy firms. Thus they lost a vital link with the production side and the factories lost an organisation to which any problems requiring adaptation or changes in production methods could be referred on a routine basis.

Even while these R&D set-ups were linked to particular firms, the work of design or construction of new plants was often entrusted to foreign consultancy firms with greater experience, with patented knowhow or simply with greater financial resources often linked to aid programmes of particular countries. While the Indian consultancy firms were hindered at every stage by lack of domestic finance or foreign exchange, and their work in collaboration with foreign firms suffered as a result, the latter could often dictate their own terms in projects in which they were prime contractors. The tendency of large contracts going primarily to foreign contractors with little participation by Indian firms became pronounced in the 1970s. Moreover, even public enterprises, such as Engineers India Ltd. (which had started as a joint venture with Bechtel Corporation of the USA) were allowed to bring in foreign consultants with little participation by Indian organisations with experience in the field."

This fragmentation of consultancy work and inability of Indian consultancy firms to accumulate enough experience almost certainly hampered the learning process in the public sector. In the private sector, barring subsidiaries of a few transnational corporations and a few, exceptional Indian firms in the field of drugs and pharmaceuticals and electrical equipment industries, most firms had no R & D set-ups. Even when the set-up was there, only routine testing or quality control was conducted in such a set-up. The private sector, and for that matter, the public sector, depended primarily on foreign collaboration agreements for the induction of new technologies into India. The number of such collaboration agreements has fluctuated with fluctuations in industrial growth, but since 1979 or-so it has shown a strong upward

61 See, for example, *Report of the Industrial Research Planning Committee, February 1945* (Bombay, Council of Scientific and Industrial Research, 1945); and *Report of Committee of Enquiry (Council of Scientific and Industrial Research), Part I* (Sarkar Committee Report) (New Delhi, 1970).

62 For the early history of the Atomic Energy Commission, see Robert S. Anderson: *Building Scientific Institutions in India* (Montreal, Centre for Developing Area Studies, McGill University, 1973).

63 For a compact list of processes and contractors in factories in operation and projects under implementation in the fertilizer industry in 1976, see *Fertilizer Production in India* (New Delhi, Fertilizer Association of India, 1976).

trend.« The total number of foreign collaboration agreements approved was 267 in 1979, 526 in 1980, 389 in 1981 and 515 in 1982-83," it increased to more than 600 in 1983-84.

India, of course, is not alone in using foreign collaboration agreements as a major vehicle of technology transfer. What, however, differentiates India from such a country as Japan is that the foreign collaboration agreement is not backed up by adequate expenditure on local R & D effort for absorbing the technology. Moreover, many of the foreign collaboration agreements and import policies pursued in recent years go against the objective of achieving greater self-reliance through the laboratories under the CSIR and other organisations and run counter to the policy norms embodied in the Indian Patents Act of 1970.⁶⁶ For example, while the Indian Patents Act of 1970 lowered the validity of patents from 16 to 14 years, and in the case of patents in the field of food, drugs and medicines to 7 years only, many foreign collaboration agreements have a duration of more than 14 years. According to a survey made by the Department of Science and Technology, in 1978-79, as many as 46 out of 262 foreign collaboration agreements in industry in 1978-79 had a duration of 13 years and above (2 agreements had run for more than 35 years).⁶⁷ On the other side, it is claimed that new technologies or goods embodying new technologies are often allowed to be imported into India just when a national research laboratory is about to launch a comparable technology, and this effectively kills the indigenous innovation.⁶⁸

Through various tax concessions and through its own direct funding of research the Government of India has pushed up the total R & D expenditure in various forms in the country. Table 5.13 gives the figures of R & D expenditure and expenditure on related science and technology activities in India in four bench-mark years. The expenditure on R & D increased faster than GNP so that as a percentage of GNP,

64 For a discussion of Indian industrial growth and foreign collaboration agreements up to 1976, see A.K. Bagchi, P. Banerjee and U.K. Bhattacharya: 'Indian Patents Act and Its Relation to Technological Development in India', *EPW*, 18 February, 1984.

65 The figures are derived from *Annual Reports of the Industrial Development Bank of India* (IDBI). The IDBI uses the number of foreign collaboration agreements as one index to judge the investment climate.

66 For a more detailed discussion, see Bagchi, Banerjee and Bhattacharya: 'The Indian Patents Act and Its Relation to Technological Development in India'.

67 Government of India: *Research and Development in Industry, 1978-79* (New Delhi, Department of Science and Technology, 1981), p. 6.

68 The failure of the CSIR laboratories to market a colour TV before the Asian Games of 1981 illustrates the muddles in technology policy. According to the Director General of CSIR, 'We had developed colour TV without picture tube and only a limited number of circuits had to be imported. We had made this in the laboratory. It is true that we had entered into an agreement with the CEL (a central government enterprise) that they could market it. We finalised the licensing terms with them when we were advised that CEL were not in this field and the ECIL (another central government enterprise) were in the field of TV and that we should talk to them. Then we negotiated an agreement with them saying that they would make 500 sets straightaway. We gave them full documentation. They expressed their satisfaction and telexed that they will sign the agreement. At that time Government decided to import kits. The situation is that we come to a certain standard and at this time the Government does not want to use its knowhow. Public Accounts Committee (1983-84), Seventh Lok Sabha: *Hundred and Seventy-First Report, Council of Scientific and Industrial Research (Engineering Science Group)* (New Delhi, Lok Sabha Secretariat, September 1983), pp. 23-24.

R & D expenditure was 0.47 per cent in 1970-71 and 0.66 per cent on 1980-81. This percentage is higher than in many other developing countries but lower than the percentage of R & D expenditure to GNP in countries such as Argentina, China, South Korea and Yugoslavia and considerably lower than in the UK, USA, USSR, Japan or France. What is more significant is that a country such as South Korea, starting from a much lower base, has overtaken India in respect of the share of national income devoted to R&D effort.⁶⁹ Moreover, the share of the private sector in India remains less than a seventh of total R & D expenditure, whereas

Table 5.13

Expenditure on R & D and Related Science and Technological Activities in India
(Figures in Rs. million)

	1970-71	1974-75	1980-81	1982-83 (estimated)
<i>Expenditure on R & D</i>				
Central govt, sector	1124.7	2311.4	5453.1	7211.6
State govt, sector	125.8	240.0	519.5	651.6
Private sector	145.9	364.6	1039.3	1496.6
Sub-total (A)	1396.4	2916.0	7011.9	9359.8
<i>Expenditure on related S & T activities</i>				
Central govt, sector	337.3	277.8	279.7	369.8
State govt, sector	n.a.	46.5	140.1	175.7
Sub-total (B)	337.3	324.3	419.8	545.5
Grand total (A + B)	1733.7	3240.3	7431.7	9905.3

Source: Government of India: *Research and Development Statistics, 1980-81* (New Delhi, Department of Science and Technology, 1983), p. 55.

in South Korea the private sector spends as much as the government on R & D. The Indian central government accounts for more than 90 per cent of total public sector expenditure on R & D. In 1980-81 Department of Space, Atomic Energy and the Defence Research and Development Organisation accounted for Rs. 2086.4 million out of the total central government R&D expenditure of Rs. 5453.1 million. Thus only about 60 per cent of the R & D expenditure could have had any direct link with civilian production capacity (the Indian nuclear power plants have had one of the lowest utilization ratios in the world, and have a rather low degree of linkage with civilian industry).

69 The figures for comparison are taken from Government of India: *R&D Statistics 1980-81*, Chapter 8.

The total R & D expenditure incurred directly by industrial enterprises amounted to Rs. 1937.7 million in 1980-81. Of this total about 55 per cent (Rs. 1039.3 million) was incurred by private enterprises and the rest was spent by public enterprises. It is not clear how many of the R & D units in the private sector are really effective, since the number of units incurring R & D expenditures is 470, and the size of some of these R & D outfits is too small to be effective.

As we have noted earlier, some of the R & D units in the public sector were earlier delinked from productive enterprises. These are now often employed for short-term fire-fighting purposes when production problems come up in public enterprises in related fields.⁷⁰ But some of the parent firms from which the consultancy organisations had hived off have set up their own R & D organisations. Here again we witness the tendency of industrial organisations, especially those under government control, to go in for new ventures, without adequate utilization of older facilities, and absorption and modernization of older technologies. The older problems of a rather bureaucratic frame of control for many of the government funded laboratories, lack of adequate pilot plant facilities for scaling up of indigenously developed technologies and virtual de-linking of the factory and the laboratory are yet to be tackled.

5.5 Modernization, Liberalization and Employment

The Indian economy experienced bumper harvests in 1983-84 and 1984-85. This helped boost the rate of growth of national income; the rate of growth of the economy as a whole over the period of the Sixth Five Year Plan (ending in March 1985) is expected to be around 5.2 per cent, which is equal to the target set for the plan.

In this performance, agricultural growth has played the major role, and industrial production has grown just a little faster than national income as a whole. The latest moves of the government suggest that it expects agriculture, small scale industry and trade to provide employment to the ever-increasing working population whereas the task of industry will be primarily to modernize and to become more competitive by international standards.

We have already noticed some of the moves that have been made in the general area of industrial regulation. The limit for investment which will have to seek government licence before implementation was raised from Rs. 30 million to Rs. 50 million in 1983, and automatic re-endorsement of capacity achieved in the earlier two or three years up to a certain limit has been continued to be granted.⁷¹ The raising of the asset ownership limit for a company or business house to be exempted from the purview of the MRTP Act from Rs. 200 to Rs. 1000 million in 1985 is expected to allow firms and conglomerate business houses to exploit economies of scale more fully. The government, however, continues to favour the dispersal of industries to designated backward areas, and with this end in view, priority continues to be granted to issue of industrial licences for 'no-industry' districts and other designated backward areas. Of course, in many cases, the 'backward districts' may be located within com-

70 This information is derived from S & T Plans of public sector consultancy organisations such as the Fertilizer (Planning & Development) India Ltd. and R & D Centre of the Fertilizers & Chemicals, Travancore Ltd.

71 For details, see *Report 1983-84* (New Delhi, Department of Industrial Development, Ministry of Industry, Government of India, 1984), Chapter IV.

muting distance of some metropolis, and very often, only the inessential or labour-intensive assembly operations are shifted by large firms to the backward regions in order to avail of subsidies, and exemptions from various regulations (such as the MRTP Act and FERA 1973) and fiscal levies. The government also has special schemes for subsidizing the development of infrastructural facilities in 'no-industry' districts. The spread effect of such expenditures may not be very large, since the construction and operation of thermal power stations or gas-supply facilities are generally quite capital intensive. However, if government expenditure is coupled with a deliberate attempt at local resource mobilization, then the effects can be more substantial."

With a view to further developing the fertilizer industry with the latest technologies and to raising electricity generation as fast as possible, the central government made special provisions in the budget for 1985-86 for easing the import of capital goods needed for the two industries. The general import duty on project imports was cut from 65 per cent to 45 per cent *ad valorem*, a special duty of 25 per cent was made applicable to imports for power projects and equipment for fertilizer projects was totally exempted from duty.

The government has especially stressed the development of the electronics industry as a step towards modernization. Customs duties on various kinds of components of electronic goods have been progressively reduced in recent times. Customs duties on certain types of computers not manufactured in the country have been abolished, and duties on four important components of computers have been reduced from 75 to 25 per cent. Internal excise duties on the manufacture of computers have been abolished altogether. In related moves, licence fees on TV sets, radio receivers and VCRs have been abolished. Complementary to these moves for de-regulation, expenditures on plans under the Department of Electronics of the central government have been raised from Rs. 634.5 million in 1984-85 to Rs. 1080.0 million in 1985-86. This 69 per cent rise has to be set against the fact that there has been only a marginal rise in the projected total plan expenditure of the central government in 1985-86 compared with 1984-85. Projected plan outlays for such major sectors as steel and mines have been reduced from Rs. 13402.6 million and Rs. 8368.7 million in 1984-85 to

- 72 In a study of the impact of Indian central government expenditures on economic activity, carried out on the basis of 1971-72 data and an input-output framework, Sarma and Tulsidhar found that the multiplier effect of commodity purchases by the central government was 1.69 (that is, Rs. 0.69 extra expenditure was induced for every rupee spent on purchase of commodities) but the multiplier effect of salary disbursements was 1.49. The input-output framework did not permit the exploration of all the substitution possibilities, but the analysis suggests that government expenditure for purchase of commodities or services from the rest of the economy, if judiciously spread, can have a stronger impact than creation of new employment in central government administration. See A. Sarma and V.B. Tulsidhar: *Economic Impact of the Union Government Expenditure: An Analysis in Input-Output Framework* (mimeo; Ahmedabad, Sardar Patel Institute of Economic and Social Research, 1983). However, in a different study, utilizing time series data for the period 1950-51 to 1977-78, Reddy, Sarma and Sinha found the multiplier effect of central government expenditure to be 2.6. It is probable that this latter value is a closer approximation to the long-run impact, since it takes into account income growth as well as sectoral income elasticities, but there are methodological problems in separating auto-regressive effects from the true impact of government expenditure. See K.N. Reddy, Jr., M. Sarma and Sinha: *Central Government Expenditure: Growth Structure and Impact (1950-51 to 1977-78)* (New Delhi, National Institute of Public Finance and Policy, 1984).

Table 5.14

India: Central Plan of Selected Ministries/Departments 1984-85 and 1985-86
(figures in Rs. million)

Departments and programmes	Total revised plan outlay 1984-85	Total plan outlay 1985-86
1. Agriculture & co-operation total	6,332.6	7,150.0
Agriculture	1,866.8	2,021.0
Soil & water conservation	363.7	375.2
Animal husbandry	124.2	124.0
Dairy development	883.2	859.7
Fisheries	322.9	309.0
Co-operation, of which	2,763.7	3,450.0
Co-operative fertilizer factories	1,750.1	2,400.0
2. Agricultural research & education	730.0	750.0
3. Rural development	9,323.0	9,320.0
4. Chemicals & fertilizers	5,695.9	5,940.0
5. Textiles	930.1	1,020.0
6. Communications	718.0	750.0
7. Posts	395.0	400.0
8. Tele-communication	7,700.0	8,350.0
9. Education	2,032.1	2,210.0
10. Environment	167.4	357.5
11. Forests & wildlife	387.9	542.5
12. Industrial developments	6,713.2	5,360.0
13. Heavy industry	2,046.3	2,190.0
14. Irrigation	1,636.4	1,785.0
15. Power	14,917.4	20,900.0
16. Petroleum & petro-chemicals	27,463.5	32,610.0
Petroleum	25,787.2	30,850.0
17. Science & technology	461.1	816.0
18. Scientific & industrial research	622.3	719.0
19. Shipping & transport	5,931.8	7,430.0
20. Steel	13,402.6	9,250.0
21. Mines	8,368.7	6,350.0
22. Coal	10,326.0	11,020.0
23. Atomic energy	4,688.4	4,950.0
24. Electronics	634.5	1,080.0
25. Space	1,434.9	1,650.0
26. Railways	16,509.1	16,500.0
Grand total (including others)	174,949.3	185,000.0

Source: Plan Budget for 1985-86 (New Delhi, Ministry of Finance, Government of India, March 1985).

Rs. 9250.0 million and Rs. 6350.0 million respectively. Expenditures on many of the anti-poverty programmes have been pegged at the level of 1984-85 and major increases have been provided for in areas such as science and technology, atomic energy and space (see Table 5.14).

While the government wants industrial units to be modernized, no large sums have as yet been set aside in such industries as steel, fertilizers or heavy engineering. Less, rather than more, will be spent on many public sector enterprises which are known to be suffering from a mix of outdated product composition, worn-out machinery and energy-intensive production processes. The government has made large concessions in respect of income, wealth and inheritance taxes to be payable by the rich, and further loosened regulations governing joint-stock companies. It obviously hopes that this will stimulate private investment," and with less restrictions on imports of goods, capital and technology, the investment will be embodied in more efficient machinery and factories.

The central government has continued its policy of reserving a wide range of commodities for the small-scale sector, but as mentioned above, it has raised the limit of investment in plant and machinery below which a unit will qualify as a small-scale unit. The policy of imposing lower excise duties on small-scale units and giving them concessional credit has also been continued. Outside agriculture and trade, artisanal units and small-scale units are expected to provide the major share of employment to the increasing workforce in towns and villages. For example, the Department of Industrial Development in its *Report* for 1983-84 claims that while employment provided by small-scale industrial units in India went up from 7.5 million in 1981-82 to 7.9 million in 1982-83. In 1983-84 employment in the small-sector is estimated to have gone up to a little over 8.4 million. (One must remember that these are very rough-and-ready estimates, without any indication of the degree of underemployment in which the workers in small-scale industry are involved.) These figures should be compared with the *total* employment in the organised manufacturing sector, inclusive of both private and public enterprises in 1983, which came to 6.26 million, and there was a net decrease in such employment between 1982 and 1983.⁷⁴

'If we take employment in the organised sector as a whole (which includes registered factories, banks, insurance companies, railways and other large transport organisations and government administration), we find that both the percentage and absolute rates of growth have declined considerably in recent years. The number of persons employed in the organised sector increased from 21.9 million at the end of March 1979 to 23.5 million at March-end 1982 and 24.0 million at end-March 1983. By end-June 1984 the figure had gone up barely to 24.1 million:" an actual decline in

73 The record of private corporate investment has not been encouraging in recent years, although the stock market has been booming. For example, the estimated gross capital formation by the corporate private sector (non-financial companies only) for the years from 1981-82, 1982-83 and 1983-84 are Rs. 141080 million, Rs. 95730 million and Rs. 87510 million respectively. Reserve Bank of India: *Report on Currency and Finance 1983-84*, Vol I (Bombay, 1984), p. 17.

74 Government of India: *Economic Survey 1984-85* (New Delhi, 1985), pp. 137-38. The 'organised sector employment' also includes some employment in the small-scale sector for while the criterion for the former is registration and employment per unit, with or without the employment of power, the criterion for the inclusion of a firm as a small-scale unit is the total investment in plant and machinery.

75 Government of India: *Economic Survey, 1984-85*, p. 32.

private organised sector employment was just about compensated by a marginal rise in organised public sector employment.

That the slow growth in organised sector employment was not made up by a surge in employment opportunities is indicated by the fact that the number of job seekers on the employment exchanges rose from 17.2 million at August-end 1981 to 19.0 million at August-end 1982, 21.3 million at September-end 1983, and 23.5 million at September-end 1984. What is more significant, both the monthly average vacancies notified and the monthly average placements made declined in 1983-84, and the latter fell considerably short of the former. Thus if government policies are to make any dent on the unemployment situation, on present indications, with emphasis being placed on the exploitation of economies of scale and modern, generally capital-intensive techniques of production, the organised sector is not the place to look for substantial increases in employment. We should look more closely at the policies regarding small-scale industries to assess whether they can provide relief to the problem of mounting urban unemployment.

The government's policy with regard to small-scale units may itself produce some conflicting results in respect of employment. The government is trying, through various measures, also to encourage modernization of small-scale units, and to tie up small-scale units in various subcontracting relationships with large public and private enterprises. Such measures along with re-definition of a small-scale unit in terms of a larger capital base will allow a small group consisting of the larger small-scale units perhaps to modernize, to grow and to be carried on the coat tails of the large units resorting to subcontracting. But by the same token, many other small units which are unable to withstand the competition of the newly encouraged large units, or modernized small units, or small units which really are branches (deverticalized forms) of large units will go to the wall. There is some evidence that this type of competition is affecting the fortunes of small-scale units to a considerable degree. Between June 1982 and June 1983, the number of sick industrial units (that is, those which had become chronic defaulters on their liabilities) rose from 26,973 to 64,388. Bank credit outstanding against these units rose to Rs. 6,265.2 million in June 1983 from Rs. 3,936.7 million a year earlier.⁷⁶ Banks have set up special cells for nursing sick units but the majority of sick small-scale units are considered non-viable in the long run. This may be a particular example of a general feature, namely, that it is easy to start a small-scale unit but it is also easy for a small entrepreneur to go to the wall. If competition becomes really more fierce, then the rate of mortality of small-scale units will go up with deleterious effects on employment.

When we come to the wider aspects of central government policy, new question marks about the likely effects of the policy on employment loom up. The Government of India has been running deficit budgets during the last few years; the external payments deficit of India has been covered by a larger and larger proportion of loans on commercial or near commercial terms and a smaller and smaller fraction of concessional loans and grants. The EFF loan of SDR 3.9 billion from the IMF was crucial in balancing payments deficits in 1981-82, 1982-83 and 1983-84.

In 1985-86, the Government of India, after taking credit for borrowings from the market, from the commercial banks and from the Reserve Bank of India has still

left a budget deficit of Rs. 33,490 million totally uncovered. Besides, it has raised prices of petroleum products, excise duties on some essential commodities and railway fares. The production of foodgrains reached a record figure of 151.5 million tons in 1983-84, but the output is likely to be of the same order of magnitude in 1984-85 as well. However, at the end of 1984, the central government had more than 22 million tons of foodgrains for distribution through the public distribution system. If the annual amount to be distributed through the public distribution system does not get above the 15-16 million tons reached in 1982-83 and 1983-84, then the stock of foodgrains can have a stabilising influence on foodgrain prices even if the budget deficit (covered through loans and uncovered) is large.⁷⁷ Even in this case, however, industrial prices which have been rising faster than food prices in the recent past will go on rising because of the rise in prices of basic inputs and transport costs. If there is a failure of harvest in 1985-86, the situation will be considerably aggravated.

The macroeconomic situation may pose further difficulties because there are major problems of repayment of foreign loans coming up in 1985-86. The Government of India is planning to borrow a net amount of Rs. 21,440 million on the international money market. As a corollary to encouragement of investment by large companies, market borrowing abroad by such companies may also be permitted. All this has to be set against the fact that two items of external receipts—remittances by Indian workers working abroad, mainly in the oil-producing countries of West Asia and net deposits in India made by non-resident Indians—have either already tapered off or are expected to taper off soon. Confronted with a pressure on the balance of payments, the degree of compulsion to export agricultural products such as cotton and wheat may also be greater. This will further put pressure on the price level, with repercussions throughout the economy. Much of the pressure on the macroeconomic balances could have been absorbed if internal saving rates were going up faster than national income. However, the ratio of gross domestic saving to GDP has been stagnant at a level between 22.1 and 22.6 per cent during the years from 1981-82 to 1983-84 and the ratio of net domestic saving to NNP remained stagnant or showed a declining trend from 20.0 per cent in 1978-79 to 16.7 per cent in 1982-83.⁷⁸

The decision to liberalize project imports, to reduce or abolish duties on many items such as electronic goods, and to slow down investment in many core sectors of the economy is likely to aggravate the problem of excess capacity in many industries. In a situation of inflationary price rise and tight credit markets, it is the small units which are likely to suffer most. In the electronics industry, many firms which were carrying on assembly operations will go to the wall. Even many of the units floated by the constituent State Governments are beginning to feel the pinch of the new policy. It is yet to be seen whether the adjustment to a more streamlined industrial structure can be made without creating fresh pockets of unemployment in various sectors or regions.

The Indian experiment differs fundamentally from the Chinese situation in at least three basic ways. First, India starts with a less favourable macroeconomic balance,

77 For figures of procurement and release of foodgrain stocks, see Government of India: *Economic Survey, 1984-85*, p. 44.

78 Reserve Bank of India: *Report on Currency and finance, 1983-84*, Vol. II, Statement 3.

including external balance, than China. Secondly, India does not have either the nearly universal public distribution system or the near-full employment situation that China started with in 1978 and has maintained since then. The repercussions of sectoral and aggregate imbalances on employment and incomes of particularly vulnerable groups are likely to be far more widespread and severe in India. Thirdly, India has a very large service sector compared with her level of development and her real requirements. Therefore, there is little hope that any technological unemployment caused by the attempt to restructure industry can be easily absorbed by an expanding service sector as in China.

There are other differences between the two types of experiments. But their analysis would involve a far more intensive discussion of the micro-organisation of economic life, of research establishments, of contacts between domestic firms and foreign suppliers of technology than can be covered within the compass of this report.

Strategies of Industrial Restructuring and Income Growth

Our brief survey of industrial restructuring in the three Asian economies of China, India and South Korea has thrown up a variety of instruments and policies used by the respective governments to influence the course of changes in industrial structure. These policies include both macro-economic management strategies and measures for improving the adjustment patterns of particular sectors and enterprises or groups of enterprises. The details of the measures adopted and their articulation with other policies have been different from one country to another because the socio-political systems, the levels of development attained and the stated objectives of the three countries concerned differ considerably. In this chapter we stress some of the important similarities and bring out the major differences in the policies adopted.

Our analysis has been concerned mainly with sectoral or enterprise-level policies and not with the specific course of macroeconomic policies adopted. For, monetary and fiscal policies or policies related to foreign trade and balance of payments have broader objectives than industrial restructuring as such and affect sectors of the economy and indices of economic performance with which we are not vitally concerned here. Only certain features need be highlighted here. The People's Republic of China, as part of her economic reform and readjustment, is moving gradually to a more extensive use of monetary and fiscal instruments for encouraging desirable adjustment patterns in particular sectors such as agriculture and inducing more efficient management and a more flexible response on the part of state-run or collectively run enterprises in industry and trade. The PRC has also sought to stabilize the aggregate level of prices while bringing about major shifts in the terms of trade between agriculture and industry and consumer goods prices in relation to urban and rural incomes. She has largely succeeded in these efforts.

However, in China, the control of inflation, stabilization of the balance of payments after some initial deficits in 1980-81, and a rapid growth of exports have been all attained within the framework of a socialist economy and without the adoption of the draconian monetary and fiscal policies which have become standard prescriptions in the adjustment programmes recommended by the IMF, World Bank and increasingly by consortia of commercial banks lending to less developed countries.¹ She has also attempted to change certain basic features of her economic structure without causing large-scale unemployment in the process. Her programme of readjustment and reform is far more thorough-going and wide-ranging than the program-

1 See, in this connection, A.K. Bagchi: 'The Ideology Behind the Maximum Conditionality Demanded by the IMF and Its Implications', in *The 1 MI-' Loan: Facts and Issues* (Calcutta, Government of West Bengal, November 1981); S. Dell: 'Stabilization: The Political Economy of Overkill', *World Development*, 10(8), 1982; and R. Kuplinsky: 'The International Context for Industrialisation in the Coming Decade', *The Journal of Development Studies*, 21(1), October 1984.

mes of the government of the Republic of Korea or of the Government of India. Readjustment in China's case involves bringing down the rate of accumulation to 25 per cent, shifting the relative investment allocations towards agriculture, shifting the relative allocation of industrial investment towards light industry and away from heavy industry, and raising productivity by the import of technology in a controlled manner. Reform involves, *inter alia*, devolution of economic power from administrative organs to producing enterprises, introducing a responsibility system in industrial enterprises as well as agricultural brigades and teams, creating many new trading organisations to carry on foreign trade, allowing some important provinces and autonomous administrative units to enter directly into negotiations for importing or exporting goods and importing technology, and creating special economic zones for inducting foreign enterprises as partners and collaborators in joint venture, compensation trade and other cooperative ventures.² In the latest series of moves, a number of industrial products have been freed—to a limited extent—from administrative price controls. But the prices of grain procured by the State, and the prices of the most important industrial products and energy sources are still controlled.

Thus China's move towards a more flexible economic system capable of responding to the demands for intensive growth rather than extensive growth and the need to raise the standard of consumption as quickly as possible has been made under the guidance of the state apparatus. Even in areas of choice of technology and the restructuring of the employment pattern there is no attempt to suddenly overturn the earlier policy of combining several different types of technology and layers of organisation within a framework of planning. It is often forgotten that the scuttling of older capital and retrenchment of specialized labour in the attempt to raise productivity per head can lead to a deadweight loss if the obsolete capital or the specialized skills cannot be employed in alternative uses.³ While emphasizing and encouraging the upgradation of skills and technologies, the Chinese economists and policy-makers have continued to stress the importance of a coordinated and gradual replacement and scaling up of old techniques and plants rather than their sudden, unplanned scrapping.⁴ Even in such 'high technology' areas as microelectronics, China has stressed a gradualist approach. For example, in the area of memory-integrated circuits, China has sought initially to acquire the technology for 14K dynamic random access memories (DRAM) rather than go in at once for 64Ks or 256Ks.⁵ At the same time,

2 Besides the references cited in Chapter 4, see also 'China '85: The Power of Pragmatism', *Far Eastern Economic Review*, 21 March 1985.

3 See for a historical perspective on the problem, J. Hicks: *A Theory of Economic History* (Oxford, Oxford University Press, 1969), Chapter IV; and for a reconsideration of the gains of trade when costs of transition to a higher-productivity technique are taken into account, J.S. Metcalfe and I. Steedman: 'A Note on the Gain from Trade', and L. Mainwaring: 'On the Transition from Autarky to Trade', in I. Steedman (ed.): *Fundamental Issues in Trade Theory* (London, Macmillan, 1979).

4 See, in this connection, Liao Jianxiang: 'Size of Industrial Enterprise Operation and Choice of Technology' in Xu Dixin and others: *China's Search for Economic Growth* (Beijing, New World Press, 1982). For a review of the rationals of policies pursued up to 1978, most of which have been retained since then, see Carl Riskin: 'Intermediate Technology in China's Rural Industries', *World Development*, 6(11/12), 1978.

5 David C. O'Connor: 'Policy Issues Relevant to the International Transfer of Semi-Conductor Technology to the People's Republic of China', paper presented at the Beijing International Conference on Science and Technology Policy, October 1983.

she had had a long experience in the development of computers, with the majority of computers in use having been produced within the country.<• In that area, she is trying to acquire very advanced technologies from US and Japanese firms.

The Chinese have combined policies for releasing individual and collective incentives within particular economic units with policies for combining the efforts of a number of organisations for achieving particular goals—such as the promotion of trade, transfer of technology, or adaptive innovations in which all the cooperating organisations are interested. They have persuaded several enterprises to merge when such mergers seemed to promote efficiency or allow a freer flow of information and directives for action. These efforts can be seen as partly complementary, and partly alternative to the market mechanism as devices for minimizing transaction costs and minimizing incentive incompatibility effects. Individual and collective incentives and normative goals promoted by the Communist party are all invoked in effecting this intermeshing of goals of different individuals and collectives.

Two specific goals of the Chinese leaders differentiate their experiment from the goals of most less developed countries seeking to develop their economies. The Chinese have deliberately sought to bring down the rate of investment in the economy, and they have also sought deliberately to promote the growth of the service sector. In most of the less developed countries, the attempt has been to raise the rate of investment and saving as much as possible, and to increase the proportion of income and employment originating in industry. The service sector has generally acted simply as the residual bump with a large degree of disguised unemployment or underemployment. The Chinese are able to reverse this pattern because in the years before 1979 they chalked up one of the highest ratios of investment to national income in the world. Moreover, in their drive towards industrialisation, as we have seen, they also created blocks of virtually self-sufficient regions and complexes of industries, so that the share of trade and services came down sharply.

The high rates of industrial growth and investment achieved earlier and the creation of a capital goods industry catering to all the sectors of the economy were not the only advantages the Chinese enjoyed when they made their moves for readjustment and reform. In agriculture, the basic infrastructure in the shape of dams, soil and water conservation works, irrigation channels etc. had been extended throughout the country and a high degree of mechanization had also been achieved.' Moreover, China has also been able to develop a large number of 'modern' small-scale industries, such as cement and fertilizer factories, and repair and fabrication shops to assist agricultural production in the countryside.»

- 6 Guo Pengxin, 'China's Policy on Computer Technology Development', paper presented at the Beijing International Conference on Science and Technology Policy, October 1983.
7. Peter Nolan: 'De-Collectivisation of Agriculture in China 1979-82: A Long-Term Perspective', *Cambridge Journal of Economics*, 7(3/4), September-December 1983, Table 2; and China Handbook Series, *Economy* (Beijing, Foreign Languages Press, 1984), Table 4.3.
- 8 In 1978, there were 1,524,000 commune and brigade-level enterprises (mostly in rural areas) with 28,265,000 employees, who constituted 9.5 per cent of the total labour force employed in communes. See Zing Qixian: 'Employment Creation and Economic Development', in Xu Dixin and others: *China's Search for Economic Growth*, p. 163.

When moving towards restructuring of employment, the Chinese have stressed the expansion and upgrading of collective-level enterprises (where workers are encouraged to get together and set up collective enterprises on their own). These enterprises, as pointed out earlier, are not run by the state but they receive assistance from the state in the supply of funds, materials etc. The state is also encouraging self-employment by individuals and families particularly in trades where personal service makes a difference in terms of quality and efficiency. Such employment demands much less capital per employee than the heavy industry units run by the state.⁹ As has already been pointed out, through such measures, China has been able to absorb practically all the new entrants into the labour force. For enabling new entrants to fit themselves for work in light industry that can be carried on in small units or in the service trades, the government is also organizing training schemes for such entrants.¹⁰

China's policies for restructuring have thus consisted of a series of interrelated and deliberate moves, and have not relied on the sudden release of market forces to effect the transition to more efficient enterprises yielding higher productivity levels and promising long-term growth in employment and productivity. In spite of the talk of breaking the iron rice bowl, and the unfreezing of the policy of rigid allocation of labour, few workers (if any) are allowed to lose their jobs through the bankrupting of their enterprises. The preferred policies are always cooperation, coordination or amalgamation among enterprises coupled with devices to release the incentives of managers and workers.

When we turn to South Korea and her strategies of restructuring, both the similarities and differences with the Chinese strike us powerfully. The differences are social and political. The government of South Korea has sought to promote private enterprise in industry whereas the PRC does not admit private ownership in any larger-scale unit. The South Korean government has also pursued fiscal and financial policies which would tend to increase the incomes of the rich and encourage them to invest and save. The PRC, on the other hand, has pursued policies which effectively abolish earnings from property, though they have recently discouraged the cult. of egalitarianism, and encouraged the system of rewards according to work and performance. The South Korean government and South Korean enterprises have been heavily dependent on external loans and investment for promoting development and South Korea has the largest external debt among the Asian countries now. The PRC pursued a policy of relying almost exclusively on resources generated internally to promote development. Even though the Chinese government has sought to open up the economy and attract foreign technology and capital in the years since 1979, her net external debt falls far short of her total foreign exchange balances. (A recent erosion of foreign exchange reserves has led to steps for curtailing imports).

Some of the similarities in the policies pursued by the two countries in recent years are also striking. After 1980, and especially under the fifth five year plan of 1982-86, the South Korean government has sought to shift investment away from heavy industries, and direct it towards electronics, and the more skill-intensive, high-value

9 *Ibid.*, pp. 159-62.

10 See, *Far Eastern Economic Review*, 18 October 1984, p. 82. According to Yue Guanzho, Director of the Institute of Labour Studies in the PRC, 39 million were absorbed in cities and towns in China over the period 1979-83, a million of whom started their own business.

branches of the textile and clothing industries. The electronics industry has also obtained top priority for policy purposes. The South Korean government continues to promote the induction of foreign technology in designated fields such as electronics and high-value chemicals. Of course, some of the developments in the South Korean economy, such as the continued growth in the textile industry and its preeminence in the field of exports" were not foreseen by policy-makers or independent observers. Moreover, as in the case of China, the smoothness with which restructuring is being effected, is at least partly the result of earlier policies which the government seeks to reverse. For instance, the shipbuilding industry has become a major exporter and provider of employment, and this industry was built up with government encouragement. Similarly in the case of automobiles and steel, although there are problems of general glut in the world market, South Korean producers are expecting to increase exports, and foreign firms are coming forward to supply the needed markets and technology.¹² And investment in both these industries was pushed in the era of heavy industry development under government patronage.

Although during the fifth five year plan period, the government of South Korea has sought to bring down the degree of public monitoring and regulation of the economy, in actual fact, there continues to be a considerable degree of guidance and regulation provided by the government. Even in August 1983, the proportion of preferential loans given by banks to various sectors was as much as fifty per cent of all bank loans.¹³ Strategic sectors such as electronics get special attention of the government in the shape of raising or imposition of bans on import of particular items of equipment, the speed with which foreign investment agreements are cleared, and the terms on which loans are made available. They also get special government support in the way of R & D funding. Apart from providing the core funding for the Korea Advanced Institute of Science and Technology, the government has also promoted the Korea Institute of Electronics Technology (KIET) and the Korea Electrotechnical and Telecommunications Research Institute (KETRI). The former specializes in the development of semi-conductor and computer technologies, and the latter in the development of the technology of telecommunications.¹⁴

We have already remarked on the close co-operation between the government and business, especially big business, in most areas affecting sales, especially exports, and investment. The *chaebol* and the GTCs not only complement government efforts in most fields of R & D activity by spending more than the government does; they also have managed to supplant the government regulations with their own market power when the government has sought to deregulate the economy. For example, when the government decided to divest itself of its shares in the commercial banks, some of the biggest *chaebol* managed to buy up large blocks of shares in the banks, and thereby

11 *Far Eastern Economic Review*, 21 July 1984, pp. 63-64.

12 *Ibid.*, pp. 46-49.

13 Kazuhisa Ito: 'Development Finance and Commercial Banks in Korea', *The Developing Economies*, XXII (4), December 1984. See also, Whang In-Joung: 'The Role of Government in Korea's Economic Development', in International Development Exchange Programme, *Forum on Trade Promotion and Industrial Adjustment*, September 6-15, 1983 (Seoul, Korea Development Institute, 1983).

14 Kilnam Chon: *State-of-the-Art Series on Microelectronics, No. 3, Republic of Korea*, (mimeographed report, UNIDO/IS 490, 25 October 1984), pp. 10-11.

ensured that the preferential treatment they had received earlier on would not be abruptly discontinued."

South Korea had started her drive for industrialisation in the 1960s with a higher level of literacy and a far higher per capita income than India or China in the 1950s. Starting with that advantage, and on the basis of a fairly high rate of investment, initially supported with massive inflows of foreign saving but latterly financed mostly with domestic saving, South Korea has managed, alone among the three countries, to alter the occupational structure of the population significantly away from agriculture and towards the secondary and tertiary sectors. This growth in industry has been accompanied by the increasing monopolization of the export trade and much of domestic industry by the GTCs and the *chaebol*, by an increase in the proportion of employment provided by large factories and a rapid decline of rural industry.¹⁵ Thus some of the problems that face China and India in determining the relations between large and small units of manufacture and trade have already been resolved in South Korea in favour of large firms. However, this kind of enforced restructuring is attended with a good deal of labour displacement. Small, labour intensive urban industry continues to be highly important as a provider of employment and generator of export earnings. But wage earnings in such establishments are generally much lower than in technology-intensive modern factories. Since the system of subcontracting apparently does not provide as much protection in South Korea to small firms as it does in Japan and since there is little in the way of unemployment insurance or guarantee of life-time employment in South Korea, the process of restructuring can be painful to the most disadvantaged sections of the population.

When we move from China and South Korea to India, the delineation of government policies and actual developments in the field of industrial restructuring becomes far more difficult. The occupational structure and the sectoral distribution of incomes has changed the least in India among the three countries covered. India continues to have a large proportion of the population employed in artisanal industry with low levels of productivity. At the same time, unlike in China, there has been meagre development of modern small-scale industry in rural areas.¹⁷ The government has

15 For the plans of R & D and investment of the top four *chaebol* interested in the electronics industry, see the *Economic Times*, Bombay, 22 October 1984, and the *Far Eastern Economic Review*, 21 July 1983. On the purchase of bank shares by the *chaebol*, see *Far Eastern Economic Review*, 19 July 1984, p. 44.

16 In 1971, manufacturing enterprises employing 200 or more workers employed 456,376 out of a workforce of 848,194 in manufacturing in South Korea. In 1981, manufacturing establishments employing 200 or more workers employed 1,178,068 persons out of a manufacturing workforce of 2,044,269. The bigger enterprises (those which employed 200 persons or more) accounted for about 72 per cent of the total value added in manufacturing in 1971 and 73 per cent in 1981. See *Major Statistics of Small and Medium Industries 1983* (Seoul, Small and Medium Industry Promotion Corporation, 1983), pp. 49-66. Thus small enterprises, paradoxically enough, have not grown relatively less efficient over time. The monopolization of Korean industry thus has been more a function of economies of finance and trading networks than of scale economies in production. On the decline of rural industry in South Korea, see Samuel P.S. Ho: 'Economic Development and Rural Industry in South Korea and Taiwan', *World Development*, 10(11), 1982.

17 For a comparison of the structures of, and public policies towards, rural industry in India and China, see J. Sigurdson: 'Rural Industrialisation: A Comparison of Development Planning in India and China', *World Development*, 6(5), 1978.

adopted various measures to reserve particular products for production in small-scale units, and accorded them a preferential treatment in terms of bank loans, excise duties and supply of scarce raw materials. But the system of subcontracting is not very well developed in India, and in any crisis small-scale units are the first to go to the wall. At the same time, the number of small-scale units (many of whom are in fact owned or controlled by large firms) in such industries as the cotton mill sector continues to increase because of 'deverticalization' when production is shifted from financially weak, large integrated mills to powerloom sheds.

The government has recently adopted policies aimed at promoting economies of scale in organised private sector industry, and competition in various sectors of the economy. It has also cut down the planned investment in such sectors as the steel industry and railways, which are either wholly or substantially owned by the government. It is well known that very large sums are needed for modernization of some of these sectors. It is as yet unclear as to how the government proposes to set about streamlining the operations of these sectors in the short run without stepping up expenditures for replacement or upgrading of old technologies and induction of new, more energy-efficient technologies.

The Government of India is seeking to repair some of the damage in the shape of high costs induced by haphazard import substitution in such sectors as electronics. It has been alleged that the attempt to substitute for imports across the whole spectrum of electronic and microelectronic technologies has left India without an advantage in any particular sector. It has been recommended that what India should do is to choose a niche where to consciously build up her comparative advantage.¹⁸ There are at least three problems in carrying out this recommendation. The first is that in many areas of microelectronics there are domestic enterprises (many of them joint ventures between the constituent State governments and private enterprises) employing several thousands of people altogether. It may be necessary to devise some means of allowing these enterprises to make a transition to a regime of specialization by giving them bridging loans, supplying them with information and arranging for training schemes. All this may be costly but perhaps less costly than to allow all the facilities to go out of use at one go. The second problem is that in many areas the economies of scale are so large (such as, for example, in the production of semiconductors) that even the current Indian market may not be large enough to exploit them fully. It is not obvious that India will have the price-competitiveness, and more importantly, necessary access to foreign markets to be able to exploit the economies fully. The third problem is that foreign firms who might have been willing in the past to transfer technology for a restricted Indian market which was otherwise closed to them may not be keen to transfer technology to a potential competitor.

The case of microelectronics illustrates some of the choices facing the Indian government in respect of industrial policy aimed at restructuring. In respect of the macroeconomic balances, India enjoys the advantage (an advantage she shares with China) that her agriculture has done very well recently, eliminating the need for food imports and making it possible for her to expand some of her agricultural exports and sell new agricultural items abroad. However, her foreign indebtedness situation

18 Sean Eamon Lalor: *Overview of the Microelectronics Industry in Selected Developing Countries* (mimeographed; UNIDO/IS 500; 13 December 1984), p. 43.

may pose problems in the near future, with the repayment obligations for the IMF loan coming up soon, and with the quantum of soft loans suffering a decline and the proportion of either official or commercial loans on harder terms increasing in the total gross borrowings made. Not only in this respect but also in respect of growth of exports, her position is not as comfortable as that of China. India's position in regard to the prospects of meeting deficits in the balance of payments with foreign capital inflow is not as bright as in the case of South Korea. For geopolitical reasons and in view of South Korea's proven ability in the past to absorb the technology and capital borrowed from abroad and to increase her exports sufficiently to meet her debt servicing obligations, South Korea has been a favoured borrower from the point of view of Japanese, American and West European firms, international commercial banks and aid agencies. It is yet to be seen what the attitude of the prospective lenders and investors from developed market economies will be to the new stance the Government of India had adopted, welcoming foreign capital and allowing profit-earners to retain more of their profits (because of a considerably lightened direct tax burden on high income-earners and property-owners).

Internally, India does not have either the extensive coordination mechanism of the PRC or the policies favouring the engrossing of trade, especially export trade, by the GTCs pursued by the government of South Korea. Because of the huge size of the country and the different political set-up, it is doubtful whether the South Korean-type policies in this area can be adopted or implemented. Moreover, India's rate of investment has now fallen behind both that of South Korea and China, so that she has less to spare for meeting the costs of adjustment to a modernized and more streamlined industrial structure.

It seems very likely in fact that India will continue to pursue policies which are a combination of working of the free market, policies effectively promoting economies of scale, protecting some sectors of domestic economic activity and encouraging the induction of foreign capital and technology. There will probably be less emphasis on the generation of employment within industry and more emphasis on the promotion of investment in economically viable projects and sectors by private enterprise. Whether the package of policies pursued by the government and the actual developments in the economy generate enough confidence among the private investors to induce them to significantly step up investment in the Indian economy," only time can tell. If the private sector falters again, there will be little alternative for the government but to reverse its policies, and put more emphasis on government-guided and largely government-financed investment in core industries. With the rates of growth in prospect, it seems very unlikely that a significant dent can be made on the increasing levels of unemployment, especially in the urban areas.

19 For a discussion of the role of trust and confidence in promoting private investment, see A.K. Bagchi: *The Economics of Business and the Business of Economics* (the Sir Purshotamdas Thakurdas lecture for 1984, Bombay, Indian Institute of Bankers, 1984).