CHAPTER 1

SOME CONCEPTUAL ISSUES

This chapter attempts to elucidate the concept of sub-contracting, its distinctive features and the advantages of this relationship between large and small firms in a labour surplus developing economy. The analytical discussion is followed by a brief historical sketch of the role played by sub-contracting in the early stages of industrialisation of some developed economies, especially Japan.

Our aim here is not so much to arrive at precise definitions as to broadly pose the problematic and its explicit contours. As sub-contracting is an organisational aspect of the manufacturing sector with a somewhat hazy domain, our effort would be mainly to clarify the conceptual categories and to 'map' the analytical boundaries of the phenomenon. We have tried to highlight the qualitative dimension of sub-contracting and have avoided rushing to define empirical categories. Throughout the discussion a number of examples, drawn from the contemporary manufacturing sector in India, are provided to explain the concepts. These illustrations, however, are not to be taken as evidence for our analysis.

**Sub-contracting as a part of inter-firm relationship**

The conventional theory tells us how a firm decides on producing a profit maximising output given the price signals it receives from the market. In this conception a firm is like - to borrow Robertson and Dennison's (1960) analogy - an island of planned coordination in the sea of market relations. In a typically Walrasian sense under "pure" market relations, buyers and sellers exchange goods and services at the market clearing price without any a priori knowledge or understanding of the prices (or quantities) of goods bought and sold. In other words, the market exchange is an isolated act without either prior information (or commitment) or future obligation between buyers and sellers (Richardson, 1972).

The above conception of the operation of the invisible hand, admittedly, is quite an abstraction from the reality. The theory of the firm has made considerable
progress by dropping the assumption of perfect competition and developing various models of imperfect (or monopolistic) competition, where a firm can vary either the price of output or quantities to be produced (or both) to maximise its profits. However, these advances do not analyse as to what determines the division of labour between the firms and the market. Or otherwise, to what extent a firm depends upon planned coordination within it and to what extent it relies on the market is not explicated. Richard Coase (1937) in his celebrated article argues that each transaction has a cost and, therefore, the division of labour between firms and market is determined by a firm's effort to minimise its transaction costs. He further maintains that costs of transaction are determined by, among other things, by technology in use.

George Stigler (1951) in his modern reformulation of Adam Smith's theory of division of labour and specialisation looked at the problem in a dynamic context. According to him a firm may, at a given time, consist of several distinct processes or functions. The cost curves of various functions are unlikely to be 'identical', some may display increasing costs while others may be subjected to economies of scale. When the market for the firm's output grows, given these characteristics, it may be economical to separate out the function displaying decreasing costs and form it into a new firm. Thus, the division of labour between market and firms (as between firms coordinated by market forces) is determined by the size of the market.

Stigler's reformulation is very significant in its renewed emphasis on the division of labour and specialisation as a fundamental principle of economic organisation. It is able to show how in a dynamic context firms can substitute planned coordination within them for market based coordination (or vice versa) depending upon the size of the market as also the technology - which affect the cost curves of different activities. However, market coordination between firms - which are called inter-firm transactions or relationship - especially in manufacturing industries is far removed from the Walrasian conception of pure market economy.

In an economy there are a large number of firms producing a variety of goods and services, with different sizes and endowments. The latter would depend upon the nature of the factor markets and the firm's inherent strengths (or specialisations). Purchase and sale of goods and services are entered into by firms usually
on a long term basis to minimise costs and/or reduce uncertainties. Very often firms cooperate and coordinate to (i) design and develop products (ii) share technical know-how and market information and (iii) undertake complementary investments. Such a cooperative behaviour is not a negation of the market process but elements of strategies of each firm to maximise its profits, subject to the constraints, among which are those that emerge out of (i) the nature of the markets (ii) technology and (iii) the regulatory regime. Thus, the relationships leading to planned coordination between firms form part of the complex organisation of the market principle.

Sub-contracting - which is the focus of this study - forms a sub-set of inter-firm relationships focusing essentially on the transactions between large and small firms in an industrial economy. Since the development of sub-contracting has, as will be discussed below, considerable significance for the pace and pattern of industrialisation it warrants, in our view, a closer examination.

**Distinguishing features of sub-contracting**

Sub-contracting, as defined here, refers to a type of inter-firm relationship where large firms procure manufactured components, sub-assemblies and products from a number of small firms. In some cases sub-contracting is associated with 'job-work' where a 'parent' firm provides the necessary raw materials and designs to small firms which return these materials after converting them into the required form (as per the technical specification and after the necessary quality control tests) for a pre-determined price and time schedule. These transactions between firms of differing sizes with varying endowments and capabilities are not sporadic (or occasional) business transactions but are relatively long term, much more permanent and often collaborative relationships.

In more general terms, sub-contracting refers to a specific aspect of the industrial organisation where large and small firms co-exist (with a high degree of specialisation) usually with informal cooperation in production and sometimes also in investment decisions. Such a cooperation is achieved by concentration of fac-
tories (or plants) in small geographical regions, thereby minimising costs of transport and information flows i.e., transaction costs.

Sub-contractors [i.e., the small firms which take work on a contract basis] usually undertake manufacturing only on receiving orders from their 'parent' firms. In some cases the latter provide the necessary technical and financial assistance to enable them to execute the orders. Normally the items manufactured by sub-contractors are not patented; nor do they produce standardised items with a brand name for the 'market' which can be purchased 'off the shelf'. In this sense these small firms are not 'independent' manufacturers but are more like, at least in a static sense, 'appendages' to their parent firms. To a large extent the survival and growth of sub-contractors is conditioned by those of their parent firms, whose large size commands greater economic power and the ability to withstand market fluctuations. Large firms systematically attempt to develop business relationships with their sub-contractors as an integral element of their own growth strategy.

A number of examples can be cited to illustrate this phenomenon. In the metal engineering industry the manufacture of relatively small and simple 'turned' components, fabricated items, castings and forgings can be 'farmed out' to small firms. Similarly, small enterprises could undertake labour intensive activities like motor winding for large electrical machinery manufacturers on a job-work basis. In the electronics industry, assembly of components to make the final product could be done by small, and even household, enterprises using very meagre capital and with little skills.

Sub-contracting is often confused with the more general type of inter-firm relationships, especially in the case of the automobile ancillary (or auto-part) industry which produces specialised, patented components and parts often requiring high technology. Therefore it is useful to make this distinction very clear before we proceed to discuss other aspects of sub-contracting.

1. The discussion here is confined to sub-contracting within the economy. International sub-contracting has many other distinctive features which are not considered in this thesis.

2. In the long run a sub-contractor may grow to become an independent manufacturer.
In much of machinery manufacturing the final product is an assemblage of a large number and variety of components and sub-assemblies made using diverse technologies and materials. Firms (sometimes also called assemblers) often specialise in making only a few critical parts, while the rest are usually purchased. A large proportion of the 'bought-out' components can be classified as 'traditionally bought-out' items which, as a rule, are not manufactured by the assembler since they very often require a high level of technology and/or are totally 'unrelated' to the specialisation of the assembler. While some of these components and sub-assemblies (often patented) can be readily procured from the market, there could be a number of other items whose production necessitates a close cooperation between the user and producer since it involves technological sophistication and/or large capital investment with substantial economies of scale in production.

Examples drawn from Indian industry can be cited to illustrate such relationships between specialist manufacturers. For a certain range of light commercial vehicles of Mahindra and Mahindra Ltd. the engine is supplied by Simpson and Co. of Madras. Godrej Boyce Ltd. which essentially specialises in sheet metal work is one of the leading producers of refrigerators in India. The firm does not manufacture the compressor for its refrigerators but buys it from Kirloskar Pneumatic Ltd. In the automobile industry almost all the commercial vehicle manufacturers are virtually dependent on Motor Industries Co. Ltd. (MICO) for their requirement of fuel injection pumps.

This type of inter-firm relationship, usually between specialist manufacturers with invariably more or less equal bargaining strength, is often based on their technical strengths. This can be analytically differentiated from those between firms of different sizes [and hence of different endowments and unequal economic power] where the parent firm can exercise considerable control over its subcontractors. It is not uncommon for the latter to be formally or informally tied to

3. Some parts can be very simple in design and production but could be very critical for the performance of the machine.

4. This has probably changed since Mahindra and Mahindra has setup a captive engine plant at Igatpuri in Maharashtra.

5. Simpson has technical collaboration with Perkins Engines of the U.S, a leader in diesel engine industry.
their parent firms through technical, financial, input and market linkages. These ties, to a certain extent, could restrict the subcontractor's ability to operate as an independent entrepreneur in deciding what, where and how much to produce etc. This aspect of domination and control - which is a reflection of their unequal economic and technical status - could be taken to be the critical distinguishing characteristic of a sub-contracting relationship. The apparent cooperation between firms in production, planning and investment decisions on the one hand, and their underlying unequal bargaining strength on the other, seem to reflect a situation of both conflict and compromise among large and small firms in the market process.

Sub-contracting offers large firms considerable flexibility to face market fluctuations. Since the relationship between the parent firm and its sub-contractors is unequal, the former can, to a considerable extent, pass the burden of market fluctuations on to the latter. This is usually attempted, among others, by (1) delaying payment of bills, (2) refusing to take delivery of goods and/or (3) postponing inspection of materials. Moreover, it is much easier to lay off workers in sub-contracting firms during the recessionary period than those in the parent firms. Thus, it is very likely that the brunt of market fluctuations falls more heavily on the workers in small firms than in their large parent firms. (Friedman, 1974).

Large firms could perhaps also use sub-contracting as a method of containing the power of trade unions. Since they are mostly organised on the basis of factory, firm or industry-wise solidarity, managements could, to some extent, circumvent the potential threat by enlisting the cooperation of small entrepreneurs, or even of working class households. As household enterprises are more likely to be concerned about maintaining and increasing real consumption even at the expense of putting in

6. Freedom of a sub-contractor would probably depend upon the number of "parent" firms to which it supplies its output. The greater the number, more would be its economic independence.

7. Trade unions are well organised in India by industry, like textile workers union or sugar industry workers union, etc.
greater (disguised) labour – unlike the profit maximising behaviour of the firms – they appear to transcend (or even negate) the working class consciousness."

While managements systematically develop sub-contracting to reduce direct employment in their factories, they would be in a better position to concede the wage demands of their own workers and offer them greater 'autonomy' in the work place which would invariably be linked to their productivity levels. Such a strategy keeps the workers in the parent firm and those of their sub-contractors effectively divided.

From the point of view of small firms, sub-contracting reduces entry barriers into an industry, offers scope for 'learning by doing' and acquisition of technical and managerial skills. In a developing economy the last mentioned factor could be particularly important due to general scarcity of technical skills and modern managerial practices. Though sub-contracting relationship places small firms in a 'dependent' status, at least in a static sense, it probably reduces the need for their marketing effort and also, to some extent, the market uncertainties.

**Forms of sub-contracting**

The nature of manufacturing technology chiefly determines the form of sub-contracting and the extent to which it can develop in an industry. In process industries, for example, the scope for it is very limited. However, it is feasible in industries where production involves discrete, that is, divisible processes and/or the final product, as described earlier, is constituted by a number of parts and sub-assemblies.

The commonly observed form of sub-contracting is in the metal working industries where, as discussed above, parent firms get a fairly large proportion of the components and sub-assemblies manufactured according to their design by small firms on a contract basis. This we call component sub-contracting. In such industries the parent firm usually concentrates its resources on the development and manufacture of

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8. In an excellent study on Italian industry, Hurry (1983) shows how managements have been consciously attempting to circumvent the strength of the trade unions by 'decentralising' the production process.
a limited range of technology-intensive segments of the final product. However, since the products are normally sold under their brand name, the parent firm usually undertakes marketing, after-sales services and R & D which assume greater importance in machinery manufacturing.

There could be another type of manufacturing where the input(s) moves through a number of distinct and separable activities (or stages) which need not, for any technical reason, be carried out continuously and/or in the same premises. In such a case the industry could technically disintegrate into its constituent activities specialising in individual processes. Thus, another type of sub-contracting could develop where the original firm having an integrated plant could get one or more activities undertaken by sub-contractors and then sell the final product under its own brand name. We define this as activity sub-contracting. This category could also include a number of service-oriented activities in manufacturing plants like sanitation, transportation, maintenance, etc.

The textile industry in India is probably a good example of this form of sub-contracting. Production of cloth consists of three main activities - spinning of yarn, weaving it into cloth and finishing (or processing) of the fabric. Since the textile industry in India, especially the weaving, operates at a relatively low level of technology it seems possible for large firms to produce (and procure) yarn, get it woven in the powerloom sector and process it in specialised printing firms.

The nature of sub-contracting in the electronics industry is quite the opposite of what we have observed in the metal engineering industry. Production of components like the chips, capacitors, transistors, television picture tubes etc. are usually capital-intensive processes requiring relatively high technology with substantial

9. In much of machinery manufacturing, quality is built into the product at the assembly stage. Therefore, the parent firms usually undertake this activity themselves.

10. In much of the recent literature on industrial economics, attention has been on vertical integration and not on disintegration. However, some of the older texts have conceptualised the process of integration/disintegration in a much more realistic analysis of markets and technologies. See (i) E.A.G. Robinson (1943) and (ii) D.H. Robertson and Dennison (1960).

11. Manufacture of garments, that is, clothing industry, is not considered here as its significance in the domestic market is very small.
economies of scale in production and also display a high rate of technological obsolescence. But, on the other hand, assembling of these components to produce the final products or sub-assemblies at the prevailing level of technology appears to be both highly labour and skill intensive. Therefore, this operation could be farmed out to small, and even household, enterprises. Farming out of this kind may be called assembly sub-contracting.

There could yet be another form of this relationship where sub-contractors produce complete products and the parent firm essentially performs the marketing function. This is defined as product sub-contracting. Such an arrangement seems to be widely prevalent in industries producing consumer goods and durables like electric appliances, metal products, food, clothing and leather products. For example Bajaj Electricals Ltd., a leading brand name in household electrical appliances does not have any manufacturing facilities and all its products are said to be made by a large number of small scale units located in Bombay and Delhi. Such product sub-contracting could also be common in a certain range of industrial products as well-for instance, starters, small motors, transformers etc., in the electrical machinery industry - which involve relatively simple and labour-intensive technology.

In some sense the categories outlined above represent the "ideal types". In practice one may come across a number of combinations and variations of these basic forms of sub-contracting in different industries. For example, large firms in the metal engineering industry, as noted earlier, may be farming out production of simpler components. These firms may also be sub-contracting labour-intensive activities like motor winding where the whole product is taken to the sub-contractor's factory. In other cases, it is possible for a large firm to sell (or lease out) machines to sub-contractors which continue to physically remain in the premises of the parent firm. Work done on these machines would be counted as 'bought-out' component and the workers who operate these machines are employees of the sub-contractor. Here the parent firm secures the possible benefit of production under one roof, with, of course, the advantage of lower wages and overhead costs.

12. In the developed economies large retail stores get most of their goods manufactured in small firms worldwide, especially from labour surplus developing economies.

13. We are told of such practices in some large firms in Pune.
The distinction we made in the previous section between sub-contracting and the more general type of inter-firm relationship between specialist manufacturers is particularly relevant in the context of component sub-contracting. Though conceptually it is fairly simple to differentiate between the two, it may not be so in actually analysing concrete situations. One may find a whole spectrum of inter-firm relationships rendering it difficult to clearly and empirically identify and demonstrate the sub-contracting relationship. Since the distinction we have made is a qualitative one, any set of objective criteria to identify sub-contracting without taking into account the specificity of the industry, location, etc., may prove to be mechanical.

Factors influencing the growth of sub-contracting

The cost differential between large and small firms is the essential basis for sub-contracting relationship. However, the operation of this purely economic principle is greatly conditioned by the policy regime, the institutional framework of industrialisation and its historical antecedents. The level and the pace of growth as well as the organisation of the industrial sector could also have a bearing on farming out of production. In this section we attempt to analyse some of the major factors affecting the growth of sub-contracting in Indian manufacturing industries.

The fundamental basis of sub-contracting relationship in manufacturing industries is the principle of division of labour and specialisation. Moreover, in a labour surplus dual economy, small firms have relatively lower labour and overhead costs. Decisions to produce components and sub-assemblies within the factory or to farm them out—known as 'make or buy' decisions—are based primarily on the relative costs of production within the factory and outside. However, these decisions give due regard to considerations like the reliability of suppliers, their technical competence and the criticality of the components for the performance of the final product.

In industries where the production process is divisible, economies resulting from specialisation could be substantial. This is particularly true of the machine building industry where a large number of relatively small firms can specialise in very limited range of manufacture to secure economies of scale. Since machine
building plays a crucial role in industrialisation, productivity increase and the resulting cheapening of capital goods could have had a multiplier effect on the pace of industrial development. 14

The extent of specialisation is largely determined by the scale of production. When the scale increases it becomes economical for a number of specialised firms to start operating which, in turn, would tend to reduce average costs (Stigler, 1951). However, in many cases it may not be the total volume of production alone that is crucial but the batch quantity of production as well (Alchian, 1959). The extent of farming out would positively be related to batch quantity, which in turn depends on standardisation.

As we mentioned in the beginning, the close cooperation between parent firms and their sub-contractors is achieved usually by spatial concentration of factories. 15 Firms setting up manufacturing facilities in an industrially developed region can enlist the cooperation of the existing manufacturers and thus minimise their capital investment. By the same reasoning, factories located in industrially less developed regions would have to invest in a much greater range of facilities and hence forced to be more "self sufficient". Moreover, the make-or-buy decision of firms in backward regions will also be affected by the transport costs. Similarly, newer plants

14. The role of specialisation in capital goods sector has been brought out forcefully by Rosenberg (1976). Odaka (1980) in some ways extends this reasoning in the context of labour surplus underdeveloped economies by arguing that sub-contracting enables rapid diffusion of mechanical skills.

15. Discussing interdependence among industries Arthur Lewis has said:

"...industries are gregarious. Industries use common services such as gas, electricity, water, general engineering services and transportation facilities, which are all services in which there are economies of scale. So it is cheaper to operate a new factory in a place which already has a lot of factories than in a place which has no factories - at any rate up to a point where excessive congestion of factories begins to yield decreasing returns. Industries also depend on each other: buy by-products of another; and most industries cannot complete their product without buying products of other industries, such as chemicals or machines or components parts. Hence, industrial growth is cumulative; the more industries you have, the more industries you are likely to attract, and vice versa. The absence of other industries raises the cost of manufacturing in an underdeveloped country, because a firm there has to make for itself things which it could in other countries buy from specialist firms; it has to perform for itself services which it could elsewhere buy from specialists; it has to carry larger stocks of spares and components; and has to pay more for what it does buy from others; e.g. its machinery." (Lewis, 1953).
in any region need not establish facilities for production of items which can be readily purchased from the established sources. To quote Stigler:

"Localisation is one method of increasing the economic size of an industry and achieving the gains of specialisation. The auxiliary and complementary industries that must operate in intimate cooperation can seldom do so efficiently at a distance..."

Closely related to this is the influence of localisation upon the size of plant. The individual plants can specialise in smaller range of products and function in highly localised industries [the size of the industry in some sense being held constant]. In the United States industries usually have fairly small plants. There is also some evidence that the plants of an industry are smaller in the large production centre. (Stigler, 1951).

Labour market condition:

The principle of division of labour and specialisation, which is the cornerstone of sub-contracting acquires a much deeper meaning in labour surplus dual economies. The availability of cheap labour, practically unlimited in supply in a Lewisian sense, provides substantially larger scope for finer and finer division of labour and farming-out of production. The possibility of substitution of labour for capital - or more appropriately, very intensive use of the limited capital by applying greater amounts of labour - forms the basis for the growth of small firms in labour surplus economies. These firms are likely to use their skills intensively and in the process acquire more skills, by learning and doing, to operate simple and often used and reconditioned machines. This, in principle, exerts a downward pressure on costs of production.

If this argument is valid, then it follows that the growth of sub-contracting does not depend only (or mainly) on the labour surplus situation but on the availability of skilled labour as well. Diffusion of technical skills is a complex process which, among other things, is significantly affected by the prevalence of traditional industries (viz., hand weaving and handicrafts), institutional arrangement for imparting technical education, and the level and pace of growth of manufacturing sector.

16. Wage differential in developing economies primarily is the result of dualistic labour markets created due to the institutional difference between the organised and unorganised sectors.
The growth of the trade union movement protecting the interests of the organised working class, especially in large factories, has taken deep roots in India. The state has enacted a number of laws to protect the interests of the organised labour. Further, over the last two decades or so, the militancy of the organised workers appears to have grown rapidly. These tendencies could not only affect the division of output between profits and wages but could also mean a decline in 'managerial control' over the production process.

As a response to this situation, large firms in India like their counterparts in the developed economies, appear to have consciously avoided increasing employment of workers in their factories. Sub-contracting can, among other things, not only reduce the threat from the organised labour but also prove to be extremely economical as the wage differential between large and small firms in India could be very substantial. Moreover, the overhead costs in small firms are lower than those in large firms which have to incur additional expenditure on better amenities for their employees, marketing and after-sales service facilities, R & D activities, etc.

The role of government policies:

Active state intervention in economic development since the beginning of the fifties has increased the potential for sub-contracting in India. The policies affecting small firms can be classified into 'positive' measures to encourage the small scale sector and 'protective' measures to restrict the domain of large firms. Moreover, a large network of institutions and a variety of schemes have been introduced for the small scale sector. In addition specific attempts at developing sub-contracting have also been made. In 1960 the concept of exclusive ancillary was introduced with a provision of higher capital investment limit to qualify as a small scale unit and large firms, especially in the public sector, were persuaded to systematically farm out production of simpler components and sub-assemblies to the ancillaries. A more detailed ancillary development policy was formulated in 1971 giving guidelines to protect and promote the interests of the ancillaries.

17. Wage differential within the organised sector could also be very significant.

18. This observation is based on our discussions with a number of managers in large private sector firms.
details see Appendix 1.1. In the seventies, as will be shown in the next chapter, sub-contracting exchanges were set up in all major industrial centres as an institutional mechanism to foster linkages between large and small firms.

The most important instrument, however, for promoting small firms in India has probably been the discrimination in fiscal policy operating through differential excise duty and exemptions favouring small enterprises. In a situation where the technology used does not vary much among firms of different sizes, other things remaining the same, a lower indirect tax on small firms could provide them with a price advantage.\(^{19}\) However, it may be vitiated by the operations of economies of scale in favour of large firms in purchase of inputs, finance or marketing of output.

There are a number of related policies like supply of scarce raw materials (e.g., steel, coal, etc.,) on a priority basis and concessional finance which, in principle, are expected to further reduce the disadvantage of small size. Although it is difficult to assess \textit{a priori} the net effect of all these policies on specific industries - which could be a matter of empirical verification - one can hazard the proposition that as a result of this policies the entry barriers for small firms in a number of industries could have been reduced.

The differential taxation could have had a positive influence on the growth of sub-contracting.\(^{20}\) With the growth of small firms, large firms can purchase items from them instead of producing them in-house or purchasing from other large firms. They could also encourage new entrepreneurs to function as exclusive sub-contractors. There is some evidence to suggest that large firms themselves promote small scale units to circumvent the restrictions imposed on them by policy. (Goyal \textit{et al} 1985)

From the point of view of a large firm, purchasing from a number of small firms instead of depending on a single large supplier could not only reduce costs but also

\(^{19}\) The phenomenal growth of Nirma Chemical Works producing the popular brand of detergent 'Nirma' is a case in point. This firm which apparently employs about 10,000 workers dispersed in a large number of small firms is said to have edged out Hindustan Lever's 'Surf' as the largest selling detergent powder in India. See \textit{The Economist}, September 10 1988, P-78.

\(^{20}\) Bharat Bhushan (1984) clearly supports this proposition.
offer greater flexibility in production and in reducing working capital requirement. When certain lines of manufacture become well-established in a region with a fair degree of competition among the producers, the large firms can cease to perform that production activity in-house and farm out their entire requirement. To that extent large firms can reduce their capital investment as well. This could be true both for final products as well as for intermediate ones like parts and sub-assemblies.

An extreme example of this could be one where the tax differentials, together with lower labour and overhead costs, have priced large firms out of the market. In such a situation there is the possibility that large firms get the entire product manufactured by small enterprises and confine themselves to the marketing function only.21

After the nationalisation of commercial banks in 1969 the small scale sector has been included in the priority sector of lending. Large firms were able to take advantage of this development by cultivating a sub-contracting relationship since the small enterprises could now provide them with trade credit. The parent firms can extract credit for a longer time period from their sub-contractors by delaying payment of bills, especially in times of recession. Hence, this could offer them substantial flexibility in their financial management particularly during a regime of high interest rates. Such a flow of credit from the small to large firms is eminently facilitated because, unlike in countries like Japan, there are no laws in India protecting the interests of sub-contractors.

The reservation policy for protecting the small scale sector, the Monopolies and Restrictive Trade Practices (MRTP) Act, and the Foreign Exchange Regulation Act (FERA), despite a number of shortcomings in them, could have made it difficult for the large Indian and foreign firms to enter and/or expand their activities in certain lines of manufacture.22

21. Apparently such a situation arose in the dyestuff industry during the Janata regime when the excise duty on small producers was reduced drastically.

22. According to a well known management consultant, quoted in Bharat Bhushan (op cit), MRTP Act's restriction on capacity expansion is one of the main reasons for the increase in sub-contracting in the seventies.
In such a situation these firms may find sub-contracting a convenient way of overcoming the constraints imposed on their growth by these regulations. In the cotton textile industry, for example, mills in the organised sector could overcome the freeze on expansion of loomage by getting fabric woven in the powerloom sector. Since the sector is technologically similar to the mills and has the advantage of lower wages, its profitability (in the powerloom) could be relatively high. By sub-contracting to powerlooms the organised sector may not only be overcoming the freeze on loomage but also, as mentioned earlier, could reduce costs of production.\(^{23}\)

The reservation policy for the small scale sector seems to have opened up the possibility of product sub-contracting in a wide range of consumer goods\(^{24}\) and also, to a limited extent, in industrial products. While small firms can manufacture a number of products and probably often at competitive rates, procurement of raw materials and marketing of output could pose a formidable problem for them. Moreover, small firms may not have adequate testing facilities to ensure quality of products. In the absence of institutional support like cooperatives, small firms may find it convenient to manufacture on a contract basis for firms specialising in marketing. Moreover they may also provide the necessary raw materials, quality control and testing facilities.

Apparently large organisations like Bajaj Electricals ltd., Spencer and Co. and Gladstone Lyall with an all-India marketing network, seem to have increasingly resorted to product sub-contracting.\(^{25}\) When biscuit production, for instance, was reser-

\[^{23}\] The policy on the development of powerloom sector seems to have been ambivalent. However, the available evidence seems to suggest that the powerloom sector has cornered most of the concessions meant for the handloom sector. See, Jain (1983).

\[^{24}\] For instance, tooth paste is reserved for the small scale sector and the established foreign controlled firms like Colgate are not given licence to expand the capacity. This has led to a situation where Colgate gets a certain proportion of its output from the small scale sector.

\[^{25}\] Bajaj Electricals Ltd., a leading brand name in household durable goods and MRTP company, is solely a trading organisation, apparently marketing under its own name the products of some 200 small scale units located in Bombay and Delhi.
ved, established manufacturers began to get the product made in the small scale sector under their own brand names.  

The government has introduced the category of Export Houses as an export promotion measure. To qualify for this status a certain proportion of a firm's exports has to consist necessarily of the products of the small scale sector. As with many other measures discussed above, this also promotes the linkages between large and small firms. For example, Tata Exports apparently supplies processed leather manufactured in their modern plant in Dewas (M.P.) - to a number of small leather goods producers, who, on a job-work basis, turn them into final products. Similarly, it is said that a significant proportion of Hindustan Lever's merchant export earnings are on account of products of the small scale sector.

The principal analytical issue underlying the discussion in this section can be recapitulated as follows: In a labour surplus dual economy with considerable state intervention large and small firms face different factor market conditions. In the market for finance, large firms have greater accessibility to capital which provides them the freedom to choose capital intensive technology with higher labour productivity. This option is usually not available to small firms. But, on the other hand, small firms have access to cheaper labour. This asymmetry makes it possible for small firms to co-exist with large ones, with a lower rate of profit as long as wage differentials do not get narrowed down and they operate in non-competitive markets. In such a situation one of the viable option for them is to get tied to large firms as sub-contractors. Though this arrangement could mean a lower profit margin for the small firms it provides an assured market. The above discussion suggests that various government policies in India seem to have strengthened the process of inter-linkages between firms of different sizes.

26. According to the Chairman of Britannia Industries Ltd, as reported in his address to the shareholders of the company in 1984, 34 per cent of its sales of biscuit were procured from small manufacturers.

27. Though it may be very difficult to establish empirically we would be inclined to believe that small firms have much greater scope to under-report their output, and income and avoid taxes than large firms. This view is widely shared among chartered accountants.

28. For a detailed mathematical exposition of this argument, see Hiyazawa (1980).
Moreover, the sub-contracting relationship gives small firms an opportunity to enter new industries, acquire technical skills and managerial capabilities. Over a period of time, accumulation of these intangible assets could provide considerable scope for the growth of small firms and thus they could graduate from being sub-contractors to "independent" producers manufacturing branded and/or patented products for the market.

Influence of the specific features of industrialisation in India:

The arguments presented so far outline the possibilities of growth of sub-contracting in a surplus labour economy as India. The realisation of this potential could, as we will argue below, depend upon a variety set of factors.

Since the modern industrialisation effort began during the colonial rule, it is quite conceivable that the British technology and their organisational methods were to a considerable extent replicated in India. Even after independence, technical and managerial links with British industry continued to remain fairly strong. As the industrial organisation and technology in Britain evolved under quite different market conditions, plants there tend to be relatively vertically integrated. Since India followed the British pattern, factories here also tend to be similarly vertically integrated and there existed a reluctance on the part of large firms to depend on sub-contracting. Therefore the legacy of industrial development under colonial rule could have had a negative effect on the growth of sub-contracting relationship.

The recession of the mid-sixties and the slower growth which followed recognised to have been a very significant development in the post independence industrialisation phase. The effect of recession was not uniform across all board; in fact, the engineering industry particularly was very severely affected. In an earlier study we have outlined the specific ways in which the industrial sector was attempting to overcome the crisis of the mid-sixties (Nagaraj, 1980). It was argued that developing sub-contracting relationship could be an effective means of cost reduction, increasing profitability and growth.

However, the extent to which firms in an industry are compelled to bring down costs to protect and increase their profitability would considerably depend upon the market structure and trade regime. Since Indian industries appear to be cost-ineffi-
cient (Ghosh, 1982) due to lack of sufficient competition, the potentiality of sub-contracting would perhaps not have been fully realised.

**Sub-contracting in historical perspective**

The essential economic argument for sub-contracting arises out of differentiated markets, for labour and capital as faced by large and small firms. Industrialisation of Western Europe and America, by and large, occurred under conditions of labour scarcity which denied small firms the advantage of substantially lower wages.29

Large firms had a considerable advantage over smaller ones in both the capital and output market since the economies of scale could have been significant. Moreover, the predominantly homogeneous labour market gave large firms a further advantage (Steindl, 1945). These firms found it profitable to have relatively more vertically integrated plants.30 However, the large firms derived the benefit of specialisation by multi-plant operations. Therefore, the role of small firms in the economy declined steadily (Prais, 1982). Consequently, sub-contracting as a distinctive feature of the organisation of production could not perhaps be easily discerned.31

Sub-contracting, as we understand it today and recognise its significance for the developing economies, played a crucial role in the Japanese economy. Japan has

29. Habakkuk's (1962) detailed historical account shows how scarcity of labour was the primary reason for labour-saving bias in technological change in America in the nineteenth century. The recent labour market segmentation literature shows the existence of pockets of cheap labour and the use of racial discrimination in America. This points to the non-homogeneous nature of the labour market. However, we are inclined to believe that this qualification does not seriously alter the labour scarcity argument for in spite of these segmentation the densely populated under-developed countries definitely have excess labour supply.


32. There are a number of studies which have discussed this feature of the Japanese industrial organisation. See Watanabe (1983), Shinohara (1964), Odaka (1978), Broadbridge (1966) and, Hirschmeir and Yui (1981).
historically been a densely populated agrarian society with a typical labour surplus dual economy till as late as the mid-sixties. The peculiar feature of the industrial economy has been the dominance of a small number of large firms (owned and controlled by a few Zaibatsu groups) on the one hand and a large proportion of workforce engaged in small and medium sized firms using labour intensive production processes on the other. Large and small firms faced different market conditions. As the finance was predominantly controlled by the industrial houses they had easy access to credit at lower interest rates while the small firms faced considerable difficulties in the capital market. However, due to the same specific historical circumstances, the labour market for large firms was rigid since the beginning of the century: the institutional characteristics were life-time employment and seniority based wage payment. As a result of these, wage rates tended to be much higher and labour market inflexible in large firms than in small firms where it was by and large determined by the market forces - supply price broadly governed by agricultural productivity.

Figure 1.1
Distribution of employment in the Japanese manufacturing Industries, 1900 - 1970

Source: Anderson (1982)
Given these market conditions, large firms secured reduction in wage costs and flexibility in business operations by developing a close and dense sub-contracting relationship with small firms. This is reflected in the size structure of Japanese plants in the manufacturing sector. The following data (Table 1.1) gives a comparative picture of Japan with the U.S. and Britain for 1950s. It clearly shows that nearly two-fifths of manufacturing employment in Japan was working in factories employing up to 4 to 9 workers - compared to eight per cent and 15 per cent for the U.S. and Britain respectively. At the other end of the spectrum while in the U.S. and Britain the share of employment in plants employing more than 1000 workers was 31 and 29 respectively the share for Japan was only 17 per cent.

Relatively faster growth of employment in small sized plants in Japan over a long period can be seen from Figure 1.1. It shows that while the share of employment in household manufacturing steadily declined from 1900 to 1960 [and increased slightly since then], the share of small factories and workshops shows a rapid increase during the same period. This trend is quite contrary to the one noticed in the developed western economies where the role of small plants steadily declined over the same period.

Figure 1.2
Changes in the numbers of self-employed in Japanese manufacturing, 1948 - 67

Figure 1.2 depicts number of self employed in manufacturing sector - which is taken as a proxy for small entrepreneurs by Watanabe [1970] - for the period 1948 to 1967. Though there are fluctuations the overall trend since 1951 is a rising one.

In the early phase of Japan's industrial development, say till 1930, when Japanese production and exports were concentrated in light manufactures, the relation between large and small firms was more akin to the traditional putting-out system. Under this system large merchants provided raw materials and credit and in turn procured the output of small and household manufacturers.

With the growth of 'heavy' industry - especially metal manufacturing - industrial sub-contracting grew in prominence. This relationship has been considered to be unique feature of the Japanese industrial organisation. Under this system large manufacturers develop a close and durable working relationship with their sub-contractors based on unwritten oral commitments. In Japan there is not one but several 'layers' of sub-contractors - some of whom could even be household producers. Parent firms not only provide assured market but also offer capital, second hand machinery and provide technical assistance. Parent firms in turn not only are able to reduce costs of production but are also able to save on capital and inventory carrying costs by the practice of just-in-time inventory.\(^{33}\) Sub-contracting enabled large firm to better withstand the market fluctuations.

The central role of sub-contracting in industrial organisation of Japan cannot probably be explained merely in term of the nature of labour and capital markets and the institutional rigidities. It has been argued that perhaps sub-contracting has something to do with the social organisation of Japanese economy. To quote Bert Hoselitz:

"Thus the survival of small industry in Japan is the outcome of a highly complex and hierarchical social structure within industrial production, and presents a feature of industrial organisation which is probably not approximated in any western country. We must bear in mind that socio-structural peculiarity of Japanese industrial organisation since it appears to be unique not only with reference to western countries but also with reference to other Asian countries which share one additional aspects with Japan which tends to favour small industry: the high density of population and especially the proportion of density settled agricultural areas". Hoselitz(1959)

\(^{33}\) This is by now the famous Japanese management practice wherein supplies from sub-contractors are directly used in the assembly time without any in-process inventory carrying costs. This practice also highlights the high level of coordination achieved by parent firms and their sub-contractors in production scheduling that they are able to reduce working capital requirement.
Table 1.1: Size distribution of manufacturing plants in Japan, U.S.A. and Britain

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<td>1-9</td>
<td>15</td>
<td>4</td>
<td>4 (a)</td>
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<td>10-49</td>
<td>28</td>
<td>14</td>
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<td>50-99</td>
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<td>100-499</td>
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<td>1000-</td>
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Source: Broodbridge (1966)
Notes: a. 1-10, b. 11-49

Conclusion

To recapitulate, the analytical issues dealt with in this study are (i) to understand the meaning of sub-contracting and its distinction from more general inter-firm relationships, (ii) to outline the various forms of sub-contracting in different types of manufacturing industries, and (iii) to analyse the logic of sub-contracting especially in the Indian context.

We have attempted to show that although the relatively differential in wages and overhead costs forms the basis for sub-contracting it is perhaps far from an adequate explanation of the growth of this relationship between large and small firms in Indian industry. Our effort in this chapter has been to bring out the complex set of factors which seem to influence sub-contracting, like the role of government policies, the nature of production technology, the level of industrial development and the historical background of modern industrialisation.

We have also seen in this chapter how sub-contracting as a unique institutional feature of Japanese industrialisation emerged due to the specific characteristics of the economy. In the following chapter we provide evidence on the development of this relationship between large and small firms in India based on secondary sources.
Appendix 1.1

Review of policies towards promotion of small and ancillary industries

Since the beginning of the planning era the promotion of small enterprises in a certain range of modern manufactures and the preservation of traditional industries have been an important objective of India's development policy. This was guided by the larger concern for generation of employment opportunities and diffusion of skills, broadening of the entrepreneurial base, reduction of economic inequality and spatial dispersion of manufacturing activities. The heavy industrialisation strategy of Mahalanobis also clearly demarcated manufacture of consumer goods for small scale production. The primary consideration for this was efficiency of production and creation of employment opportunities. The role assigned to sub contracting in machinery building was primarily in view of its effects on efficiency in the use of capital resource.

A large network of official agencies have been set up to protect and promote the small scale manufacturing industries. Excluding the traditional industries like handlooms, silk, bidi, handicrafts, and coir - which are looked after by separate boards/commissions - all other industries in the small scale sector come under the purview of the Development Commissioner of Small Scale Industries (DCSSI), supported by similar agencies at the state level.

One of the important instruments of promotion has been identification of small scale sector by size of capital employed and providing them a number of concessions and facilities. In 1955 the definition was all manufacturing units using up to (i) Rs. 5 lakhs in land, building and plant and machinery and (ii) employing less than 100 persons. However over the last three decades the definition has been made less restrictive by dropping (iii) and deleting land and building for measuring the

34. Information presented in this section is based on the annual reports and other publications of Development Commissioner, Small Scale Industries (Government of India).
capital employed. Further the upper limit for investment has been revised several times\textsuperscript{35} with the current upper limit being Rs. 35 lakhs.

As mentioned earlier a category of small scale ancillary units was introduced in the third five year plan to promote sub-contracting on the assumption such units would require higher capital outlay, the upper limit for the ancillaries was kept at Rs. 5 lakhs more than for the small scale units. In the latest revision made in 1985 the upper limit was fixed at Rs. 45 lakhs.

Though registration as a small scale units is not mandatory it is a prerequisite to receive any official assistance. Moreover small scale units, including the ancillaries, do not attract the provision of industrial licensing under the IDR Act, 1951 and a certain provision of the Companies Act, 1956 and Cost Accounting Records Rules, 1977.

Substantial investments have been made in providing infrastructure and common services for the small scale sector. It also receives technical assistance and various management services from numerous central and state government sponsored organisations\textsuperscript{36} at subsidised rates.

A number of financial institution offer long term loan at subsidised interest rates. Under specific schemes even risk capital is advanced. As this sector is included in the priority sector the share of bank leading to this sector has shown a significant increase since the nationalisation of commercial banks in 1969.

One of the historically widely used instrument of industrial promotion has been government purchase policy. This has been extensively used in India both at the central and state government level for the small scale sector. While price preference is common, a number of products are totally reserved for purchase from small scale sector. Many states not only accord preference to small scale units in general but also to those there located within the state in particular.

\textsuperscript{35} For details see Goyal \textit{et al} (1984).

\textsuperscript{36} Small Industries Service Institutes (SISI) were set up in the sixties on a uniform pattern in a large number of industrial centres. However, over the years state governments have added a number of institutions, which vary from state to state.
With a view to prevent creation of further capacities (in the large sector) in areas where the small scale sector had perceived cost advantage, reservation policy in favour of the small scale sector was introduced in 1960. The list of the reserved items was steadily increased especially after 1965. The scope was substantially enlarged during the Janata Regime at the Centre in 1977-79 when the number of reserved items went up to over 800. However this policy was not always implemented strictly. In the 80s when the focus of policies shifted towards greater efficiency and productivity a certain number of items have been removed from the reserved list.

As mentioned earlier tax exemptions and differential taxation in favour of the small scale sector has probably been the most important policy instrument for the growth of this sector. In addition, subsidies and sales rebates are also offered at specific periods in a year to boost sales of specific products of the small scale industries. In some cases, as it was in textiles, a special cess is imposed on the large scale sector specifically for the development of specific small industries.

We have noted earlier that a concept of ancillary industry was introduced in the third plan to promote sub-contracting. A large number of exclusive ancillary industrial estates have been set up, usually in close proximity to the parent factories. As per the ancillary development policy all public sector undertakings were directed to promote exclusive ancillaries to off load manufacture of relatively simple components and sub-assemblies. The ancillaries were protected from open competition, given price preference, accorded priority in payment of bills and offered considerable technical help in the production process. A fairly elaborate administrative machinery consisting of government officials, bankers, and public sector managers were set up to protect and promote the interest of the exclusive ancillaries.