Sub-contracting in Indian Manufacturing Industries
Analysis, Evidence and Issues

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This preliminary study, aimed at filling the gap in the understanding of sub-contracting, is concerned with: the meaning of sub-contracting, its distinguishing features, the different forms it takes in different industries and the economic factors and institutional aspects of industrial development that influence its growth. It also includes a brief review of the various relevant government policies formulated over time.

Part II of this paper contains evidence on the development of sub-contracting in Indian industry, documented from a number of secondary sources. The paper concludes by posing a number of questions which need to be answered to arrive at a better understanding of this dimension of industrial change.

Sub-contracting (or ancillarisation) is an important feature of modern organisation of manufacturing industry. Considering its significance for the rate and the pattern of industrialisation the attention it has received in Indian studies is quite inadequate. In this preliminary study aimed at filling the gap in understanding we are concerned with the following issues: the meaning of sub-contracting, its distinguishing features, the different forms it takes in different industries, and the economic factors and institutional aspects of industrial development that influence its growth. These are discussed in the first part of the paper. It also includes as a necessary sequel and link with the second part, a very brief review of the various government policies formulated over time which could have a bearing on the problem under study. The second part contains evidence on the development of sub-contracting in industry documented from a number of secondary sources.

Although the available information shows a broad picture of the growth of sub-contracting in India the evidence is too meagre to provide any delayed understanding of the extent of its growth in different industries and regions, their diverse forms and the causes of this growth. Therefore the study concludes by posing a number of questions which need to be answered to arrive at a better understanding of this dimension of industrial change.

I

Distinguishing Features of Sub-contracting

Sub-contracting 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 to small firms which return these materials after turning them into the required form (as per the technical specification), at a pre-determined rate. These transactions between firms of differing sizes are not random or occasional business deals but are much more permanent and often collaborative relationships. In more general terms, sub-contracting refers to a specific aspect of the organisation of industrial production where large and small firms co-exist (with a high degree of specialisation) with informal cooperation in production and sometimes in investment decisions as well. In the national context such cooperation is usually achieved by concentration of factories in small geographic regions minimising costs of transport and information flows.

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 sub-contractors to execute orders. Normally the items manufactured by sub-contractors are not patented; nor do they produce for the 'market' which can be purchased 'off the shelf'. In this sense sub-contractors are not 'independent' producers but appendages to their parent firms. To a large extent the survival and growth of sub-contractors is circumscribed by the growth process of their firms, whose large size commands greater economic power and the ability to withstand market fluctuations. They attempt to systematically develop business relationships with their sub-contractors as an integral element of their own growth process.

A number of examples can be cited to illustrate sub-contracting. 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 entrepreneurs could undertake labour intensive activities like motor winding from 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 little capital.

Sub-contracting is often confused with the more general form of inter-firm relations.
sub-contractors. It is not uncommon for them to be formally or informally tied to their parent firms through technical, financial, input and market linkages. These ties could restrict the sub-contractors' freedom to operate as independent entrepreneurs. This aspect of domination and control — which is a reflection of their unequal economic 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 the micro economic production units in the competitive growth mechanism.

**FORMS OF SUB-CONTRACTING**

The nature of manufacturing technology mainly determines the form of sub-contracting and the extent to which it can develop in any industry. In process industries, for example, its possibility is very limited. Sub-contracting is feasible in industries where the production process is divisible and/or the final product, as described earlier, is constituted by a number of parts and sub-assemblies.

The most commonly observed form of sub-contracting is in metal working industries which we have discussed in the previous section. This we call component sub-contracting. In such industries the parent firm usually concentrates its resources in the development and manufacture of a limited range of technology intensive segments of the final product. However, since the product is sold under their brand name, the parent firms usually undertake marketing, after-sales-service and R and D which assume increasing importance in manufacturing.

There could be another type of manufacturing where the input(s) moves through a number of distinct 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 'disintegrate' into its constituent activities specialising in individual processes. Alternatively, as a result of a different configuration of influences, 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**.

The cotton 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 operates at a low level of technology it is 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 chip, capacitor, transistors, television picture tubes etc are capital intensive processes requiring high technology. In these industries economies of scale in production could be very substantial and the rate of technological obsolescence could also be very high. But, on the other hand, assembling of these components to produce the final products is highly labour and skill intensive. Therefore this operation can be farmed out to small and even household enterprises. Sub-contracting of this kind, we would call, **assembly sub-contracting**.

There could be yet another form of this relationship where sub-contractors produce the complete product and the parent firm essentially performs the marketing functions. We define this as the **product sub-contracting**. Such an arrangement could be widely prevalent in industries producing consumer goods and durables like electric appliances, metal products and food, clothing and leather products. Such product sub-contracting can be common in a certain range of industrial products as well — like for instance, starters, small motors, transformers etc, in electrical machinery industry — which involve relatively simple technology.

In some sense the categories outlined above represent the ideal types. One may come across a number of combinations and variants of these basic forms of sub-contracting in different industries. For example, large firms in the metal engineering industry, as we 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 some other case, it is possible for a large firm to sell or lease machines to sub-contractors but which continue to physically remain in the parent firm’s premises. The work done on these machines would be counted as a ‘bought out’ component and the workers who operate these machines are employees of the sub-contractor. Here the parent firm gets the benefits of production if any, under one roof, without a corresponding increase in the wage bill and overhead costs.

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 the two, it may not be so in actually analysing concrete situations. One may find a whole spectrum of inter-firm relationship rendering it difficult to empirically identify 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**

Comparative cost advantage is the principal basis for the growth of sub-contracting. However the operation of this purely economic logic is greatly influenced by the role of the state, the institutional framework of industrialisation and its historical antecedents. The level and pace of industrialisation as well as the way the industrial sector is organised also have a bearing on the growth of sub-contracting. We attempt, here 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 small firms have relatively lower labour and overhead costs. Decisions to produce components and sub-assemblies within the factory or to form 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 criticalness 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 a very limited range of manufacture to economise on resources. Since machine building plays a crucial role in industrialisation, productivity increase and relative cheapening of capital goods could have a multiplier effect on the pace of industrial development.

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 is not 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 be positively related to batch quantity.

As we mentioned in the beginning, the
close cooperation between parent firms and
sub-contractors is achieved usually by spatial
concentration of factories. Firms setting up
manufacturing facilities in an industrially
developed region can enlist the cooperation
of the existing manufacturers and minimise
their capital investment. By the same reason-
ing factors located in industrially less
developed regions would have to invest in a
much greater range of facilities. The make or
buy decisions of firms in backward regions
will be affected by the transport costs also.
Similarly newer plants in any region need not
establish facilities for items which can be pur-
chased from the already established sources.
These can be reflected in the size distribution
of factories. In any industry average size of
factories in backward region tends to be larger
than that in the advanced region. And in
other region older plants tend to be of much
larger size than the newer ones (Florence,
1948).

Sub-contracting also offers large firms
considerable flexibility to face market
fluctuations which is of great significance in
day to day business operations. Since the
relationship between the parent firm and its
sub-contractors is unequal, the former can
pass the burden of market fluctuations on to
its subcontractors. This is usually done by (1)
delaying payment of bills, (2) refusing to take
delivery of goods and/or (3) postponing
inspections of materials. Moreover as the
workers in small firms are not only paid less
but also are relatively less well organised,
during the recessionary period it is much
easier to lay them off than the workers in
the parent firms. Thus, it is very likely that
the real brunt of market fluctuations is to a
greater extent borne by the workers in small
firms (Friedman, 1974).

Managements can 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 can circumvent this
t Challenge by enlisting the cooperation of
small entrepreneurs or even working class
households. The economic logic of household
enterprise seems to be such that it appears to
transcend or even negate working class
consciousness.5

Since managements systematically develop
sub-contractors 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.

LABOUR MARKET CONDITIONS

The arguments outlined so far assume that
firms of various sizes operate in a more or
less homogeneous capital and labour market.
The industrialisation of Western Europe and
America largely occurred under such condi-
tions.5 Large firms had a substantial advan-
tage over smaller ones in the capital market as
well as in the marketing of output since the
economies of scale could have been con-
siderable. 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.6 However
the large firms derived the benefit of
specialisation by multilateral operation.
Therefore the role of small firms in the
economy declined steadily [Paris, 1982].
Consequently sub-contracting as a distinctive
feature of the organisation of production
could not be discerned.7

Sub-contracting seems to acquire a much
greater significance under different capital
and labour market conditions. As will be
discussed below, labour surplus economies
with rigidities in labour market and scarcity
of capital appear to provide new arguments
for its growth, over and above those discuss-
ed earlier.

Sub-contracting as we understand it today
and to which we attach significance for the
development of labour surplus economies has
historically been very widespread and has
played a crucial role in the Japanese eco-

domy. The unique Japanese feature of
seniority-based wage payment and life-time
employment in large firms since the beginning
of the present century introduced rigidities
in the labour market. One of the methods for
large firms to overcome this inflexibility has
been to cultivate the cooperation of a number
of tiny producers who faced totally different
market conditions. These small enterprises
while faced with considerable difficulty in
raising capital had access to cheaper labour
practically unprotected by labour legisla-
tions. Large firms and trading houses who
had much easier access to capital due to their
close connections with the commercial banks
provided financial assistance and raw
materials to small firms in return for an
assured supply of manufactured products
and components. Such assistance was por-
bably an effective method of 'tying' tiny en-
tepreneurs and exercise control over them.8

The dense network of sub-contracting rela-
tionship reflected in the Japanese size struc-
ture of factories. Unlike in West European
economies and the United States where larger
size factories predominated, the industry-wise
distribution of factories in Japan is quite
even across different employment size
classes (Ishikawa, 1968).

The principle of division of labour and
specialisation, which is the corner stone of
sub-contracting acquires a much deeper
meaning in labour surplus dual economies.

The availability of very cheap labour, prac-
tically unlimited in supply, provided substan-
tially larger scope for forward and fine division
of labour and farming out of production.
The possibility of substitution of labour for
capital — or more appropriately, very inten-
sive use of the limited capital by applying
greater amounts of labour—forms the basis
for the growth of small firms. These firms use
their skills intensively and in the process ac-
quire more skills 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 de-
pend 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 manufacturing skills
(like for example, hand weaving and han-
dicrafts), institutional arrangement for im-
porting technical education, and the level and
the pace of growth of manufacturing ac-
tivities.

The growth of the trade union movement
protecting the interests of the organised
working class, especially in large factories,
hastaken deep roots in India. The state has
enacted a number of laws to protect the in-
terests of labour. Moreover 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 con-
sciously avoided increasing employment of
workers in their factories.9 Sub-contracting
can not only reduce the threat from labour
but also prove to be extremely economical as
the wage differential between large and small
firms could be very substantial. Moreover the
over head costs in small firms are lower than
in large firms which have to incur additional
expenditure on better amenities for its
employees, marketing and after-sales-service
facilities, Research and Development ac-
tivities etc.

THE ROLE OF GOVERNMENT POLICIES

Active state intervention in the programme
for planned economic development since the
beginning of the fifties has increased the
potentiality of growth of sub-contracting
relationships in India. The policies affecting
small firms can be classified into two:
'Positive' measures to encourage the small
scale sector10 and 'protective' measures to
restrict the domain of large firms. A large
network of institutions has come into existence to implement state policy for the small scale sector. Moreover the government policies have attached considerable significance to the development of small scale ancillaries in the machinery manufacturing as a means of saving on capital investment and promotion of employment.

The most important instrument for promoting small firms in India has been probably the fiscal policy — differential excise duty and exemptions—which is meant to increase their competitive strength. In a situation where the technology used is not very much different among firms of different sizes, other things remaining the same, a lower indirect tax on small firms provides them with a price advantage. However, this advantage may be vitiated by the operations of economies of scale of large firms in purchase of inputs or marketing of output.

There are a number of related policies like supply of scarce raw materials (eg 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 a priori the net effect of these policies on specific industries — which is a matter of empirical verification—one can hazard the proposition that the entry barriers in a number of industries could have been reduced as a result of these policies.

The differential taxation could have had a positive influence on the growth of sub-contracting.11 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.

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 offer greater flexibility in production and inventory management. When certain lines of manufacture become well established in a region, with a fair degree of competition large firms can cease to perform that production activity in-house and farm out their entire requirement. To that extent large firms can minimise their capital investment as well.

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 a possibility for large firms to get the entire product manufactured by small enterprises and confine themselves to the marketing function alone.12

The nationalisation of commercial banks in 1969 led to the inclusion of small scale industries in the priority sector of lending. Thus availability of credit for small enterprises improved considerably. 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 longer credit 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 the regime of high interest rates. Unlike in Japan, there are no laws in India protecting the interest 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 loop holes in them, could have made it difficult for the large Indian and foreign companies to enter and/or expand their activities in certain lines of manufacture.13

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 on the one hand powerloom mills are not technologically dissimilar to those operated in the organised small sector, and on the other hand wages are probably as low as in the handloom sector, profitability in the powerloom sector could be quite high.14 By resorting to sub-contracting large mills in the organised sector may not only be overcoming the freeze on loomage but, as we mentioned earlier, could reduce costs of production as well.15

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 and also, to a limited extent, in industrial products. While small firms can manufacture a number of products, and probably at competitive rates too, 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 produce quality products. In the absence of institutional support like cooperatives, small firms may be compelled to manufacture on a contract basis for firms which specialise in marketing. Moreover, the large marketing organisations may provide the necessary raw materials, quality control and testing facilities.

Apparantly large organisations like Bajaj Electricals, Spencer and Co, Gladstone Lyall, etc, having an all-India marketing network, have increasingly resorted to sub-contracting.16 When biscuit production was included in the list of reserved items for the small scale sector a few years ago, established manufacturers began to get it produced in the small scale sector under their own brand name.17

A few years ago, the government 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 necessarily consist 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 supplies processed leather — manufactured in their moderate plant at Dewas (MP)—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 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 large and small firms face different market conditions. In the market for finance, large firms have greater accessibility 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...
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 rates do not rise and they operate in non-competitive markets. But if small firms want to grow, the only 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 strengthen the process of interlinkages between firms of different sizes.

Moreover, the sub-contracting relationship gives an opportunity for small firms to 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 graduate from being subcontractors 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 India given the condition of surplus labour and the role of government policies. However, the realisation of this potential could, as we will argue below, depend upon a set of other factors.

Since the modern industrialisation effort began during the colonial rule, British technology and their organisational methods were replicated in India. Even after independence, technical and managerial links with British continued to remain very strong. As we noted earlier, the industrial organisation and technology in England evolved under quite different market conditions. Therefore industrial plants there tend to be highly vertically integrated. Since India followed their pattern, factories here are also tended to be similarly vertically integrated and there existed a reluctance 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 has been recognised to have been a very significant development in the experience of post-independence industrialisation. The effect of recession was not uniform across all industries but the engineering industry in particular was very severely affected. In an earlier study we had outlined the specific ways in which the industrial sector was attempting to overcome the crisis of the mid-sixties (Nagarai, 1980). It was argued that developing sub-contracting relationship could be very 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 pressure of competition. Since Indian industries appear to be cost inefficient (Ghosh, 1982) due to lack of sufficient competition, the potentiality of sub-contracting would not have been fully realised.

**A Brief Review of Government Policies Relating to Small Scale Sector**

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 important objectives of development policy. This was guided by the larger concern of generation of employment opportunities, 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 and components and sub-assemblies in machinery manufacturing 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 resources.

The task of development of the major traditional industries like hand looms, silk, coir, etc., are assigned to separate statutory boards/commissions. Therefore, the small scale sector, as we normally understand it, refers to ‘modern’ manufactures based on metal, plastics, rubber, petroleum products etc. This category also includes all other industries not covered under these boards/commissions.

By the official definition all enterprises with capital investment less than a certain limit are included under the category of small scale sector. Over the last three decades this limit has been periodically revised upwards from Rs five lakh in the early fifties to the current figure Rs 20 lakh.

Since the government offers a number of concessions to the small scale sector this definition carries considerable significance. No licence, approval or sanction is required to set up a small scale unit. Registration with the small industries department is also not compulsory. However it is needed to obtain other governmental assistance. As mentioned in the previous section, this assistance is broadly of two types: "positive" and "restrictive". The positive measures can be either "direct" or "indirect".

The indirect assistance is in the form of physical infrastructural development and a number of common facilities. Over the last three decades a large number of industrial estates and related overhead facilities have been created to promote small scale sector. A large network of Small Industry Service Institutes (SISI) has been established which functions as a nuclei for technical assistance, dissemination of information, training, market research etc. Testing facilities have also been set up in a few cities to help small entrepreneurs upgrade their product quality.

The direct assistance is in the nature of providing entrepreneurs with concessional finance, assured supply of raw materials and/or imported machinery. The National Small Industries Corporation (NSIC) was set.

**Table 2: Growth of Small Scale Sector in India (in Rs crore)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Value of Production (in current prices)</th>
<th>Total Value of Product at 70-71 Prices</th>
<th>Percentage Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>N A 2900 2160 4410.54 12.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>160 3420 3080 5005.24 13.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>216 4930 4270 5707.26 14.03</td>
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<td></td>
</tr>
<tr>
<td>1975</td>
<td>239 5740 5260 6683.13 17.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>260 6700 5700 7350.32 9.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1977</td>
<td>287 7570 6430 7750.82 5.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>321 8500 7200 8420.72 8.20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Development Commission, Small Scale Industries, New Delhi.*

**Table 3**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Ancillary Units</th>
<th>Purchase from Anciliaries by Public Enterprises (in Rs Crore)</th>
<th>Purchase from Anciliaries as % of GDP from Public Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974-75</td>
<td>432</td>
<td>29.31</td>
<td>1.93</td>
</tr>
<tr>
<td>1975-76</td>
<td>479</td>
<td>36.36</td>
<td>2.19</td>
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<tr>
<td>1976-77</td>
<td>508</td>
<td>43.84</td>
<td>2.24</td>
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<tr>
<td>1977-78</td>
<td>550</td>
<td>80.51</td>
<td>3.81</td>
</tr>
<tr>
<td>1978-79</td>
<td>805</td>
<td>96.44</td>
<td>4.05</td>
</tr>
<tr>
<td>1979-80</td>
<td>888</td>
<td>110.92</td>
<td>--</td>
</tr>
</tbody>
</table>

*Source: Association of Indian Engineering Industry (1982).*
up by the Central government to provide machinery on hire purchase and assist small firms in marketing their output.

Since the development of small industries is a state subject, a number of promotional agencies have come into existence offering a wide range of specialised services. State financial corporations, in general, provide long-term loans and risk capital. State industrial development corporations are meant to supply scarce raw materials. They also normally provide technical and managerial assistance, preparation of project reports, market etc.

As mentioned in the previous section, availability of credit improved significantly for the small scale sector after the leading commercial banks were nationalised. While the term lending institutions provide long-term finance and risk capital, commercial banks mostly concentrate on short-term lending.

Reserving certain products and restricting the entry and expansion of large firms have been important protective policies. During the First Five Year Plan period large established manufacturers were discouraged from producing a number of items including furniture, sports goods etc. During the Second Five Year Plan period 'Common Production Programmes' was drawn up for products like bicycles, sewing machines etc. This was intended to be a method of restricting the expansion of capacities in the large scale sector. The policy of reservation was revived during the sixties and the real thrust came during the second half of the decade. In 1965 about 45 items were included in the reserved list. The number went up to 123 in 1973 and further to over 800 items in 1982.

As we mentioned earlier differential taxation is probably the most important protective measure for the small scale sector. In addition to this, fiscal subsidies, sales rebate are also offered to small producers. In some cases a special cess is imposed on the products of the large scale sector to promote small industries.

Recognising that sub-contractors in machine building may require capital intensive equipment a higher investment limit has been allowed for them. Currently the limit is Rs 25 lakhs, Rs 5 lakhs more than that permitted for the small scale sector. Moreover, exclusive ancillaries who register themselves under this category are provided with other concessions as well, like priority allotment of sheds in industrial areas, softer loans and hire purchase terms from NSCI etc.

There is a standing instruction to public sector undertakings to identify the items that can be farmed out and to develop suitable sub-contractors. Some of the leading public sector enterprises like HMT, and ITI have developed ancillary estates close to their factories, helped entrepreneurs purchase suitable capital equipment and supplied orders.

## II

Some of the evidence presented here consists of macro level data while the rest of it is based on case-studies of firms, regions and sectors of industries collated from very diverse sources. Since the role of sub-contracting is inadequately appreciated very little comprehensive and reliable information is available on this aspect. The official data, as will be discussed later, is seriously unreliable and incomplete. Even the few individual researchers studying the small scale sector in India have not focused sufficient attention on this problem.

Therefore, as a necessary ground work for further enquiry, we have put together whatever secondary evidence we could collect. We have made use of qualitative information. Therefore the picture that emerges is necessarily disjointed and fragmentary in nature. As far as possible we have commented on the nature and quality of data before putting it to use.

### EARLY STUDIES ON INDUSTRIAL DEVELOPMENT

Most of the early studies on industrial development in India did not touch upon the question of sub-contracting. Probably Rosen's (1959) study was the first attempt to look into the issue. Based on his visit to a number of factories in Bombay during 1955-56 he observed that large firms tend to produce most of their requirement within their plants. Hence the level of sub-contracting was very low.

On the basis of his study of small firms in Delhi, Dhar (1958) concluded that "Indian manufacturers preferred integrated plants as they were easily available on import with or without foreign aid". James Berna arrived at a similar inference from his study on entrepreneurship in South India. He found that even the smallest metal working units had their own foundries although these were utilised only for about three months in a year (Berna, 1958). The Japanese delegation to recommend policies for small industries (1959) had a similar remark to make.

In 1959, the Engineering Association of India, the then leading association of major engineering firms, conducted a survey of all engineering units employing 20 or more workers with power to obtain a detailed statistical account of the industry. Its report (1961, p 19) noted that "the level of sub-contracting is very low and the progress made so far in this direction, barring some notable exceptions, has been negligible". Later in the late sixties, surveying the literature on small industries in India, Fisher (1968, p 141) also found that very little was achieved in developing sub-contracting in manufacturing industries.

### TABLE 5: AGewise, INDUSTRYWISE DISTRIBUTION OF UNITS BASED ON THE CENSUS OF SMALL SCALE UNIT 1972-73

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage of Units Set Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951 and before</td>
<td>1951-55</td>
</tr>
<tr>
<td>1. Food Products</td>
<td>10</td>
</tr>
<tr>
<td>2. Beverages</td>
<td>16</td>
</tr>
<tr>
<td>3. Handicrafts and garments</td>
<td>12</td>
</tr>
<tr>
<td>4. Wood products</td>
<td>8</td>
</tr>
<tr>
<td>5. Paper products and printing</td>
<td>14</td>
</tr>
<tr>
<td>6. Leather and leather products</td>
<td>5</td>
</tr>
<tr>
<td>7. Rubber and plastic products</td>
<td>5</td>
</tr>
<tr>
<td>8. Chemicals</td>
<td>13</td>
</tr>
<tr>
<td>9. Glass and ceramics</td>
<td>9</td>
</tr>
<tr>
<td>10. Basic metal industries</td>
<td>9</td>
</tr>
<tr>
<td>11. Metal products</td>
<td>13</td>
</tr>
<tr>
<td>12. Machinery</td>
<td>8</td>
</tr>
<tr>
<td>13. Electrical machinery</td>
<td>5</td>
</tr>
<tr>
<td>14. Transport equipment</td>
<td>10</td>
</tr>
<tr>
<td>15. Others</td>
<td>10</td>
</tr>
<tr>
<td>16. Job work, repairs and services</td>
<td>8</td>
</tr>
</tbody>
</table>

All Industries | 12 | 5 | 12 | 19 | 52 |


### PERFORMANCE OF SUB-CONTRACTING EXCHANGES

<table>
<thead>
<tr>
<th>Year</th>
<th>No of Units Registered with Small Units</th>
<th>No of Cases of Sub-Contracting Assisted by Exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-76</td>
<td>955</td>
<td>4510</td>
</tr>
<tr>
<td>1976-77</td>
<td>1381</td>
<td>1561</td>
</tr>
<tr>
<td>1977-78</td>
<td>1223</td>
<td>4152</td>
</tr>
<tr>
<td>1978-79</td>
<td>1448</td>
<td>5329</td>
</tr>
<tr>
<td>1979-80</td>
<td>624</td>
<td>4209</td>
</tr>
</tbody>
</table>

* Incomplete

It is evident from these remarks that sub-contracting was very little developed till around the early sixties. Now we present evidence for the recent period.

**Changes in Factory Concentration: 1950 to 1979**

Change in the size distribution of registered factories—as measured by the average number of workers per factory—shows a very significant trend which has apparently gone unnoticed. Between 1950 and 1970 the average size of factories has declined in all the major industry groups with the exception of beverages, chemicals and chemical products and electrical machinery (Table 1). Admittedly, this is quite an inadequate measure of factory concentration. But Sandesara's (1979) detailed study for the same period using more appropriate statistical techniques also unambiguously indicates a similar trend. This trend continued in the seventies as well. Moreover the three industry groups that registered an increase in average size during 1950-70 also showed a decline in the subsequent decade.

Another indicator of this trend is the proportion of factories employing less than fifty workers. This has gone up from 75 per cent in 1953 to 82 per cent in 1972. Correspondingly, the percentage of factories employing 50 to 499 workers has come down from 22 to 15.

One is conscious of the shortcoming of this measure and a more appropriate indicator of the changes in factory concentration is the change in the distribution of the number of workers in different size class of factories. But since the extent of underreporting of employment appears to be very substantial in the lower end of the distribution, as has been repeatedly shown by a number of studies, this measure is also unlikely to prove to be any better.

The decline in factory concentration could indicate the growth of sub-contracting. However it may not be necessarily so. Though it is a necessary condition it is far from being a sufficient one. Increase in capital employed per worker could have had the opposite effect. However, in the light of the observed vertically integrated nature of Indian manufacturing plants in the fifties, the steady decline since then would strongly suggest an increase in sub-contracting and more general forms of inter-firm linkages as well.

But we are aware that the decline in factory concentration does not necessarily mean a similar trend in the firm level concentration and growth of inter-firm transactions. It could well be the growth of multipurpose operation by the large firms and intra-firm trade, but no data is available to check the validity of this possibility.

However such a proposition would mean, relative to the increase in industrial output, a faster growth of output of large firms and hence an increase in firm and industry level concentration. The available evidence on the concentration of output among large firms and large monopoly houses does not show any increasing trend. Nag's (1982) detailed statistical analysis does not show any clear indication of an increase in the share of top 100 companies in manufacturing output. Moreover there is no clear trend in the concentration of output contributed by the top 20 business houses either (Chandra, 1979). Further, the share output of firms coming under the purview of MRTP Act has declined over time (CMIE, 1982).

**APPENDIX I**

**Number of Sub-contractors for Public Sector Units, 1977-78**

<table>
<thead>
<tr>
<th>SI No</th>
<th>Name of PSU</th>
<th>Exclusively Ancillary Units</th>
<th>Small Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bharat Heavy Electricals, Ltd, Hardwar</td>
<td>21</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Bharat Heavy Electricals Ltd, Jhansi</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td>3</td>
<td>Bharat Heavy Electricals Ltd, Trichy</td>
<td>32</td>
<td>175</td>
</tr>
<tr>
<td>4</td>
<td>Bharat Heavy Electricals Ltd, Hyderabad</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Bharat Heavy Electricals Ltd, Bhopal</td>
<td>50</td>
<td>Nil</td>
</tr>
<tr>
<td>6</td>
<td>Bharat Dynamics</td>
<td>—</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Bharat Heavy Plates and Vessels Ltd, Vizag</td>
<td>2</td>
<td>48</td>
</tr>
<tr>
<td>8</td>
<td>Bharat Aluminium, Korba</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>Bharat Earth Movers Ltd, Mangalore</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>EM Div</td>
<td>—</td>
<td>115</td>
</tr>
<tr>
<td>10</td>
<td>Bharat Coking Coal Ltd</td>
<td>—</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>Bharat Electronics Ltd, Bangalore</td>
<td>14</td>
<td>250</td>
</tr>
<tr>
<td>12</td>
<td>Bharat Pump and Compressors Ltd, Naini</td>
<td>16</td>
<td>35</td>
</tr>
<tr>
<td>13</td>
<td>Bokaro Steel Ltd</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>14</td>
<td>Electronics Corp of India Ltd, Hyderabad</td>
<td>—</td>
<td>223</td>
</tr>
<tr>
<td>15</td>
<td>Fertiliser Corp of Indi Ltd, Gorakhpur</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>16</td>
<td>Fertiliser Corp of India Ltd, Nangal</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>17</td>
<td>Fertiliser Corp of India Ltd, Sindy</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>18</td>
<td>Fertiliser Corp of India Ltd, Durgapur</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>19</td>
<td>Fertiliser Corp of India Ltd, Trombay</td>
<td>—</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>Fertiliser Corp of India Ltd, Barauni</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>21</td>
<td>Fertiliser Corp of India Ltd, Ramagundam</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>22</td>
<td>Goo Shipyard Ltd</td>
<td>13</td>
<td>—</td>
</tr>
<tr>
<td>23</td>
<td>HMT, Pinjore</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>24</td>
<td>HMT, Bangalore</td>
<td>51</td>
<td>Nil</td>
</tr>
<tr>
<td>25</td>
<td>HMT, Kalamassery</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>26</td>
<td>HMT, Ajmer</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>Hindustan Aeronautics Ltd, Koraput</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>Hindustan Aeronautics Ltd, Bangalore</td>
<td>10</td>
<td>113</td>
</tr>
<tr>
<td>29</td>
<td>Hindustan Aeronautics Ltd, Hyderabad</td>
<td>7</td>
<td>115</td>
</tr>
<tr>
<td>30</td>
<td>Hindustan Aeronautics Ltd, Nashik</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>31</td>
<td>Hindustan Steel Ltd, Durgapur</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>32</td>
<td>Hindustan Steel Ltd, Rourkela</td>
<td>16</td>
<td>58</td>
</tr>
<tr>
<td>33</td>
<td>Hindustan Steel Ltd, Bhatlap</td>
<td>—</td>
<td>61</td>
</tr>
<tr>
<td>34</td>
<td>Heavy Engineering Corp, Ranchi</td>
<td>52</td>
<td>—</td>
</tr>
<tr>
<td>35</td>
<td>Hindustan Antibiotics Ltd</td>
<td>5</td>
<td>—</td>
</tr>
<tr>
<td>36</td>
<td>Hindustan Cables Ltd, Hyderabad</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>37</td>
<td>Hindustan Shipyard Ltd, Vizag</td>
<td>—</td>
<td>67</td>
</tr>
<tr>
<td>38</td>
<td>Hindustan Teleprinters Ltd</td>
<td>—</td>
<td>60</td>
</tr>
<tr>
<td>39</td>
<td>Instrumentation Ltd, Kota</td>
<td>13</td>
<td>50</td>
</tr>
<tr>
<td>40</td>
<td>Instrumentation Ltd, Palghat</td>
<td>Nil</td>
<td>44</td>
</tr>
<tr>
<td>41</td>
<td>ITI, Bangalore</td>
<td>43</td>
<td>—</td>
</tr>
<tr>
<td>42</td>
<td>ITI, Naini</td>
<td>33</td>
<td>Nil</td>
</tr>
<tr>
<td>43</td>
<td>IDPL, Rishikesh</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>44</td>
<td>IDPL, Hyderabad</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>45</td>
<td>Indian Petrochemical Corp Ltd, Baroda</td>
<td>—</td>
<td>116</td>
</tr>
<tr>
<td>46</td>
<td>Manganese Ore Ltd</td>
<td>2</td>
<td>—</td>
</tr>
<tr>
<td>47</td>
<td>Mazagon Dock</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>48</td>
<td>Mining and Allied Machinery Corp</td>
<td>Nil</td>
<td>163</td>
</tr>
<tr>
<td>49</td>
<td>National Instruments</td>
<td>Nil</td>
<td>90</td>
</tr>
<tr>
<td>50</td>
<td>Nepa Paper Mills</td>
<td>—</td>
<td>2</td>
</tr>
<tr>
<td>51</td>
<td>Madras Refineries</td>
<td>—</td>
<td>87</td>
</tr>
<tr>
<td>52</td>
<td>Praga Tools</td>
<td>—</td>
<td>16</td>
</tr>
<tr>
<td>53</td>
<td>Scooters India Ltd</td>
<td>29</td>
<td>—</td>
</tr>
<tr>
<td>54</td>
<td>Triveni Structural Ltd</td>
<td>—</td>
<td>31</td>
</tr>
<tr>
<td>55</td>
<td>Garden Reach Workshop</td>
<td>—</td>
<td>200</td>
</tr>
</tbody>
</table>

## APPENDIX 2
### DETAILS OF SUB-CONTRACTING BY SELECTED PRIVATE SECTOR UNITS

<table>
<thead>
<tr>
<th>SI No</th>
<th>Name of the Firm</th>
<th>Product Manufactured</th>
<th>No of Sub-Contractors</th>
<th>Value of Components Purchased From Sub-Contractors</th>
<th>Types of Goods Purchased</th>
<th>Assistance Offered</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Batliboi and Co Ltd</td>
<td>Machine tools</td>
<td>—</td>
<td>50</td>
<td>—</td>
<td>Necessary toolings, jigs and fixtures provided</td>
<td>—</td>
</tr>
<tr>
<td>2</td>
<td>Blue Star Ltd equipment</td>
<td>Air conditioning</td>
<td>50</td>
<td>—</td>
<td>Plastic moulded and vacuum formed articles, pressed components, moulding work, electroplating, galvanising etc</td>
<td>Technical and financial assistance</td>
<td>—</td>
</tr>
<tr>
<td>3</td>
<td>Camlin Pvt Ltd</td>
<td>—</td>
<td>15</td>
<td>—</td>
<td>—</td>
<td>Technical and financial assistance</td>
<td>Employment generated in small unit is 430</td>
</tr>
<tr>
<td>4</td>
<td>Caprihans India Ltd</td>
<td>—</td>
<td>8</td>
<td>—</td>
<td>Control panel and erection of electrical equipment installation of heavy machinery and fabrication, special casting of nonferrous metals and machining</td>
<td>Drawings are supplied for fabrication of components and spare parts</td>
<td>—</td>
</tr>
<tr>
<td>5</td>
<td>Gabriel India Ltd</td>
<td>Shock absorbers</td>
<td>40</td>
<td>—</td>
<td>Fabrication, machining, manufacture of rubber and plastic components</td>
<td>Technical and financial assistance</td>
<td>—</td>
</tr>
<tr>
<td>6</td>
<td>Hercules Hoists Ltd</td>
<td>—</td>
<td>40</td>
<td>—</td>
<td>Manufacture of parts services</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7</td>
<td>Herdellia Chemical Ltd</td>
<td>Chemicals</td>
<td>—</td>
<td>—</td>
<td>Machining and fabrication work</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8</td>
<td>Indian Card Clothing Co Ltd</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>Packing cases and press parts</td>
<td>Supply of raw materials, guaranteed offtake, technical knowhow</td>
<td>—</td>
</tr>
<tr>
<td>9</td>
<td>International Computer Indian Manufacture Ltd</td>
<td>Computers peripherals</td>
<td>300</td>
<td>—</td>
<td>Machining jobs, plastic, nylon mouldings, mechanical/electrical assemblies</td>
<td>Supply of tools, jigs and fixtures, inspection equipment, technical assistance of suppliers personnel</td>
<td>—</td>
</tr>
<tr>
<td>10</td>
<td>Kirloskar Brothers Ltd</td>
<td>Engineering goods</td>
<td>165</td>
<td>200</td>
<td>Coremaking, casting, fettling, pattern making, machining, assembly, packing box making, key making, plastic articles, fabrication, machine reconditioning</td>
<td>Project reports, guidance about securing loans, selection of machinery, training of workers maintenance of records</td>
<td>the firm has established a cooperative of small entrepreneurs and got them 25 acres of land</td>
</tr>
<tr>
<td>11</td>
<td>Larsen and Toubro Ltd</td>
<td>Engineering goods</td>
<td>1500 but with 600 of them dealings on a regular basis</td>
<td>—</td>
<td>Machining, fabrication, sheet metal press work, forging, casting, moulding, paper cartons, printing, electrical and electronic items, sub-assemblies, assemblies, heat treatment, electroplating</td>
<td>It is the policy of the company not to book more than 35 per cent of the ancillary unit</td>
<td>—</td>
</tr>
<tr>
<td>12</td>
<td>MICO Ltd</td>
<td>Spark plugs and fuel injection pumps and other auto ancillaries</td>
<td>260</td>
<td>360</td>
<td>Turned parts, metal pressings, plastic components, consumable tools, packing material, fettling and fixtures, components for special purpose machines</td>
<td>Comprehensive technical assistance, training of personnel, supply of raw materials, tools, gauges, etc</td>
<td>The ancillaries are advised to seek at least one third of the business from other industries</td>
</tr>
<tr>
<td>13</td>
<td>National Electrical! Industries Ltd</td>
<td>—</td>
<td>14</td>
<td>—</td>
<td>Machining, fabrication, rubber products, moulding carbon brush</td>
<td>—</td>
<td>They employ about 200 workers.</td>
</tr>
<tr>
<td>14</td>
<td>Philips India Ltd</td>
<td>Industrial and consumer electronics</td>
<td>561</td>
<td>1100</td>
<td>—</td>
<td>Technical expertise, management skills and guidance</td>
<td>The number of workers supplied by the ancillaries is as many as working within Philips plants. The ancillaries are free to purchase output for other firms also</td>
</tr>
</tbody>
</table>

(continued)
APPENDIX 2 CONT'D.

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Ralliwolf Ltd</td>
<td>Hand drilling machines</td>
<td>20</td>
<td>Machining, remir processing, plating, painting, die casting, sheet metal and fabrication</td>
<td>Supply of raw materials, advanced payment for development of figs and fixtures, and technical assistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Sah and Sanghi Automobiles</td>
<td>Automobile parts</td>
<td>7</td>
<td>Pressure die casting, nickel and chrome plating springs and machining of components</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Schrader Schovill Duncan Ltd</td>
<td>Tyre tube valve</td>
<td>50</td>
<td>Components</td>
<td>Technical and financial assistance</td>
<td></td>
<td>7 out of 50 units are exclusions ancillaries.</td>
<td></td>
</tr>
<tr>
<td>18 Steelage Industries Ltd</td>
<td>Steel furniture</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


THE OFFICIAL DATA.

The Development Commissioner, Small Scale Industries (DCSSI), the Apex body of the Central government from the promotion of this sector, regularly publishes data on the number of registered small scale units, capital invested, employment and output. This corpus of information has several limitations. The figures on the number of enterprises and capital employed refer only to the units which have registered themselves with the respective State Industrial Development Organisations. As registration is not mandatory for most of the industries, the unregistered units which apparently form a sizable segment are totally left out. Since the investment limit for qualifying as a small scale unit has been revised upward several times, the increase in numbers does not necessarily mean growth of new enterprises and fresh capital investment. Moreover, the figure on the number of registered units is a cumulative total over the years which is not adjusted for the enterprises which cease to function. Since there is no evidence on the mortality of small firms — which could be considerable in Indian conditions—one cannot correct for this error.

The output estimate is apparently based on a one per cent sample survey. But no details of the sampling procedure and the estimation method are furnished in any of their publications. It appears that these figures are generated mainly for the official use of the department and therefore their reliability is suspected.

Keeping these limitations in view we examine the trends in the growth of small scale sector in the seventies (Table 4). The increase in output, at constant prices, appears impressive.

The growth of the small scale sector need not necessarily imply an increase in the extent of sub-contracting in Indian industry. In fact, the proportion of exclusive ancillaries in the total number of registered small units is almost negligible. In the Reserve Bank of India's sample survey of 1976-77 it was two per cent. And in 1979 NSIC's sample survey the proportion was about six per cent (Nagaraj 1981, 1983). The official figures on the value of components purchased from ancillaries by public sector undertakings, though increased considerably is very small as a proportion of their output (Table 5). This information is often quoted, in popular literature, to support the view that sub-contracting has failed to grow in Indian industry.

However, such an inference could be incorrect since the data refers to the value of goods purchased from exclusive ancillaries only. Since a sizable proportion of the small firms undertaking sub-contracting work do not register under this category the above data could be a serious underestimation. As exclusive ancillary units do not get any particular advantage (apart from the relaxation of the upper limit of investment) small units are particularly keen to get this registration.

On the contrary, they may consciously avoid acquiring this status and cultivate a larger number of customers to reduce the risks of market fluctuations. It is possible that parent firms especially in the private sector may not welcome this either, since they do not want the sub-contractors to get liquidated during periods of recession.

One could argue that as the small firms provide cheaper production facility it is in the 'enlightened self-interest' of the large firms to let the small firms survive and grow.

Sub-contracting exchanges were set up in the seventies for promoting linkages between large and small enterprises.

The growth in the number of such exchanges and the number of units registered with them can be another indicator of the growth of sub-contracting. However this again is a partial measure since it does not reveal the number of firms actually making use of this facility and the magnitude of the transactions involved. The data shows that while only two sub-contracting exchanges existed in 1970— at Bombay and Madras—the figures went up to 16 in 1979. Correspondingly the number of enterprises registered with these exchanges increased from 955 in 1975-76 to 1448 in 1978-79 (Table 4).

AGE DISTRIBUTION OF SMALL SCALE UNITS

This can be another measure of the growth of the small scale sector, though with a number of limitations. Age distribution cannot account for mortality of enterprises, which could be significant in Indian conditions. Moreover, it does not reveal anything about the growth of value of output which is of greater significance for our purpose.

Data in Table 5 provides industry-wise temporal data. 52 per cent of all the enterprises commenced production between 1966 and 1972. Except in a few industry groups, in most of them this ratio is over 50 per cent.

Also during 1951 to 1965 the number of industries in which more than 50 per cent of the units started production was only 22 while the figure for the period 1966-76 is 134 (Nagaraj 1981). In other words, out of 169 industries, in 134 industries more than 50 per cent of the units commenced production between 1966 and 1976.

A very much smaller NSIC sample survey of 1979 shows a similar trend. About two-thirds of the sample units came into existence after 1966 (Nagaraj 1983). Thus on the basis of the information on age distribution it can be inferred, though not conclusively, that the small scale sector has grown relatively at a faster rate after the mid-sixties.

Also the growth of the small scale sector has been relatively faster after the mid-sixties than the growth of factory sector in the same period. Since a large proportion of small scale sector (those employing more than 10 workers) are included in the factory sector this suggests that the number of small factories is increasing at a faster rate than larger ones. This finding conforms to the observed changes in the age-distribution of factories discussed earlier.
MARKETING BEHAVIOUR OF SMALL ENTERPRISES

Our earlier analysis (Nagaraj, 1983) of marketing behaviour of small enterprises based on the NSIC's all India sample survey revealed that a majority of them produced inter-termediate products and sold directly to bigger units in public and private sectors. Only a small proportion of these units marketed their output through distributors and agents. However this exercise was also not quite satisfactory since it does not provide data on the value of goods sold through different marketing channels.

The detailed examination of four digit product classification of the NSIC data revealed that a large number of small metal engineering firms, invariably not registered as ancillary units, undertook work like machining, fabrication etc on a contract basis from large firms. This reveals the sub-contracting nature of the relationship between large and small firms. Although the evidence adduced so far does seem to suggest increasing trend towards sub-contracting in Indian manufacturing, it does not seem to be sufficient to hazard a generalisation. One way to overcome the problem of lack of aggregated data is to supplement it with micro level studies of specific firms, industries, and regions, to find out if they provide any further insights into the issue.

CASE STUDIES ON INTER-FIRM LINKAGES

In a study on vertical inter-firm linkages in the truck manufacturing industry in India, Lal (1980) pointed out that the levels of bought-out components among the two producers—Tata Engineering and Locomotive Company Limited (TELCO) and Ashok Leyland Limited (AL)—is comparable to the levels attained in the developed countries. However, between the two producers there is a considerable difference: while AL's bought-out components formed 59 per cent of the value of the truck, it is 35 per cent for TELCO. Like the manufacturers in the developed countries, these firms make a strict distinction between 'traditionally made in-house' and 'traditionally bought-out' items. The latter is supplied by the auto-ancillary industry. It is in the former that sub-contracting is resorted to for manufacturing relatively simpler components which were earlier made-in-house. Over the years components were farmed out to small sub-contractors to take advantage of their lower costs of production. Lal's very limited survey shows that the wages in sub-contractor's firms are about half of those prevailing in AL and TELCO. In addition to the cost consideration, growth in sub-contracting is caused by the policy of reservation of an increasing number of items for production in small scale sector, through this policy is not implemented very strictly.

Papola and Mathur undertook a study of inter-sectoral linkage in the metal engineering industry (NIC 33 to 37) in Kanpur, one of the older industrial centres in India. They define small, medium and large firms in terms of the number of workers employed: up to 10 workers, small; 10 to 50, medium; 50 and above, large. Unlike other major centres in India, Kanpur does not seem to have a large metal engineering works employing, say, over 1,000 workers. In this study there are only two firms employing more than 500 workers.

Posing the problem within Watanabe's framework, Papola and Mathur find very little technological linkages, though market linkages (sub-contracting) are quite widespread. The reasons for poor technical linkages is not difficult to discern. It is quite likely that the large firms in Papola's sample, with an average size of 60 workers, are technologically backward units and may be sub-contractors. Intuitively, one would expect technological diffusion in a situation where the parent firm is rapidly expanding with technological advancement.

However, it is interesting to note that even these large units in their study — which are likely to be small and medium scale units themselves since they employ, on the average, 60 workers — also farm out production to smaller units (employing less than 10 workers, which do not come under the per-view of the Factories Act). It seems to suggest that there could be not just one, but several layers (or stages) of sub-contractors (sub-contracting) between the final user of the component and its actual producer. The reasons for sub-contracting given in the study are: (i) lack of required machinery, (ii) seasonal excess demand and (iii) avoidance of employing additional workers for fear of attracting the application of more labour regulations.

The temporal distribution of the sample units shows that fewer than 50 per cent of the units were less than 10 years old. The proportion for larger units was 40 per cent. These results are not inconsistent with our earlier analysis of the age distribution of small scale enterprises. However, they do indicate that in Kanpur a good proportion of small units have been in existence for a much longer period of time and it is difficult to speak of an acceleration there in the recent past.

In a detailed case study of the ancillarisation programme of a large public sector engineering enterprise,21 it was found that cost reduction was achieved mainly by exploitation of cheap labour in the small scale units and not through the principle of division of labour and specialisation (NSIC, undated). The study reveals that the parent firm had provided little assistance to the ancillaries, nor did it make any formal long-term commitment regarding pricing, workload, price escalation clause, etc. It did not make prompt payment of bills either. But it is interesting to note that in spite of such an "unequal" relationship between the parent firm and the exclusive ancillaries the latter's profitability seems to be so high that they relax in "air-conditioned comfort".

Therefore, the burden of cost reduction in ancillary units appear to fall directly on the workers since most labour laws are violated. The study also provides data to show that the wages paid are above the minimum prescribed wages according to the old notification but are lower than the new one. The study also suggests that the entrepreneurs are unlikely to agree to the revised minimum wages unless the trade unions agitate for it. It discusses how labour laws are violated.

CASE STUDIES OF INDUSTRIAL TOWNS

In his study of small industries in Coimbatore, one of the growing industrial centres where a large number of spinning mills and two major textile machinery producers are located, Harris (1982) found that a large proportion of the engineering units are sub-contractors.

Most of the sub-contractors undertook simple machining operations or manufacture of simple metal or plastic components. One of the interesting findings of this study is that the larger engineering firms in Coimbatore encouraged their skilled workers, especially those employed in the machine shop, to start their own workshops. Parent firms supply sub-contractors with orders and, at times, raw materials also. According to Harris, this is an effective way of reducing labour costs and increasing control over the labour process. However he also says that this may not be true of all firms. In many cases sub-contracting is encouraged to save on capital expenditure and to utilise the specialised knowledge and skills of the small firms. This is especially true of the foundry industry.

Streefkerk's (1981) detailed account of the characteristics of small industries and labour conditions in Bulsar, one of the rapidly growing industrial towns in Gujarat fairly close to Bombay, shows that the growth of light industries is closely linked to large scale units. The study does not give any details on the relationship between large and small firms. Its focus is on conditions of labour and labour relations in the area studied. It is revealing to note how the small units consciously avoid registering under the Factories Act and how the bureaucracy works hand in glove with these entrepreneurs to deny the workers the stipulated minimum wages. Further safety regulations are violated and the bare minimum of facilities are also not provided at the workplace.
Further, Sheekkerk (p 663) notes that the wages are low, the working day is often longer than eight hours, and the workers receive no paid holiday.

A study of industrial development of Jamshedpur (Gupta, 1980) — one of the oldest industrial centres in India where Tata Iron and Steel Co Ltd (TISCO), TELCO, and many other engineering firms are located— shows that over three-fifths of the sample of small firms employing less than 30 workers started in the seventies.\(^{22}\) Over 80 per cent of the firms employing less than 10 workers, and over 60 per cent of the units employing 11 to 30 workers, manufactured against orders and they did not produce for the market. Most of them sold their output to large units located in Jamshedpur and only a very small proportion of them were dependent on orders from one parent firm. This clearly demonstrates the sub-contracting nature of the work of the majority of the sample enterprises.

70 per cent of the sample units are engaged in sub-contracting (or exclusive ancillaries) for the manufacture of any type of product. Though Gupta does not state it explicitly, it appears from the study that TELCO is the major buyer from these small units. If this inference is correct, then it is interesting to note that although TELCO has been in existence since 1946, it is only in the seventies that the firm increased its purchase from small scale units.

In addition to the case-studies discussed above of a specific industry or region some data and descriptive accounts of sub-contracting is available for certain public and private sector enterprises. Appendix I provides information for 55 public sector plants for the year 1977-78. It is interesting to note that the captive units (or exclusive ancillaries) form only a low proportion of the total number of the small units which supply to the public sector plants. This supports our earlier argument that the insignificant number of exclusive ancillary units underestimate the levels of sub-contracting reached in Indian industry.

The Bombay Chamber of Commerce and Industry collected information on the assistance provided by their member companies for the growth of the small scale sector. The summary of the results are given in Appendix 2. Though the information is incomplete in many respects and the firms for which the data is available cannot be considered as representative, the data is nevertheless very revealing. Firms belonging to a wide range of industries — metal engineering and chemicals have developed sub-contractors. But the majority of work done by the small units consist of machining, fabrication, manufacture of components, plastic moulding, assembling etc—all of which are apparently labour-intensive involving simple technology. Most of the parent firms offer some kind of technological guidance, though very few of them provide financial assistance. The situation in these units is quite different from what Papola noticed in the metal engineering industries in Kanpur. This data seems to support our view that technological linkages are likely to be strong in a situation where parent firms are large, growing and technologically dynamic organisations.

**Sub-contracting in Tractor Industry**

We now present data for two tractor manufacturers which gives us insights into the logic of large scale sub-contracting. Escorts Ltd (Sales Rs 223.39 crore in 1982) is one of the large, diversified and very rapidly expanding engineering concerns mainly producing tractors, motor cycles, automobile ancillary and a number of items for the railways. It is one of the firms which consciously promoted sub-contractors right from its inception. *Escorts News*, the house journal of the company states that “During the past 10 years, Escorts’ total purchase from ancillary industries has risen from Rs 10 crore to Rs 70 crore”. In 1981 Escorts had 3010 sub-contractors with the following size distribution.

<table>
<thead>
<tr>
<th>No of Employees</th>
<th>No of Units</th>
<th>Proportion of the Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upto 50</td>
<td>2197</td>
<td>73.0</td>
</tr>
<tr>
<td>51 - 100</td>
<td>602</td>
<td>20.0</td>
</tr>
<tr>
<td>101 - 500</td>
<td>151</td>
<td>5.0</td>
</tr>
<tr>
<td>Over 500</td>
<td>60</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
<td>3010</td>
<td>100.0</td>
</tr>
</tbody>
</table>

This data shows that nearly three-fourths of the ancillary units are small ones employing fewer than 50 workers. Though these figures do not tell us anything about the distribution in terms of the total value of goods supplied, they do nevertheless point to the significance of small-contractors. The management very proudly claims this to be evidence of the success of their “Corporate philosophy”.\(^{23}\)

Eicher Goodearth Ltd is one of the late entrants into the tractor industry. Compared to the other firms in the industry the extent of sub-contracting in this firm is apparently very high. The proportion of bought-out parts forms about 81 per cent of the value of sales, excluding excise duty. Even if the contribution of “traditionally bought-out” components — which are never manufactured by any tractor producer — is excluded, the supplies from small sub-contractors amount to 30 to 40 per cent of the value of the tractor (FICCI, 1981). The management attributes the lower price for its comparable range of tractors to its efficient ancillary development programme. (Business India, Feb 2-15, 1981). Eicher Goodearth is now setting up an ancillary estate consisting of 80 units in Kalka. (FICCI, 1980).

**Conclusions**

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 industries, and (iii) to analyse the logic of sub-contracting especially in the Indian context.

We have attempted to show that although the element of exploitation of cheap labour in sub-contracting undoubtedly exists, it is far from an adequate explanation of the growth of this relationship between large and small firms in Indian industry. Our effort in this study has been to bring out the complex set of factors which 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.

Our attempt at documenting the changes in sub-contracting in Indian industry, though lacking in detailed statistical account at the macro level, does suggest a considerable growth. While in the fifties large enterprises believed in manufacturing as many components inhouse as possible, the situation has distinctly changed in recent times. Now firms consciously minimise their capital investment by promoting sub-contracting. In addition to taking advantage of specialisation and division of labour, the promotion of sub-contracting is largely guided by two considerations: lower labour and overhead costs in small firms and restricting inhouse employ-ment of workers to minimise the potential threat from organised labour.

The parent firms seem to provide some sort of technical guidance but very little financial assistance. On the contrary sub-contractors extend trade credit to parent firms running from 30 to 90 days. Though exclusive ancillaries are provided with some additional concessions by the government it appears that neither the parent firms nor sub-contractors prefer this exclusive status, particularly in the private sector. The fact that sub-contracting has increased since the mid-sixties suggests that the growth of this relationship could have been in response to the recession of the mid-sixties and the slower growth of manufacturing out-put in the subsequent period.

Although the evidence marshalled in this study appears substantial in actual fact it lacks in detail. Except in providing a broad view of the changes we know precious little about how sub-contracting is organised and the logic of its growth. Among the case studies only three, namely, Lal (1980), Papola and Mathur (1979) and NSIC (undated) have attempted to understand sub-contracting in any detail. In the remaining studies the issue of relationship between large and small firms is incidental to the main focus of their enquiry. Moreover, even the three studies mentioned above examine sub-contracting narrowly in terms of either (i)
linkages between the formal and the informal sector or (ii) diffusion of technology or (iii) exploitation of cheap labour.

On the basis of our discussion in Part I of this study we find that these investigations have focused the problem narrowly on only a few limited dimensions. Sub-contracting has to be understood as an integral element of the growth strategy of the firm in the larger context of the organisation of production and industrial change. The role of government policies, especially in India, could have played a crucial role in promoting sub-contracting.

In the light of the above discussion we think a number of questions have to be answered. First and foremost, we need to have a more sound empirical basis to assess the extent of growth of sub-contracting in different industries in different regions. Second, how is sub-contracting organised and the factors which have promoted or inhibited its diffusion? Thirdly, is it influenced by the specific nature of the product and its market conditions, its characterisation as public or private sector; the development of infrastructure in a region and the government policies. Thirdly, how does sub-contracting leads to diffusion of technical skills, managerial practices and entrepreneurial talents.

We believe these questions can best be answered through a series of case studies of specific firms and/or specific regions which specialise in certain industries. Such studies would necessarily have to collect information from the parent firms and their subcontractors as well as the workers in the small units who probably form the backbone of this institutional arrangement of production. In a situation where sub-contracting has more than one layer or stages it would be very useful to 'map out' the sub-contracting relationship through all its stages. Thus in this manner one can trace the relationship between the actual producer and the user or marketing agency and the logic of this arrangement.

Notes

[1] I am very grateful to A Vaidyanathan and Gita Sen for their valuable comments on earlier drafts of this paper. My thanks are also due to C Rammanohar Reddy and K G Kumar for their help in writing this paper.

The discussion is confined to sub-contracting within the economy. International sub-contracting, though similar in many ways, is not touched upon in this study.

The discussion here is analytical in nature and no attempt is made to substantiate the arguments. The examples cited are meant to illustrate concepts or arguments and not to be taken as substantial evidence for them.

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 subcontracting enables rapid diffusion of mechanical skills.

4 In an excellent study on Italian industry, Murry (1983) shows how managers have been attempting to circumvent the strength of the trade unions by 'decentralising' the production process.

5 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. This points to the non-homogeneous nature of the labour market. However we are inclined to believe that this qualification does not necessarily alter the labour scarcity argument. In large private sector firms, the labour supply would have been far from being the labour surplus situation faced in densely populated underdeveloped parts of the world.

6 There is considerable variation in plant-size distribution within European economies and the United States also.

7 Prios (1978), Bolton Committee Report (1976) reporting the inadequacy of literature on small enterprises mentions the practice of subcontracting in engineering industry. Among the earlier studies, excepting Lydall (1958); others making a passing reference to this feature see, Colins et al (1954), Badieh et al (1957).

8 There are a number of studies which have discussed this feature of the Japanese industrial organisation. See Watanabe (1983), Shinokara (1964), Odaka (1978), Broadbridge (1966), Hirsheimer and Yui (1981).

9 This observation is based on our discussion with a number of managerial personnel in large private sector firms.

10 Firms with capital investment up to a certain limit come under an officially defined category of small scale sector. The upper limit is relaxed to a certain extent for the units registered as exclusive ancillaries. This limit has gone up over the last three decades. We will describe this in detail in the next section.

11 Bharat Bhushan's contribution in Business India, January 16-29, 1984, clearly supports this proposition.

12 Appreciation such a situation arose in the dyestuff industry during the Janata regime when the excise duty on small producers was slashed drastically.

13 According to well-known management consultant, quoted in Bharat Bhushan (op cit), MRT Act's restriction on capacity expansion is one of the main reasons for the increase in sub-contracting in the seventies.

14 For details of this argument see R Nagaraja, 'Bombay Textile Strike: The Significance of the Specificity of the Industry' (1982).

15 The policy on the development of powerloom sector seems to have been ambivalent. However, the available evidence seems to suggest that the powerloom sector managers have targeted all the concessions which are meant for handloom sector.

16 Bajaj Electricals Ltd, a leading brand name in consumer durable goods, an MRTK company, is solely a trading organisation and manufactures under its own name the products of about 200 small scale units located in Bombay and Delhi.

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

18 For a detailed examination of the position of this argument see Miyazawa (1980).

19 Information presented in this section is based on the annual reports and other publications of the Development Commissioner, Small Scale Industries.

20 Since factory statistics data for the seventies was not readily available, Sandesara's statistical exercise could not be extended.

21 The name of the company has been withheld.

22 Unfortunately the study does not mention the procedure for selecting the sample enterprises.

23 'The logic of ancilliarisation at Escorts is very neatly summarised in a popular article: 'Ancilliarisation has been the perfect strategy for generating funds for investment: all sales are against cash but the company gets 30 days credit from suppliers'. Result: most years the company does not need to go to a bank for working capital and in fact has a credit balance. This saves crores in interest charges: money that can be invested for growth. Increase in tractor capacity from 10,000 to 34,000 will be financed entirely through company's own funds'. [India Today, July 31, 1982, p 103]

References


Dhar, P N (1958) 'Small Scale Industries in Delhi', New Delhi.


Federation of Indian Chamber of Commerce
and Industry (1981) "Workshop on An-
cillarisation Proceedings" New Delhi.

Fisher, Douglas (1968) 'A Survey of the litera-
ture in Small-Sized Industrial Undertak-


Freedman, Andrew, L (1974) "Industry and Labour: Class Struggle at Work and Monopoly Capitalism" Macmillan, Lon-
don.


Habakkuk, H J (1962) "British and American Technology in Nineteenth Century". Cam-
bridge University Press, Cambridge.


India Today (1982) 'In the Fast Lane, July 31, New Delhi.

Hirschmeier, J and Yui T (1981) "The Deve-

Ishikawa Shigeru (1968) "Economic Deve-
loment in Asian Perspective" Kinokuniya, Tokyo.

Jain, L C (1983) 'Handlooms: Face Liquida-
tion: Powerlooms Mock at Yojana Bhavan' Economic and Political Weekly, Vol 18, No 35.


Lal, Sanjay (1980) 'Vertical Inter-firm Linka-


Miyazawa, Kenichi (1980) 'The Dual Struc-


Nag, Ashok Kumar (1983) 'Structure and Performance of Top Private Sector Com-
ppanies in India', Paper presented at 21st Annual Econometric Conference.

Nagaraj, R (1980) 'On Crisis and Accumu-
lation: An Attempt Towards Understand-
ning the Development Tendencies of Capital in India since the Mid-Sixties' (unpub-
lished).

Nagaraj, R (1981) 'Growth and Structure of Small Scale Industries in India: Some find-
ings' (unpublished).

---(1982) Bombay Textile Strike: Significance of the Specificity of the Industry' (unpub-
lished).


National Small Industries Corporation, 'Ancillary Relationship — A Case Study of a Public Sector Unit and Its Ancillaries' Unitated Mimeo.


Papola T S and Mathur R S (1979) 'Luter — Sectoral Linkages in Manufacturing: A Study of Metal Engineering Industry in Kanpur, India' GirI Institute of Develop-
ment Studies, Mimeo.


Rosen, George (1959) 'Industrial Change in India: Lessons from Growth, capital requirement and Technological Change 1939-1955" Free Press.

1939-1955" Free Press.


Shinohara, Miyohye (1978) 'A Survey of the Japanese Literature on Small Industry' ub Bert F Hoselitz (ed) "The Role of Small In-


Steindl, Joseph (1945) 'Small and Big Business: Economic Problems of the Size of Firms" Institute of Statistics Monograph No. 1, Basel Blackwell, Ox-
ford.


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