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**SUBCONTRACTING IN INDIA'S
SMALL MANUFACTURING ENTERPRISES**
Problems and Prospects

Partha Pratim Sahu

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Abstract

In the recent past, subcontracting, ancillarization and out-sourcing are emerging as important organizational outfits that link small and micro enterprises with large industrial units, to the benefit of both. It is also regarded as an important source of efficiency and competitiveness for these industries, most markedly for the small enterprises. Based on a mix of primary and secondary data, the present paper examines incidence, sectoral pattern, characteristics features of subcontracting firms, the benefits and problems associated with subcontracting and its role as an instrument for technological up-gradation in small manufacturing enterprises. These issues have been analyzed both by type and location of enterprises. The paper finds that while the overall incidence of subcontracting is of very low order, it varies significantly among different industry groups. Delayed payment by the parent firms is reported to be the most important problem of subcontracting. Technological support from the parent firms have also been reported by many small enterprises. Further, in terms of adoption of new forms of technological changes, the units working under subcontracting have shown better rate of adoption as compared units those are not working under subcontracting. The paper concludes with some areas of policy intervention such as providing financial and technological support to small enterprises, enforcement of appropriate legislation to minimize the problem of undue and delayed payments by the parent firms and revamp subcontracting exchange programme and so on for successful and effective operation of subcontracting.

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CONTENTS

<i>Abstract</i>	<i>i</i>
<i>Acknowledgements</i>	<i>ii</i>
<i>Contents</i>	<i>iii</i>
1. Introduction	1
2. Concept and Rationale of Subcontracting	2
3. Subcontracting: Government Policies and Programmes	5
4. Incidence of Subcontracting	6
4.1. Sectoral Pattern of Subcontracting	9
5. Salient Features of Subcontracting Firms: Analysis of Primary Data	10
5.1. Benefits and Problems of Subcontracting	13
6. Technological Improvements through Subcontracting	14
7. Concluding Remarks	17
References	20

List of Tables

<i>Table-1</i>	Proportion of Manufacturing Enterprises Operating under Subcontracting Arrangement by Source of Equipment, Raw Material and Design by Type of Enterprises and Location: 2000-01	8
<i>Table-2</i>	Incidence of Subcontracting in Unorganised Manufacturing Sector: 2000-2001	9
<i>Table-3</i>	Some Basic Features of Units Operating under Subcontracting Arrangements	12
<i>Table-4</i>	Rate of Adoption of Improved Technology by Small-scale Subcontracting Units	16
<i>Table-5</i>	Distribution of Subcontracting Firms who Switched over to Improved Technology by Year of Start of Subcontracting Activity	16
<i>Table-6</i>	Average Number of Parent Firms for the Adopting (Non-adopting) Subcontracting Firms	17

SUBCONTRACTING IN INDIA'S SMALL MANUFACTURING ENTERPRISES

Problems and Prospects

*Partha Pratim Sahu**

1. Introduction

A major weakness of the development of small-scale industry in India is the lack of a strong complementary relationship between the large and small firms. However, in the recent past, subcontracting, ancillarization and out-sourcing are emerging as important organizational outfits that link small and micro enterprises with large industrial units, to the benefit of both. It is also regarded as an important source of efficiency and competitiveness for these industries, most markedly for the small enterprises. In recent years, such linkages are steadily spreading themselves over larger space; in some of the industrially advanced regions, many small and micro enterprises, including those in rural areas, are reported to work for large and medium industrial units located in big towns and cities. However, the rationale for forging such arrangements is particularly strong in some product lines, for example, automobile and transport equipment, machinery and machine tools, garment making, and in many cases, such product lines become the specializations of certain areas, and accordingly, the incidence of subcontracting and outsourcing goes particularly high in these industry groups. The benefits of such arrangements to small and tiny enterprises, especially from the point of view of technology up-gradation and market expansion, however, are not well documented. The present paper aims to make a preliminary and rudimentary attempt at filling up these gaps. More specifically, we have discussed following issues: the rationale of subcontracting, its meaning and distinguishing features, incidence and sectoral pattern of subcontracting, characteristics features of subcontracting firms, the benefits and problems associated with subcontracting, subcontracting as an instrument for technological up-gradation, and so on.

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The most serious problem to carry research on subcontracting in India is non-availability of suitable data. Barring some information on purchases made by the public sector enterprises from small-scale units and ancillaries, very little is known about the extent and nature of subcontracting. Moreover, although private sector enterprises operate extensively under subcontracting, there is no monitoring system to obtain data on the rate and pattern of subcontracting made by these units. Many private enterprises have taken up Vendor Development Programmes on their own, but it is believed that they have not been able to develop a close relationship with the vendors, and many business deals between them are only random and occasional. Further, many private sector units have been induced to develop vendors not on cost consideration, but largely to undermine the provisions under labour laws and/or merely to avoid or evade various taxes (Gupta, *et. al.* 1995).

This present paper is organized as follows. Following this introduction, in section I, we discuss the concept and rationale of subcontracting from the perspective of small-scale industries. Section II critically evaluates the policy strands on subcontracting in Indian manufacturing. Section III analyses the incidence and pattern of subcontracting by different industry groups. Based on field survey data¹, Section IV discusses the salient features of the small subcontracting firms. Section V examines the problems and prospect of subcontracting for technological up-gradation of the small-scale units. The concluding section summarizes some of the insights that have come up in this paper and suggests a number of policy issues which need to be addressed for an effective and efficient functioning of the subcontracting arrangement.

2. Concept and Rationale of Subcontracting

Subcontracting represents a form of inter-firm relationship where large firms procure manufactured components, sub-assemblies and products from a large

¹ Primary data have been collected through a survey of sample of 399 tiny and small enterprises in rural and urban areas of three Indian states (West Bengal, Haryana and Maharashtra) during April-June 2000. While selecting manufacturing units for enumeration, purposive sampling was resorted to so that units of different size classes, belonging to different organization and having varied access to markets for credit, raw materials, output, etc. get duly represented in the sample. Attempts were also made to choose varied product groups, which display contrasting features among them in terms of technology, production and its growth and trading organization. Manufacturing units where the number of workers is 10 or less were surveyed. Information was collected from the entrepreneurs for the reference year 1999-2000 by using a structured questionnaire (Sahu, 2005).

number of small firms. In some cases, subcontracting 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 a required form (as per the technical specification), at a pre-determined rate.² The relationship between the parent firm and the subcontractors is a continuing one, but not necessarily continuous, backed by legal contracts or trust or both. Subcontractors usually undertake manufacturing only on receiving orders from their parent firms. In other words, they are not 'independent' producers but are appendage to their parent firms. Thus, the relationship is often characterized by unequal strength of the two sides—hence the observed dependence of ancillary units on the parent unit for their survival.

The primary justification for the existence of ancillary units rests on the principle of division of labour at work, and therefore it is expected to carry all the benefits that go with it, e.g., increased production, higher productivity, greater efficiency and so on. Equally important, small ancillary units are expected to contribute towards the creation of a low cost economy on account of their low overhead costs as well as low operating costs (usually because of lower wage rates, etc.).

The relevance of subcontracting is often qualified in a labour surplus dual economy. Subcontracting arrangements are ideally suited to absorb the surplus cheap labour while large units, i.e. parent units, use the scarce capital. The employment generation potential of the ancillary units can thus be fairly substantial. It also reduces labour unrest since, in most cases, labourers in small units are not able to form themselves into cohesive power groups. For labour surplus economies with rigidities in labour market and scarcity of capital, as is typically the case in India, there is a strong case for the growth of ancillaries. It can also help in maintaining the pace of creation of employment opportunities in the manufacturing sector in the face of stagnating employment in the factories. It has also the potential of turning out to be economical as the wage differential between the large and small firms could be very substantial. Moreover, in most cases, the overhead costs in the small firms are lower than those in the large firms.

The large firms go in for subcontracting primarily to reduce their costs of production, which in turn, may be traced to relatively lower wages in subcontracting firms compared to those in the parent firms. Although there are

² There are other types of subcontracting such as product subcontracting where the parent unit is responsible only for marketing. Here, the entire product is produced by the subcontractor and marketed by the parent unit under its brand name (Nagraj, 1984).

significant cost reduction advantages of procuring parts/components from small-scale units, the benefits of subcontracting have not been fully exploited by the large enterprises. There is a need to widen and deepen specialization and complementarity in the production programmes of large, medium and small industries. Subcontracting provides answer to this problem as well. As a result, large units are able to undertake the overall assembling of many sophisticated components and parts, requiring use of sophisticated technology and expertise as well as marketing and forecasting of demand for the final products. On the other hand, subcontracting small units can specialize in the manufacture of specific components and parts which do not always require such sophisticated techniques. Labour and overhead costs being lower in the small ancillary compared to large parent units, subcontracting helps in saving investible resources. Moreover, it enables the parent units to face market fluctuations with much greater flexibility.

In brief, the development of subcontracting tends to provide a basis for an essentially decentralized industrial and economic structure of society with larger employment opportunities and possibilities of an expansion in the entrepreneurial class. If the process of subcontracting is extended and strengthened in rural and backward areas too, it may also reduce migration of population from backward and rural areas to urban areas, which will in turn reduce regional imbalances and improve economic conditions of the people in those areas.

So far as the nature of linkages between the large and small enterprises is concerned, the transfer of technology from large to the small and the 'two-leg' phenomenon, so successfully practiced in Japan is missing in India. Instead, its relationship is one of dependence. A comparison of India and Japan in regard to industrial subcontracting brings out some important differences: *i*) the extent of subcontracting achieved by Indian firms is much lower than that of Japanese firms; *ii*) subcontracting in Japan has a hierarchical structure (pyramid shape) while in India the pattern of subcontracting is more a flat type, since it is common to find a parent firm directly dealing with a large number of subcontracting firm of different sizes; *iii*) while the principal reason for subcontracting in India is the saving of cost arising from lower wages in the subcontracting firms, in Japan subcontracting enables the parent firm to take advantages of the specialized technology available with the small firms but not with the parent firm. In Japanese manufacturing, with its multi-strata subcontracting system involving a large part of the industrial economy, enterprises in different size groups are engaged in different production activities: e.g. assembly of cars by the largest enterprises and production of screws for cars by the smallest. This clearly rejects the simple judgement of relative efficiencies on the basis of

differences in micro-economic factor by size of enterprises. A major merit of small enterprises as perceived in Japan, consists not in the superiority of their input-output coefficients but in optimal use of available resources. Utilization of such idle capital by small units enables capital from organized sources to be concentrated in large scale sector where it helps to accelerate technological progress and industrial growth (Gupta, *et. al.* 1995).

From the above discussion it is evident that although some progress has been made in regard to subcontracting and ancillarisation in Indian industries, it has still a long way to go before we catch up with the level of inter-firm linkages achieved by Japan and other industrially developed countries. In spite of numerous positive steps initiated in this direction, it has not been possible to achieve the ultimate goal of strengthening and consolidating the small-scale and ancillary sector. Needless to say, there is vast scope for ancillarization in Indian industries; the government needs to make much greater efforts in this direction. In particular, large public and private enterprises have a great role to play.

3. Subcontracting: Government Policies and Programmes

The importance of such a relationship for the proper growth of small industry as well as for the efficient utilization of the resources has been duly recognized by government as is evident from a number of measures adopted by it in the past. Among the important ones, mention may be made of: *i)* conferring a distinct identity to small scale units as ancillary units by providing them with a specified higher limit of investment in plant and machinery, *ii)* make it obligatory on the part of large enterprises to sub-contract a part of their work to ancillary units in the small-scale sector, and setting up of inter-departmental teams entrusted with the task of identifying items whose production could be taken up by ancillary units. The Bureau of Public Enterprises has issued guidelines in regard to the measures to be adopted by public sector enterprises for the promotion of ancillary units. However, despite all these efforts, the ancillary development programme has unfortunately not made much headway as is evident from the insignificant share of 'ancillary' units in employment and production of the small scale sector.

Under the new economic policy regime, changes were initiated to make the economy more efficient and competitive. As a result of this, large industries have to be more cost conscious and organise their production in a more efficient manner. Subcontracting and ancillarisation with their cost economies have a lot to offer. Also, the greater uncertainty in the market will induce large units not to invest so much in

capacity creation but to outsource more and more items to subcontracting and ancillary units. The present escalating tariff has given rise to what is termed as 'screw-driver technology'. As the structure of tariff is rationalized, there would be inducement to produce components and parts in-house or procure them from subcontracting units rather than depend on imports.

Subcontracting Exchanges (SCXs) were set up by government in the seventies for promoting linkages between large and small enterprises, but the extent to which the firms have actually used this facility and the magnitude of the transactions involved, are rather small. Moreover, despite government's policy focus on the public sector enterprises alone, the performance of these enterprises in regard to ancillary development has not been outstanding. Thus the subcontracting exchanges set up by government have played a limited role. But they have a much greater role to play in days ahead and to provide necessary support to the sub-contracted units to enable them to withstand the competitive environment that these units may face due to the opening up of the economy. Since the subcontracting is expected to pick up substantially in the long run, the subcontracting exchanges would have to play a role of catalyst in the process. The subcontracting exchanges need to be revamped and strengthened. (Gupta, *et. al.* 1995) Although, subcontracting exchanges were set up by the government of India in different states for the convenience of small firms to register their specialization and nature of products produced by them, surprisingly, many of our surveyed units were not even aware of its existence and those which are familiar are not interested to take any advantages of their operation (Sahu, 2005).

4. Incidence of Subcontracting

The nation-wide NSSO 2000-01 survey of unorganised manufacturing enterprises³ is first of its kind to give information about the magnitude of subcontracting separately in rural and urban India. Table-1 reveals that nearly 28.0 per cent of rural, and 38.0 per cent of urban enterprises, work under subcontracting system. The incidence of subcontracting is relatively larger for the large-sized units, i.e. DMEs. The two most obvious, and surface-view, benefits that accrue to such enterprises are

³ In 2000-01, the unorganized manufacturing sector, which is largely a house of small and tiny enterprises, constitutes more than 90 per cent of units, 83.0 per cent of employment and only 25 per cent of total value added of the total manufacturing sector. Unorganized manufacturing sector comprises of three types of enterprises, i.e. own account manufacturing enterprises (OAME), Non-directory manufacturing enterprises (NDME) and Directory manufacturing enterprises (DME) (Govt. of India, 2002).

the availability of raw material and product design from the parent company. Supplying of 'improved equipment' by the parent company does not seem to be a common practice; the vendors have to work on their own machinery/equipment which, in most cases, is reflective of a traditional technology. We have thus an interesting mingle of elements of traditional technology operating side by side with those of improved technology. Perhaps, this mingle works much more to the benefit of the so-called 'parent company' inasmuch as the practice of advancing raw material and prescribing product designs in consonance with the changing pulse of the market, has been a well acknowledged feature of a patron-client type of traditional industrial regime. The benefit of value adding accrues far more proportionately to the 'urban enterprises' or 'trade channels' which, in the present case, seem to be acting as the parent company. In terms of net earnings, the tiny rural enterprises, overwhelmingly concentrated in the informal segment of the manufacturing sector, largely run by traditional and family-trained craftsmen or artisans, end up as mere 'wage earners'; in other words, these are 'industrial enterprises' only in a highly contrived definitional sense.

Table-1 lends adequate support to above characterization. It is evident that 82.0 per cent of tiny household enterprises (OAMEs) work solely for the contractors. Further, of the household enterprises that work under such a system, more than 91.0 per cent get the supply of raw material, and about 93.0 per cent of them work on the product designs specified by the so-called parent company. Not more than 7.0 per cent of them get machinery/equipment from the contractor/master enterprise. In sum, the type of sub-contracting described above is a living testimony of the exploitation of the home-based rural enterprises by the master enterprise or the contractor, through contrived trade devices. The concrete technological or pecuniary gains do not extend beyond a handful of the village enterprises. However, rural-urban differences do not come up significantly, so far as the supply of raw material and capital equipments is concerned.

Table-1
Proportion of Manufacturing Enterprises Operating Under Subcontracting Arrangement by Source of Equipment, Raw Material and Design by Type of Enterprises and Location: 2000-01

	% of Units Operating on Contracts	Type of Contracts			Source of Equipments			Source of Raw Material			Design Specified by Contractors
		Solely for Contractors	Mainly on Contracts but also for other Customers	Solely for Customers	Self-Procured	Contractors	Both	Self-Procured	Contractors	Both	
1	2	3	4	5	6	7	8	9	10	11	12
Rural											
OAMEs	28.0	81.9	6.5	10.7	89.8	6.7	3.6	3.7	91.7	4.6	92.5
NDMEs	21.5	62.1	18.5	19.1	90.6	7.8	1.6	14.5	72.5	13.0	86.3
DMEs	21.9	77.2	13.4	9.3	88.8	7.3	4.0	17.0	77.3	5.7	84.1
Total	27.6	81.0	7.1	11.0	89.8	6.7	3.5	4.3	90.7	5.0	92.1
Urban											
OAMEs	38.8	81.4	8.9	9.1	89.5	9.3	1.2	5.0	88.0	7.0	94.3
NDMEs	33.3	60.6	21.6	17.2	93.4	5.4	1.3	12.9	73.4	13.8	94.4
DMEs	42.6	75.7	15.7	8.3	91.8	7.3	1.0	14.3	72.2	13.5	95.3
Total	37.9	77.0	11.9	10.5	90.4	8.4	1.2	7.3	83.9	8.8	94.4
Total											
OAMEs	30.7	81.8	7.3	10.2	89.7	7.0	2.8	4.1	90.6	5.4	93.1
NDMEs	28.9	61.0	20.7	17.7	92.6	6.0	1.3	13.3	73.2	13.5	92.2
DMEs	34.7	76.1	15.1	8.6	91.0	7.3	1.7	15.0	73.4	11.6	92.6
Total	30.7	79.6	8.9	10.8	90.0	7.3	2.6	5.4	88.2	6.4	93.0

Note: The sum Col. (s) 3, 4, and 5 may not add up to 100, due to non-recorded cases.

Source: Unit Level Data (for 2000-01) on CD-ROM, supplied by NSSO New Delhi.

4.1. Sectoral Pattern of Subcontracting

The incidence of subcontracting varies significantly across industry groups. Table-2 presents the proportion of units working as subcontractors by industry groups for each category of enterprises for rural and urban India. The figures indicate that the importance of subcontracting widely varies across industry groups. The incidence of subcontracting is high for manufacturing activities such as tobacco products, textiles, paper and paper products, furniture, coke, refined petroleum products, chemical and chemical products, office, accounting & computing machinery, radio, & communication equipments, other transport equipments and so on. It is thus evident that industries extensively using subcontracting include the ones that have labour-intensive production processes such as textiles, tobacco products, paper and its products and the ones that have multi-layered vertical production flows such as office, accounting & computing machinery, radio, & communication equipments. The nature of production technology certainly affects the effectiveness of subcontracting system. It must also be noted that the pattern of subcontracting is substantially similar for rural and urban India for a large number of product lines. Again the subcontracting system is multi-layered. Finally, among the subcontracting units, smaller and tiny firms tend to work more as subcontractors.

Table-2
Incidence of Subcontracting in Unorganised Manufacturing Sector: 2000-01

Industry Division	Sector Description	Rural				Urban			
		OAMEs	NDMEs	DMEs	Total	OAMEs	NDMEs	DMEs	Total
1	2	3	4	5	6	7	8	9	10
01405	Cotton ginning, cleaning and baling	5.7	2.3	83.3	7.8	1.0	49.6	0.0	8.6
15	Food Products and Beverages	2.7	3.9	3.2	2.8	6.3	6.2	4.4	6.2
16	Tobacco Products	93.0	53.6	6.4	91.7	80.9	27.0	17.3	80.4
17	Textiles	50.4	62.6	62.2	51.4	67.1	60.1	59.7	65.1
18	Wearing Apparel; Dressing & dyeing fur	11.7	9.9	23.1	11.7	25.4	20.9	58.7	25.9
19	Tanning & Dressing of Leather	12.2	26.1	51.8	13.0	28.3	41.7	56.9	35.3
20	Wood & wood products	9.5	22.8	14.2	9.8	19.9	27.8	28.2	21.7
21	Paper & Paper products	39.3	7.1	17.7	38.3	45.4	44.7	31.5	43.5
22	Furniture	30.2	29.6	20.0	29.5	36.8	43.7	45.1	41.4
23	Publishing, Printing, etc.	0.0	0.0	0.4	0.0	0.0	1.3	1.0	0.8

contd...

Industry Division	Sector Description	Rural				Urban			
		OAMEs	NDMEs	DMEs	Total	OAMEs	NDMEs	DMEs	Total
1	2	3	4	5	6	7	8	9	10
24	Coke, refined petroleum Products	78.2	21.7	17.1	68.6	74.9	8.2	10.1	65.1
25	Chemical and Chemical Products	40.5	52.2	66.3	45.6	43.2	44.6	30.8	40.9
26	Rubber & Plastic Products	3.4	2.1	3.7	3.4	15.4	21.0	19.1	16.9
27	Non-Metallic Mineral products	10.4	51.0	8.7	15.1	48.6	55.4	30.7	49.0
28	Basic Metal	10.3	19.7	37.6	11.6	32.5	38.2	43.4	36.5
29	Fabricated Metal products	6.9	32.0	40.7	9.6	28.7	37.6	33.3	33.9
30	Machinery & Equipments	0.0	0.0	0.0	0.0	0.0	82.9	7.1	63.6
31	Office, Accounting & Computing Machinery	44.8	1.5	49.0	39.0	33.1	30.5	22.6	28.4
32	Electrical Machinery and Apparatus	0.0	26.4	5.5	6.1	51.1	40.4	64.5	53.9
33	Radio, TV & Communication Equipments	52.1	52.7	43.5	51.6	38.8	33.8	26.9	34.7
34	Medical, Precision & Optical Instruments, Clocks etc.	9.3	25.0	31.0	15.3	23.7	61.0	57.5	54.5
35	Motor Vehicles, trailers, and semi-trailers	10.6	69.5	77.2	33.7	49.0	46.4	45.1	46.7
36	Other Transport Equipments	30.3	40.8	62.2	31.8	34.1	47.1	57.8	38.5
37	Recycling	49.1	0.0	0.0	48.4	45.4	28.5	39.0	41.0
	All Industries	28.0	21.5	21.9	27.6	38.8	33.3	42.6	37.9
		(2.5)	(3.4)	(3.9)	(2.6)	(4.8)	(4.6)	(8.8)	(5.1)

Note: Figures in the parentheses relate to the time period 1994–95.

Source: Unit Level Data (for 2000–01) on CD-ROM, supplied by NSSO New Delhi.

5. Salient Features of Subcontracting Firms: Analysis of Primary Data

The present section is based on analysis of primary data. Table-3 shows that around 38.6 per cent of the small enterprises in rural areas work under the subcontracting arrangements against 35.9 per cent in urban areas. Subcontracting encompasses a wide range of production activities/linkages, agreed upon, and renewed from time to time,

between the parent company and the vendor. The vendors are expected to share the wisdom of 'feeling the pulse of the market' with the parent company, and update their production technology and design improvement accordingly, often with support from the latter. Nearly 42.0 per cent of the subcontracting tiny and small enterprises in the rural and 53.0 per cent of those in the urban areas do get raw material from their parent companies. The hassle of ensuring a timely availability of raw material, and tiding over the pecuniary losses that such units usually suffer when purchasing their materials in small quantities, usually in an *ad hoc* and unplanned fashion, which is a typical weakness of such industrial enterprises, is automatically overcome.

The subcontracting and outsourcing may ensue through the auspices of more than one source. An entrepreneur may make his own efforts in addition to seeking the help of friends/relatives and other acquaintances familiar with diverse trade lines, and sometimes, in response to advertisements put up by large industrial units. Our survey results show that the most important instrument for securing orders from large firms has been entrepreneur's own efforts. Nearly 86.0 per cent in rural and 97.0 per cent in urban areas entrepreneurs reported own efforts as the main source of subcontracting. Friends and relatives are also a major source for getting order from the parent firms. Other factors like middlemen, fairs and exhibitions, and use of information technology etc. are also helpful. Advertisements floated by large firms in several newspaper and technical training institutes play a very insignificant role for small firms to get any order from large units. The most crucial point that reflects poorly on the *modus operandi* of public institutions, is that not a single subcontracting micro enterprise was assisted in forging such useful arrangements through technical training institutes. This is clearly an indication of the lop-sided functioning of public sector training institutes.

In some sense, our evidence lends full support to the general impression that public sector training and educational institutions usually bypass the micro and informal industrial enterprises. Our contention gathers additional weight inasmuch as none of the urban subcontracting units too seem to have benefited from such training institutes, for knowledge and exploration of subcontracting possibilities. The infirmities of our training and educational institutions, for not being attuned to facilitate technological up-gradation of small and micro enterprises, are more than evident.

It is on the basis of the frequency of contact with the parent companies that we can readily differentiate more progressive and technologically more alert units from the rest. The fact that about 40.0 per cent of the subcontracting units both in rural and urban areas are in daily contact, and another 40.0 per cent in weekly contact, with their parent

companies, shows their intimate involvement in marketing, product development and technology upgrading matters pertaining to their product line.

Table-3
Some Basic Features of Units Operating under Subcontracting Arrangements

	<i>Rural</i>	<i>Urban</i>	<i>Total</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
A. % Of Unit Engaged in Subcontracting	38.6 (55.7)	35.9 (44.3)	37.3 (100.0)
Size of Unit: 0 to 5 workers	35.4	24.4	31.9
6 to 10 workers	44.0	42.0	43.0
More than 10 workers	34.3	36.2	35.5
B. Source of Subcontracting			
Own Efforts	85.5	97.0	90.6
Friends/ Relatives	36.1	56.1	45.0
Advertisement	3.6	9.1	6.0
Technical Training Institute	1.2	0.0	0.7
C. Frequency of Contact (visit) with Parent Co(s)			
Daily	39.8	39.4	39.6
Weekly	42.2	37.9	40.3
Monthly	12.1	10.6	11.4
Yearly	0.0	0.0	0.0
As and when Necessary	6.0	12.1	8.7
D. Nature of Relationship within the Subcontracted Units			
Complementary	32.5	3.0	19.5
Competitive	67.5	97.0	80.5
E. Technological Linkages with Parent Cos.			
Wholly Prescribed by Parent Co(s)	56.6	34.9	47.0
Partly Prescribed by Parent Co(s)	22.9	31.8	26.9
Work with Own Technology	20.5	33.3	26.2
F. Benefits of Subcontracting			
Receipt of Raw Material	42.2	53.0	47.0
Financial Support	33.7	27.3	30.9
Technological Upgradation	47.0	31.8	40.3
Assured Market	94.0	100.0	96.6
G. Difficulties with Subcontracting			
Delayed Payment	92.8	81.8	87.9
Unjustified Termination of Contract	6.0	4.6	5.4
Undue Price Cutting	9.6	9.1	9.4
Quality Facade	21.7	9.1	16.1

Note: Figures in the parentheses are rural-urban distribution of total subcontracted units.

Source: Field Survey Data.

The subcontracting firms, amongst themselves, may be working in a complementary or competitive relationship. It is interesting to see that as many as 68 per cent of the rural

subcontracting enterprises and 97.0 per cent of them in urban areas operate in a competitive regime. That should indeed spur them to improve their performance, so as to earn better terms of subcontracting vis-à-vis their existing parent companies, with every passing contract, or expand the ambit of their sub-contracts, or switch over to bigger and more renowned companies, and so on. Many such cases of progressive shifts were reported in one of our study areas, i.e. Haryana. Nearly, the whole lot of urban subcontracting enterprises operates under a competitive regime; perhaps, this lends them a slight edge, over their rural counterparts, in every aspect of their performance. Even otherwise also, urban industrial environments are relatively more competitive and challenging.

To sum up our discussion from our survey we are able to derive following few lessons. The network of sub-contracting units, which is a wide conglomerate of product lines, spare-parts and component manufacturers, activity specialists (e.g. weaving, dyeing, stitching, bleaching, and packaging) etc., is gradually expanding from urban to semi-urban and/or from semi-urban to rural areas, as also from nearby places to distant locales. It really seems that an hierarchical structure is emerging among the sub-contracting enterprises with units employing as few as one person and doing as simple an activity as stitching or packaging, on the one extreme, and those employing as many as 10 persons, with varying levels of skills and job specializations, being IT-savvy and well informed about technological developments in their trade line, on the other. In conformity with what Saith suggests, a fairly high proportion of the sub-contractors, especially those located in industrial clusters, are graduating themselves upwards to more numerous job activities, and more skill- and technology-intensive jobs, often catering to more than one parent company (Saith, 2000). Finally, both competitive and complementary production relationships exist among the sub-contractors.

5.1. Benefits and Problems of Subcontracting

A diverse variety of benefits accrue to the subcontracting enterprises (Table-3). The most widely acknowledged benefit is of an assured market for their products; nearly the whole lot of rural and urban enterprises reports this benefit. In fact, subcontracting is a mechanism through which an automatic expansion of the scale of production occurs, and many of the hassles that the micro subcontracting enterprises face while exploring by themselves the marketing for their product, do not stand in their way. Receipt of raw material, financial support by the parent company, technological up-gradation are the other benefits that are accruing, in varying form and content, to rural micro enterprises under sub-contract. For all varieties of benefits, the urban enterprises too show a similar pattern, the varying percentage of units under each benefit notwithstanding.

Financial support to the subcontracting units is not a very common practice with the parent companies; only about one-third of the subcontracting units get financial support from their parent company; to some extent, it reflects financial stringency on the part of the parent companies and, presumably, for this reason, as we see below, delayed payments to the subcontracting units is a very common feature of the Indian system of subcontracting. As for raw materials, about 42.0 per cent of rural and 53.0 per cent of urban sub-contracted units procured them fully from the parent firms.

Sub-contracting has its difficulties too. For example, more than 93.0 per cent of rural and more than 82.0 per cent of the urban units report delayed payments by the parent company. Although legislation (**Prompt Payment Act**) to ensure prompt payment of bills to small and tiny enterprises and/or to impose penal interest for delayed payment was also enacted.⁴ The problems of undue price-cutting, as also an unjustified termination of the contract are reported only by a handful of sub-contracting units. Lastly, a fairly high percentage of rural sub-contracting enterprises (22.0 per cent against only 9.0 per cent for their urban counterparts) complain of 'stringent quality standards'. In a sense, it reflects their inferior standing in terms of quality consciousness which gets rectified through contract-production regimes, and exposure to open market competition that such regimes entail on them; without such contracts, the product quality would need much more to be desired. In any case, sub-contracting is an area that merits a much more concerted policy attention, most ostensibly to ensure survivability and growth of the tiny and small industrial enterprises.

6. Technological Improvements through Subcontracting

The nature of relationship between large and small firms has an important bearing on technology transfer and technological development. If the relationship is, even to a limited extent, an exploitative one and the small unit is not sure of the continuance of adequate demand for its product from the parent firm, introduction of improved technology is difficult to come by. On the other hand, if the relationship is close and cordial and the small unit is sure of a continued support from (assured market) the parent unit, it is nearly incumbent for the small unit to introduce superior technology so as to meet the requirement of the parent unit. Even within small-scale industries, sometimes the relationship is of a competitive type, which compels them to introduce improved technologies, to get orders from the large industries. Moreover, small firms get

⁴ In order to secure timely payments to SSI units for supplies made by them to large industrial units, the Interest on Delayed Payments to Small Scale and Ancillary Industrial Undertakings Act was suitably amended. It was now compulsory for payments to SSI units to be made within 120 days after which penal interest would be imposed.

assistance from large ones in the form of technical drawings and specifications, tools and marketing, etc. In addition, technical advice is provided in respect of machinery, process, and materials to be used, and so on.

Thus, an extremely weighty argument in favour of subcontracting is that it leads to technology up-gradation among the subcontracting enterprises. Table-3 certifies that this is indeed happening for a very big proportion of rural (and urban) enterprises. In rural areas, 57 per cent of the subcontracting units work with the technology completely prescribed or handed over by the parent company, and another 23 per cent operate with the technology that is partially or occasionally prescribed by their parent companies; only 21 per cent of such units make do with their own technology.

The varying arrangements observed above are necessitated by the pattern of local industrial development. In regions where the industrial base is widely dispersed over product lines, technological outfits and market linkages, or product quality is a prime consideration, or more frequent interaction between the parent company and its subcontracting units is ensured, technology handed over by the parent company is not only easy to work with, but becomes a functional necessity for routing the subcontracting firm towards improved technology frontiers. This is precisely the story in one of the survey areas, i.e. rural Haryana.

Conventionally, a technological change may involve any of the following developments: introduction of new tools/equipment/machinery used in production, use of new raw materials, and introduction of new products or new designs of existing product varieties, more efficient methods of work, and so on. Following this broad conceptualization, it is evident from Table-4 that the rate of adoption is better for the subcontractors than that of firms which are working under subcontracting arrangements. This is true for all components of improved technologies and also for both rural and urban areas. But it is worth noting that even within the subcontracting firms the rate of adoption is better for the urban units, irrespective of the component of improved technologies. This is so because the facilitating conditions, i.e. better production organization, access to modern technologies, proximity to the parent firms, better infrastructure, better market linkages, etc. apply more favourably to urban compared with rural units.

Table-4
Rate of Adoption of Improved Technology by Small-scale Subcontracting Units

	<i>Locale</i>	<i>% of Units Adopting</i>				
		<i>Improved Machine</i>	<i>New Product</i>	<i>New Raw Material</i>	<i>New Design</i>	<i>Any Technological Change</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
Working as Subcontractor	Rural	30.12	42.17	10.84	38.55	57.83
	Urban	42.42	51.52	25.76	46.97	74.24
	<i>Total</i>	<i>35.57</i>	<i>46.31</i>	<i>17.45</i>	<i>42.28</i>	<i>65.10</i>
Not Working as Subcontractor	Rural	21.97	12.88	11.36	37.12	58.33
	Urban	38.98	33.90	20.34	31.36	63.56
	<i>Total</i>	<i>30.00</i>	<i>22.80</i>	<i>15.60</i>	<i>34.40</i>	<i>60.80</i>
<i>Chi-square test</i>	Rural	1.80	23.84*	0.014	0.045	0.005
	Urban	0.21	5.46**	0.72	4.43**	3.19
	<i>Total</i>	<i>1.33</i>	<i>23.88*</i>	<i>0.23</i>	<i>2.48</i>	<i>0.74</i>

Note: * 1 per cent; ** 5 per cent level significance.

Source: Field survey Data.

Table-5 reports the adoption behaviour of subcontracting firms by their year of start of the subcontracting activity. It is evident that units those who have started subcontracting activity in recent years, say in last five years, are more technology savvy. Both in rural and urban areas, the proportion of adopting units are higher for those units, who have started subcontracting activity during the last five years. It is also worth mentioning that the proportion is higher for the urban located units, except for new raw material. Thus even at the same age-group the urban located units are doing better than their rural counterpart. At a higher age group, the units are somehow pulling on with their old and outmoded technologies.

Table-5
Distribution of Subcontracting Firms who Switched over to Improved Technology by Year of Start of Subcontracting Activity

<i>Component of Improved Technology/Age in Years</i>	<i>Rural</i>				<i>Urban</i>			
	<i>0-5</i>	<i>6-10</i>	<i>>10</i>	<i>Total</i>	<i>0-5</i>	<i>6-10</i>	<i>>10</i>	<i>Total</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
Improved Machinery	40.0	28.0	32.0	100.0	48.1	25.9	25.9	100.0
New Product	48.6	25.7	25.7	100.0	51.5	27.3	21.2	100.0
New Raw Material	44.4	44.4	11.1	100.0	37.5	31.3	31.3	100.0
New Design	37.5	34.4	28.1	100.0	58.1	22.6	19.4	100.0

Source: Field survey data.

Table-6 presents the average number of parents units to which the subcontracting firms supply their products. The probability of switching over to an improved technology is higher for those subcontracting firms, who are working for larger number of parent firms. Both in rural and urban areas, the adopting firms are working for more parent firms as compared to the non-adopters. Thus many subcontracting firm to retain their order from all its parent units, not only, undertake technological innovation, but also deliver order on time. Personal discussion with some entrepreneurs reveals that technology upgradation of subcontractors was also facilitated by lending or sale of second-hand capital equipments by parent firms to subcontractors. Moreover, some of the entrepreneurs have had previous experience of working in any of the parent unit before setting up the present unit.

Table-6
Average Number of Parent Firms for the Adopting (Non-adopting)
Subcontracting Firms

<i>Component of Improved Technology</i>	<i>Locale</i>	<i>Average Number of Parent Firms</i>	
		<i>Adopters</i>	<i>Non-adopters</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
Improved Machinery	Rural	7.32	3.26
	Urban	10.04	10.16
	<i>Total</i>	<i>8.75</i>	<i>5.99</i>
New Product	Rural	6.37	3.10
	Urban	11.38	8.75
	<i>Total</i>	<i>8.84</i>	<i>5.36</i>
New Raw Material	Rural	4.11	4.53
	Urban	12.71	9.20
	<i>Total</i>	<i>9.73</i>	<i>6.39</i>
New Design	Rural	5.25	4.00
	Urban	9.74	10.43
	<i>Total</i>	<i>7.46</i>	<i>6.62</i>

Source: Field survey data.

7. Concluding Remarks

The incidence of subcontracting in manufacturing sector is reported to be low both in rural and urban areas. Moreover, the extent of subcontracting is not uniform in different branches of manufacturing activities. The extent to which subcontractors receive assistance from the parent units differ from case to case. However, the level of assistance depends on the mutual relationship between the parent firms and the subcontractors. Except assured marketing other forms of assistances such as technical assistance,

financial, supply of raw material and training, etc. are relatively less prevalent, particularly in rural area. The major forms of technical assistance are provision of specification, technical drawings, tools and visit by experts.

There is a need for technological up-gradation and modernization of small-scale units backed by improvement in workers' skill and training. Moreover small-scale units lack sufficient funds to invest in machinery and improve product quality. They also lack in the required technical expertise to handle/introduce improved technology. Even if small-scale units manage to mobilize resources for technological up-gradation, the orders placed by parent firms may not be sufficient to make the investment worthwhile. An associated problem is that the operation of sophisticated machinery requires skilled and trained workers.

The performance of Subcontracting Exchanges (SCXs) has not been found to be satisfactory. Large firms in the private sector have their own Vendor Development Programmes and they do not make use of subcontracting exchanges. Therefore, the small firms have to approach the private sector firms on their own. In the case of public sector enterprises, the subcontracting exchanges have a greater role to play. But since several other industrial promotion organizations are performing activities similar to that of subcontracting exchanges, the multiplicity of organizational framework is adversely affecting the performance of subcontracting exchanges.

Some of the crucial areas of policy attention are as follows:

- i) Small firms have to undertake modernization and invest on sophisticated machinery. Attention needs be paid to proper maintenance of machineries, tools, dies, etc. and to the training of workers. It is important to introduce better management and workers' training at all levels so that they are in better position to ensure deliveries of quality products as per the schedule.
- ii) There should be greater involvement of the large firms with the subcontracting units in the matter of technology. They should provide technical guidance; arrange regular visit of technical experts for process inspection, technological trouble-shooting, and advice for improvements.
- iii) The Japanese model of multi-layered subcontracting system should be followed. This system has proved useful in properly managing the supplies of parts and components and ensuring their quality. In India, however, a typical large firm deals with a large number of subcontractors many of which are very small. Thus there is some merit in rationalizing the system, reducing the number of vendors,

and reallocating orders to relatively more well-performing vendors and ancillary units.

- iv) Government has an important role to play in the rapid development of subcontracting system in Indian industries. *a)* Government should encourage and provide financial support to groups of small-scale units for the purchase of machinery or installation of common facilities which individually they find unaffordable; *b)* Government should help and encourage to form association of vendors with common interest so that they are able to protect their interests; *c)* Government should initiate appropriate steps to improve the workers' educational background and technical training; *d)* Government should evolve appropriate enforcement procedures along with complementary measures to ensure that there are no undue delays in payments to small-scale units. Such a step will help immensely in creating a healthy relationship between large and small firms, eventually benefiting both; *e)* Government should revamp the existing subcontracting exchanges substantially to meet the challenges of the new, emerging industrial scenario.

Thus, the industrial scenario in India that is emerging, under the changing economic regime, competition and efficiency will assume a prime place. Accordingly, there would be increasing pressure on the industrial firms to improve efficiency and reduce costs to withstand the domestic as well as international competition. In as much as subcontracting offers significant scope for cost reduction through technological improvement, a rapid and sustainable development of subcontracting system will be of utmost importance for the Indian industry in general and small industry in particular, to perform well in the changed economic scenario. Thus, development of subcontracting system will be immensely beneficial in achieving simultaneously the goal of technological up-gradation, efficiency and generation of employment.

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