



The Nature and Scope of Production Sub-contracting in Nigeria

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Abstract

This study analyses the nature and scope of production sub-contracting linkages in Nigeria. The basic concepts are integration and industrial linkage, and production subcontracting. Data for this study were collected from the 68 contracting firms among the 15 industrial estates/areas in the Lagos region. The study's finding shows that the dominant form of sub-contracting is speciality sub-contracting. The various products of sub-contracting among the industrial estates/areas in the Lagos region, and between the Lagos region and the rest of Nigeria are discussed. Independent sub-contracting is the most common type of sub-contracting relationship. While over 50 percent of the contractors engage the services of a maximum of two subcontractors, it is only in motor vehicles and the miscellaneous assembly industry group that production sub-contracting accounted for more than 30 percent of the total costs of production. It accounted for about 20 percent in each of all the other industry groups in any of the years under consideration. Furthermore, this study shows that production sub-contracting carried out over relatively short distances became very important after the introduction of the Structural Adjustment Programme (SAP) in Nigeria, and it is perceived as most useful in reducing the costs of production.

Résumé

Cette étude analyse la nature et l'étendue des relations de sous-traitance de la production au Nigeria. Les principaux concepts sont l'intégration et les relations industrielles, ainsi que la sous-traitance en matière de production. Les informations relatives à cette étude ont été obtenues des soixante-huit entreprises contractantes situées dans les 15 régions industrielles de la région de Lagos. Cette étude révèle que la forme dominante de sous-traitance est la sous-traitance spécialisée. Les produits soumis à la sous-traitance entre les différentes zones de la région de Lagos et le reste du Nigeria sont évoqués dans ce texte. La sous-traitance indépendante est la relation de sous-traitance la plus répandue. Tandis que plus de cinquante pour cent des entrepreneurs s'offrent les services de

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deux sous-traitants, au maximum, seuls l'industrie des véhicules et les groupes industriels d'assemblages divers ont un niveau de sous-traitance de la production représentant plus de trente pour cent du prix de revient total. Ce prix de revient représentait environ vingt pour cent du prix de revient, dans chacun des groupes industriels, au cours de l'année considérée. En outre, cette étude montre que la sous-traitance de la production pratiquée sur des distances relativement courtes s'est accentuée avec l'introduction de Programmes d'Ajustement Structurel (PAS) au Nigéria, et s'est avérée très utile à la réduction des prix de revient.

Introduction

Production sub-contracting is a production technique whereby part of a firm's production is handled by another independent firm. It therefore entails the de-concentration of production processes into smaller units over space. This process of breaking down production procedure into smaller units has attracted the interest of geographers in the literature. It is a major strategy of corporate organisation (Clutterbuck 1985; Lash and Urry 1987). In developed market economies, such as the United States of America, the rise of production sub-contracting is attributable to the performance problems caused by capital redundancy and labour militancy (Cooke 1988). Some writers (e.g. Storper and Walker 1989; Best 1990), also attribute the rise of production sub-contracting to the strategic responses of firms towards rapid market changes, increased international competition, and the corresponding development of new modes of corporate competition, which are based on interfirm consultative coordination and continuous improvement in the production process.

Production sub-contracting provides firms with the benefits of reduced investments risks, strengthens control over the labour process, and fosters response to technological and market changes (Holmes 1986; Donaghu and Barff 1990). In addition, it provides production systems with increased viability for long-term growth and development (Saxenian, 1990), and promotes exchanges between firms in many forms (Contractor and Lonrange, 1988). Furthermore, it plays an important role in the restructuring of some industrial sectors both at the intranational and international levels. Perhaps this explains why international sub-contracting linked to the development of free trade areas and Export Processing Zones (EPZ) has become of particular interest to international agencies, such as United Nations Industrial Development Organization and the World Bank (UNIDO 1974; UNTCD 1979; Berthomeiu and Hanaut 1980). The development of production sub-contracting is not confined to the developed market economies. A number of major developing market economies, such as Hong

Kong, Taiwan and the People's Republic of China have also experienced similar changes. These changes are attributable to the strategic needs of firms to expand production and/or to reduce cost pressures associated with labour shortages or labour costs (Chen 1983; Federation of Hong Kong Industries 1990).

The literature on production sub-contracting has focused on four major themes: the nature of production sub-contracting, the basis for its existence, the temporal dynamics, and the locational structure (see Watanable 1971, 1972, 1980; Challou 1977; Friedman 1977; Holmes 1986; Beneria and Roldan 1987; Donaghu and Barff 1990; Leung 1993; Echeverri Carroll 1996; and UNIDO 1974; for details). These themes have been approached from a transaction costs perspective as developed by Coase (1973), and later espoused by Williamson (1975, 1979, 1984, 1985), Scott (1983, 1986, 1988), and Storper and Scott (1990).

In addition, while several studies on production sub-contracting have been conducted in the western world, especially the United States of America and Great Britain, studies on industrialisation in sub-Saharan Africa, and specifically in Nigeria, have largely focused on the examination and analysis of single components of industrial activity or the spatial distribution and development of manufacturing industries. Examples of earlier works include Schatzl (1973), Onyemelukwe (1974), Vegale et al. (1974), Ayeni (1976, 1981), Arikawe-Akintola (1986), and Ighalo (1989). Other studies (Lewis 1974; Oyebanji 1978, 1980) have focused on small-scale industries at the regional level. More recent studies, among which are Lee and Anas (1989), Lee (1991), and Babarinde (1995), have focused on some behavioural aspects of manufacturing in Nigeria. In some cases, explanations have been offered in terms of factor endowments.

In other words, there is no known study conducted on production sub-contracting in sub-Saharan Africa and especially in Nigeria. This paper therefore examines the nature, scope and the perceived significance of production sub-contracting in Nigeria.

The study was carried out in the Lagos region, Nigeria. However, given the fact that the main focus of the study is sub-contracting relationships between the Lagos region and the rest of the Nigeria, there is a sense in which the whole country could be regarded as a subsidiary study area. Therefore, this section discusses various aspects of the industrial geography not only of the Lagos region but also Nigeria as a whole. The Lagos region covers metropolitan Lagos and the outlying districts of Agbara, Sango/Ota and Ojodu/Isheri industrial estates/areas, in Ogun State. This region, located along the south west of Nigeria, is situated approximately

between Latitudes 6° 27' and 6° 37' North of the equator and longitudes 4° 15' and 3° 47' East of the Greenwich Meridian. The Lagos Region, with an area of about 1,088km², covers about 32 per cent of the land area of Lagos State. About 20 percent of this area is made up of lagoons and mangrove swamps.

The Lagos region, apart from being the industrial nerve centre of Nigeria, is also the leading centre of commerce. Some 60 to 70 percent of all commercial transactions in Nigeria are carried out or finalised in the Lagos region. About 70 percent of the total value of industrial investments in Nigeria is in the Lagos region. Over 65 percent of the country's industrial employment is concentrated in this region, leaving the remaining 35 percent to other parts of the country. It is, in part, the recognition of the marked concentration of industries in the Lagos region that motivated its choice as the study area for this work.

Apart from the foregoing, the Lagos region has two seaports: Tin Can Island and Apapa. The two ports handle about 60 percent of Nigeria's total exports excluding crude oil and about 70 percent of imports. Major terminals for both road and rail routes are located in the Lagos region. The strategic location of the Lagos region is further strengthened by the presence of the most important airport. Perhaps, it is this strategic position of the Lagos region within the country that explains why most major industrial concerns and trading companies, such as the United African Company (UAC), Union Trading Company (UTC), Patterson and Zochonis (PZ), have their head offices located in this region. In addition, major financial centres, such as the Nigerian Stock Exchange, and the head office of major banks, insurance companies and other financial institutions are located here. The implication is that the Lagos region, more than any other part of Nigeria, is likely to have strong links with the other parts of the country. The subsidiary study area (Nigeria) lies between latitudes 4° 00' and 14° 00' north of the equator, and longitudes 4° 00' and 14° 00' East of the Greenwich Meridian. Nigeria, with a total land area of 923, 772 km² has the most extensive habitable land area in Africa south of the Sahara. The population of Nigeria was 88.5 million people in 1991 (NPC figures). Nigeria is a leading industrial nation in the West Africa sub-region.

Conceptual framework

The relevant concepts/theories reviewed here are integration and industrial linkage, and production sub-contracting. Integration involves all forms of collaborative and co-operative ventures among industrial organisations over space. There are two forms of integration, namely vertical integra-

tion and horizontal integration. Vertical integration is 'a process which refers to the extent to which successive stages in production and distribution are placed under a single firm shaped by internal economies of scope'. (Lee 1994:292). This involves the amalgamation of productive units at different stages of production. By contrast, horizontal integration is a production system whereby 'firms producing related products (competitive, complementary or by-products) operate under central control' (Lee 1994: 292). This involves the firm moving into activities that are very closely related to its current activities.

Vertical or horizontal integration may offer greater stability or growth of corporate profits and the spreading of risks (Dicken and Lloyd 1990). This is possible because not all activities in the firm will follow an identical cycle of demand. Integration thus, involves the linkage of firms in a chain of production. In general terms, this is what is referred to as industrial linkage. Industrial linkage is a process whereby one manufacturing firm purchases inputs of good or services from, or sells output to, another manufacturing firm (Keeble 1976). 'Industrial linkage includes all forms of contacts and flows of information and/or materials between two or more individual firms' (Johnson 1994: 334). This term is most widely used in industrial geography to indicate the interdependence among firms and its effects on locational choice. There are three forms of linkage. These are backward, forward and sideways linkages. Backward linkage is a situation where a firm makes use of the products of some other firms as input in its own production process. Forward linkage occurs when a given firm produces its products for use in the production process of other firms. Sideways linkage involves the information flows between firms at the same level of the production process.

Linkage is possible over a wide range of distances. However, strong or complex linkage ties usually operate only over short distances. On a national scale, 'the systematic ties of a plant to others have locations significance. Plants located primarily in relation to raw materials or markets form a small proportion of total industrial activity. On the local scale, connections to adjacent or nearby plants do exist, but such connections do not account for the concentration of heavy industrial areas' (Wood 1969: 34). The foregoing suggests that linkage reflects a distance decay function.

Production sub-contracting is the arrangement of production process wherein firms externalise their manufacturing activities to other independent firms. The contractor provides the orders and the sub-contractor furnishes the work or services for the processing of materials or the production of parts, components, subassembly or assembly of products according

to the production specifications and the marketing arrangements of the contractor (UNIDO 1974, Leung 1993). Production sub-contracting is thus a form of industrial linkage. Production sub-contracting is classified based on the technical character of the subcontracted work, the durability and stability of the relationship between the contractor and the sub-contractor, and the nature and form of business relationship between the contractors and the sub-contractor (Sharpston 1975). It is further classified based on the source of raw materials required for the subcontracted work (Taylor and Thrift 1975), and who takes the decision on the conception, design, and the production process (Chaillou 1977). Although Chaillou (1977) identified and describes seven distinct subcategories of sub-contracting, for simplicity, the study collapses them into three major categories. These are capacity sub-contracting, specialisation sub-contracting, and supplier sub-contracting. Based on Chaillou's classification, sub-contracting is further classified into industrial and commercial sub-contracting.

Industrial sub-contracting involves a manufacturing process or the production of intermediate products. Commercial sub-contracting pertains to finished commodities. Industrial sub-contracting, the focus of this study, is further classified into a number of types based on the needs of the contracting firm. These are specialised, complementary, and cost saving sub-contracting (Watanable 1971, 1972, 1980; Leung 1993). Specialised sub-contracting is due to inadequate technological know-how or equipment on the part of the contractor for some aspects of production. Complementary sub-contracting occurs as a result of inadequate capacity on the part of the contractor to meet delivery schedules. The situation may well be that some aspects of the production process of the contractor can be produced at a much lower cost by the sub-contractor. If the sub-contractor then produces such aspects for the contractor, such an arrangement is generally classified as cost-saving sub-contracting.

Another classification is that based on the types of sub-contracting relationships. Four types are usually identified. These are branch sub-contractors, subsidiary sub-contractors, independent sub-contractors, and former employee sub-contractors (Lawson 1992; Leung 1993). Branch sub-contractors are establishments fully owned and controlled by the contractor. Subsidiary sub-contractors are wholly owned by multi-national corporations, while independent sub-contractors, apart from the sub-contracting arrangement, have no other form of relationship with the contractor, hence the contractor and the sub-contractor operate as equals. Former employee sub-contractors are those firms owned by entrepreneurs who have previously worked as employees of the contractors. They have ac-

quired adequate knowledge of the operations of the contracting firms. They may or may not enjoy financial support of the contractor in order to establish or carry out their production activities.

Data collection procedure

Both primary and secondary data were required for this study. While primary data were collected from contracting firms, secondary data were collected from published sources. Since no publication on the location and operation of production sub-contracting activities in the country is available, information on these had to be collected from relevant firms. The collection of data from the primacy source was done in two different stages. These are the reconnaissance survey and questionnaire administration. The reconnaissance survey was carried out during the months of November and December 1995. It covered all the fifteen industrial estates/areas and outlying firms in the Lagos region. In each of the industrial estates/areas, all the industrial establishments were visited to determine whether or not they were involved in production sub-contracting. The purpose of visiting all firms in each estate and other industrial centres was to ensure that none of the industrial establishments was not covered during the survey. The visit entailed personal interviews with the industrialists or designated officers.

The result of the reconnaissance survey, shown in Table 1, indicates that 68 (10.7 percent) of all the operating firms in the Lagos region are involved in production sub-contracting. The number of contracting firms varies from one industrial estate/area to the other. While two of the estates (Gbagada and Yaba) have no contracting firms, Ilupeju estate/area alone has 12 (representing 17.6 percent) of the total. Ikeja/Ogba/Iseri industrial estate/area accounts for nine (13.2 percent), while Oregun, Iganmu and Agbara estates/areas have seven (10.3 percent) firms each. Other industrial estates account for numbers ranging from one (1.5 percent) to five (7.4 percent). All the sixty-eight contracting firms identified during the reconnaissance survey were covered in the questionnaire administration carried out from January to August 1996. The questionnaire sought information on such issues as the industry group (line of activity), the location (address/industrial estate/or area), the firm and activities relating to production sub-contracting. The distances separating sub-contracting partners were determined with the aid of the road network maps (see Ajayi 1998, for details). The questionnaire was administered so that contracting firms in each of the industrial estates/areas and the outlying firms were visited one after the other. In each case, the questionnaire was left with the industrial/designated officer for completion.

Table 1: Distribution of contracting firms in Lagos region

S/No	Industrial Estate/Area	Number of Contractors	Percentage
1.	Ikeja/Ogba/Isheri	9	13.2
2.	Oregun	7	10.3
3.	Gbagada	0	0.0
4.	Ikorodu Road/Ojota	3	4.4
5.	Oshodi/Agege	5	7.4
6.	Matori	1	1.5
7.	Isolo	5	7.4
8.	Ilupeju	12	17.6
9.	Mushin/Surulere	4	5.9
10.	Yaba	0	0.0
11.	Ijora	1	1.5
12.	Iganmu	7	10.5
13.	Sango/Ota	5	7.4
14.	Agbara	7	10.4
15.	Apapa/Tin Can Island	2	2.9
	Total	68	100.0

In some cases, several visits were made to the establishment before the completed questionnaire could be retrieved. All the contracting firms satisfactorily completed the questionnaire by the end of the fieldwork. The *Industrial Directory of Nigeria* (1993 Edition), published by the Manufacturers' Association of Nigeria (MAN), served as the basic source of secondary data. The Directory contains a list of manufacturing establishments employing at least 10 workers. Other publications include the Nigerian *Vanguard Yellow Pages* (1991 edition), a publication of the Vanguard Newspaper, which is the directory of business enterprises in Nigeria; the *Nigeria Yearbook* (1992 edition); the *Directory of Incorporated Companies* (1993 edition). Other publications are the *Annual Abstract of Statistics* (1994 edition), and the *Nigerian Statistical Bulletin* (1994 edition). These sources of secondary data were the most recent and comprehensive editions at the time of the fieldwork.

Results and discussion

Nature of production sub-contracting

The nature of production sub-contracting pertains to the types of sub-contracting, items produced, and the type of relationships between contractors and sub-contractors.

Type of Sub-contracting

The literature on production sub-contracting suggests that whereas complementary sub-contracting is common in West European countries such as Italy and France, speciality sub-contracting is the predominant form in North America. Table 2 shows that the dominant form of sub-contracting in Nigeria is speciality sub-contracting. Whereas 66 (97.66 percent) of all the contracting firms are involved in speciality sub-contracting, only five (7.35 percent) of the firms are involved in complementary sub-contracting.

While all the industry groups are involved in speciality sub-contracting; only three are involved in complementary sub-contracting. These are the chemicals and pharmaceuticals, pulp, paper and paper products, printing and publishing, and textiles, wearing apparel and leather industry groups. Whereas only one (4.55 percent) of the contractors in the chemicals and pharmaceuticals industry group was involved in complementary sub-contracting, two (20.0 percent) in the pulp, paper products, printing and publishing; two (9.1 percent) are involved in the textile, wearing apparel and leather industry groups.

Products of sub-contracting

While all the products in the food, beverages and tobacco industry groups are received from sub-contractors in the Lagos region, only plastic crates are received from sub-contractors in Ibadan, Ilorin, Kaduna, Kano, and Sagamu. In the chemicals and pharmaceuticals industry group, in addition to products received from sub-contractors in the Lagos region, soaps are received from sub-contractors in Ilorin, PVA/Aerosol from Owerri, and industrial carton and starch from Ibadan.

In the textiles, wearing apparel, and leather industry group, while spinnards and yarn are received from sub-contractors in Ikorodu, Kano, Lagos, and Zaria, tarpaulin materials are received from sub-contractors in Zaria only. Sub-contractors in Jos, Kano, Lagos and Sokoto carry out leather tanning, while chemicals and nylon wrappers are received from sub-contractors in Ibadan and Lagos. All other items, such as dyeing, shoe finishing, buckles; clothes and soothing are received from sub-contractors within the Lagos region.

Table 2: Types of production subcontracting engaged in by firms in each industry group

Industry group	Type			
	Speciality subcontracting		Complementary subcontracting	
	No.	%)	No.	%)
Food, Beverages and Tobacco	7	00.0	0	.0
Chemical and Pharmaceuticals	21	5.45	1	.55
Domestic and Industrial Plastics and Rubber	1	00.0)	0	.0
Basic metal, Iron and Steel and Fabricated Metal products	5	00.0	0	.0
Pulp, Paper and Paper Products, Printing and Publishing	8	0.0	2	0.0
Textiles, Wearing Apparel and Leather	20	0.9	2	.1
Wood and Wood Products (including furniture)	1	00.0	0	.0
Non-metallic Mineral products	2	00.0	0	.0
Motor Vehicle and Miscellaneous Assembly	1	00.0	0	.0
Total	66	7.06	5	.35

Foam and plastic shells required in the wood and wood products (furniture) industry group are received from sub-contractors in Ibadan and Lagos. Plastic containers and cylinder turners required in non-metallic mineral products industry group are received from sub-contractors in Ibadan and Lagos. Also, cover boards, printed circuits, and tin sheeting required in the motor vehicles and miscellaneous assembly industry group are received from sub-contractors within the Lagos region.

Contractors within the Lagos region source their products/items from a variety of industrial areas where sub-contractors are established. For instance, in the food, beverages, and tobacco industry group, bottles required by contractors in Ikeja/Ogba/Isheri, Iganmu, Sango/Ota, and Agbara industrial estates are received from sub-contractors in Ikeja/Ogba/Isheri, Sango/Ota, and Agbara industrial areas. Crown caps required by contractors in Iganumu, Sango/Ota, and Agbara industrial estates/areas are received from sub-contractors in Sango/Ota industrial estate. Plastic crates required by contractors in Agbara industrial estate/area are received from sub-contractors in Iganmu industrial estate/area. Metal cans required by contractors in Ikeja/Ogba/Isheri and Ikorodu road/Ojota industrial estates/areas are received from sub-contractors in Ikeja/Ogba/Isheri and Sango/Ota industrial estates/areas, and malt syrup required by contractors in Ikeja/Ogba/Isheri industrial estate/area is obtained from sub-contractors within the estate. Labels required by contractors in Agbara industrial estate/area come from sub-contractors located in the Isolo industrial estate/area.

Foam and plastic shells, required by contractors in the wood and wood products industry group in Ilupeju industrial estate/area, come from sub-contractors within the estate. Plastic containers, and cylinder turner, required by contractors in non-metallic mineral products industry group in Oshodi/Agege, and Matori industrial estates/areas are received from sub-contractors located in Ikeja/Ogba/Isheri, Matori, Ilupeju, and Agbara industrial estates/areas. Cover boards, printed circuits, and tin sheets required by contractors in the motor vehicle and miscellaneous assembly industry group in Sango/Ota industrial estate/area are derived from sub-contractors located in Ikorodu road/Ojota, Yaba and Sango/Ota industrial estates/areas.

Types of relationships between contractors and sub-contractors

The type of the relationships between contractors and sub-contractors defined in terms of branch sub-contractors, subsidiary sub-contractors, independent sub-contractors, and former employee sub-contractors (see

literature) is shown in Table 3. The dominant form of relationship is independent sub-contracting. A total of 155 (90.12 percent) of all the sub-contractors are independent sub-contractors, 11 (6.39 percent) are branch sub-contractors while five (2.91 percent), and one (0.58 percent) are subsidiary sub-contractors and former employee sub-contractors respectively.

All the sub-contractors in the food, beverages and tobacco; domestic and industrial plastics and rubber; wood and wood products (including furniture); non-metallic mineral products; and motor vehicles and miscellaneous assembly industry groups are independent sub-contractors. There is only one branch sub-contractor in the chemicals and pharmaceuticals industry group. The number of branch sub-contractors is two (18.18 percent) in basic metal, in iron and steel and fabricated metal products; two (7.69 percent) in pulp, paper and paper products, printing and publishing; and six (14.29 percent) in the textiles, wearing apparel and leather industry groups. There are two (3.03 percent) subsidiary sub-contractors in chemicals and pharmaceuticals industry group, but only one (3.85 percent) subsidiary sub-contractor in pulp, paper and paper products, printing and publishing; and two (4.76 percent) in textiles, wearing apparel, and leather industry groups. There is only one (3.85 percent) former employee sub-contractor in the pulp, paper and paper products, printing and publishing industry group.

Table 4 shows the categorisation of sub-contractors in the Lagos region. While 137 (92.52 percent) of the sub-contractors are independent sub-contractors, nine (6.08 percent) are branch sub-contractors, one (0.68 percent) each is a subsidiary sub-contractor, and former employee sub-contractor. There are three and six branch sub-contractors in pulp, paper and paper products, printing and publishing; and textiles, wearing apparel and leather industry groups respectively. There is only one (1.82 percent) subsidiary sub-contractor in chemicals and pharmaceuticals; and one (4.17 percent) former employee sub-contractor in the pulp, paper and paper products, printing and publishing industry groups.

Scope of production sub-contracting

The scope of production sub-contracting pertains to the number of sub-contractors engaged, the percentage of total industrial production accounted for by production sub-contracting, and the distances over which sub-contracting linkages are carried out.

Table 3: Types of subcontracting relationships

Industry group	Type of Relationship (% in bracket)			
	Branch	Subsidiary	Independent	Former-employee
Food, Beverages and Tobacco	0 (0.0)	0 (0.0)	16 (100.0)	0 (0.0)
Chemicals and Pharmaceuticals	1 (1.52)	2 (3.03)	63 (95.45)	0 (0.0)
Domestic and Industrial Plastics and Rubber	0 (0.0)	0 (0.0)	2 (100.0)	0 (0.0)
Basic Metal, Iron and Steel and Fabricated Metal	2 (18.18)	0 (0.0)	9 (81.82)	0 (0.0)
Pulp, Paper and Paper Products, Printing and Publishing	2 (7.69)	1 (3.85)	22 (84.62)	1 (3.85)
Textiles, Wearing Apparel and Leather	6 (14.29)	2 (4.76)	34 (80.99)	0 (0.0)
Wood and Wood Products (including furniture)	0 (0.0)	0 (0.0)	2 (100.0)	0 (0.0)
Non metallic mineral Products	0 (0.0)	0 (0.0)	4 (100.0)	0 (0.0)
Motor Vehicle and Miscellaneous Assembly	0 (0.0)	0 (0.0)	3 (100.0)	0 (0.0)
Total	(6.39)	5 (2.91)	155 (90.12)	1 (0.58)

Table 4: Types of subcontracting relationships between contractors and subcontractors in the Lagos region

Industry group	Types of Relationship (% in brackets)			
	Branch	Subsidiary	Independent	Former Employee
Food, Beverages and Tobacco	0 (0.0)	0 (0.0)	15 (100.0)	0 (0.0)
Chemicals and Pharmaccuticals	0 (0.0)	1 (1.82)	54 (98.18)	0 (0.0)
Domestic and Industrial Plastics and Rubber	0 (0.0)	0 (0.0)	3 (100.0)	0 (0.0)
Basic Metal, Iron and Steel and Fabricated Metal	1 (10.0)	0 (0.0)	9 (90.0)	0 (0.0)
Pulp, Paper and Paper Products, Printing and Publishing	2 (8.33)	0 (0.0)	21 (87.5)	1 (4.17)
Textiles, Wearing Apparel and Leather	6 (18.18)	0 (0.0)	27 (81.82)	0 (0.0)
Wood and Wood Products (including furniture)	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)
Non metallic mineral Products	0 (0.0)	0 (0.0)	4 (100.0)	0 (0.0)
Motor Vehicle and Miscellaneous Assembly	0 (0.0)	0 (0.0)	3 (100.0)	0 (0.0)
Total	9 (6.08)	1 (0.68)	137 (92.57)	1 (0.68)

Table 5: Number of subcontractors engaged by contracting firms

Industry group	Number of Subcontractors (% in brackets)			
	1	2	3	4
Food, Beverages and Tobacco	2 (28.57)	2 (28.57)	2 (28.57)	4 (14.29)
Chemicals and Pharmaceuticals	2 (9.09)	5 (22.73)	6 (27.27)	9 (40.91)
Domestic and Industrial Plastics and Rubber	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
Basic Metal, Iron and Steel and Fabricated Metal Products	0 (0.0)	4 (80.0)	1 (20.0)	0 (0.0)
Pulp, Paper and Paper Products, Printing and Publishing	2 (25.0)	0 (0.0)	0 (0.0)	6 (75.0)
Textiles, Wearing Apparel and Leather Products	8 (38.1)	8 (38.1)	2 (9.52)	3 (14.29)
Wood and Wood Products (including furniture)	0 (0.0)	1 (100.0)	0 (0.0)	0 (0.0)
Non-metallic Mineral Products	0 (0.0)	2 (100.0)	0 (0.0)	0 (0.0)
Motor Vehicle and Miscellaneous	0 (0.0)	0 (0.0)	1 (100.0)	0 (0.0)
Total	14 (20.59)	23 (33.84)	12 (17.65)	9 (27.94)

Number of sub-contractors engaged

Table 5 shows that the number of sub-contractors engaged by any given contractor ranges from one to four. Over fifty percent of the contractors engaged the services of a maximum of two sub-contractors. Only 12 (17.65 percent) and 9 (27.94 percent) of the contractors engage the services of three and four sub-contractors respectively. In the food, beverages, and

tobacco industry group, two (28.57 percent) contractors engaged the services of four sub-contractors.

In the chemicals and pharmaceuticals industry group, two (9.09 percent) contractors engaged the services of only one sub-contractor each, five (22.73 percent) contractors used the services of two sub-contractors each, six (27.27 percent) and nine (40.91 percent) contractors were serviced by three and four sub-contractors respectively. In the textiles, wearing apparel, and leather industry group, eight (38.1 percent) contractors engaged the services of one sub-contractor each. Another eight (38.1 percent) contractors used the services of two sub-contractors each while two (9.52 percent) had four sub-contractors each. On the average, each of the contractors in this industry group engaged the services of three sub-contractors.

Percentage of total production accounted for by production sub-contracting

It is only in the motor vehicles and miscellaneous assembly industry group that production sub-contracting accounted for more than thirty percent of the total costs of production by the contracting firms in any of the years. Production sub-contracting accounted for about 20 percent of the total costs of production in the other industry groups in any one year.

In spite of the generally low level of the total costs of production accounted for by production sub-contracting, a few of the industry groups show evidence of increased sub-contracting activities over the years. For instance, in the chemicals and pharmaceutical industry group, the number of firms where the percentage of total costs of production accounted for by production sub-contracting is more than 20 percent increased from four (22.77 percent) in 1990 to seven (36.37 percent) by 1994. Similarly, in the textile, wearing apparel and leather industry group, the number of contracting firms where the percentage of total costs of production accounted for by production sub-contracting is more than 20 percent increased from seven (33.33 percent) in 1990 to 10 (47.62 percent) by 1994.

Distances over which sub-contracting are carried out

Regarding the distances over which sub-contracting are carried out, Table 6 indicates that 144 (83.72 percent) of the sub-contractors are located between one and 40 kilometres from the contractors. While all the industry groups subcontract within this range, six of the industry groups subcontract to locations beyond 40 kilometres. These industry groups are

food, beverages and tobacco; chemicals and pharmaceuticals; basic metal, iron and steel and fabricated metal products industry groups. Others are pulp, paper, and paper products, printing and publishing; wood and wood products (including furniture) and textiles, wearing apparel and leather industry groups. In fact, sub-contracting linkages, in some instances, are carried out at distances beyond two hundred kilometers. However, only 28 (16.28 percent) of the sub-contractors are located at distances of more than 200 kilometres from the contractors. Some 49 (33.11 percent) of the sub-contractors in the Lagos region are located at distances not more than five kilometres from the contractors, and 30 (20.27 percent) at distances between six and 10 kilometres. This implies therefore that over 50 percent of the sub-contractors are located at distances not more than 10 kilometres away from the contractors.

While 21 (14.19 percent) of the sub-contractors are located at distances between 26 and 30 kilometres, 10 (13.19 percent) are located at distances above 30 kilometres. It is only in food, beverages and tobacco, chemicals and pharmaceuticals; and motor vehicles and miscellaneous assembly industry groups that sub-contractors are located at distances above 30 kilometres. It is obvious from the foregoing that sub-contracting is mainly carried out over short distances.

Perceived significance of production Sub-contracting

Perceptions among contractors regarding the importance of sub-contracting are analysed in this section. The analysis is based on the responses of the 68 contracting firms in the study area, Lagos region. Production sub-contracting became very important after the introduction of the Structural Adjustment Programme (SAP) in Nigeria in 1986. Only five (55.5 percent) of the industry groups perceived production sub-contracting as very important before SAP. The level of importance in these industries range from 32 percent in the textile, wearing apparel and leather industry group to as much as 80 percent in the food, beverages and tobacco industry group.

The situation after the introduction of SAP was such that seven (77.78 percent) of the industry groups indicated that production sub-contracting was very important. The level of importance in these industry groups ranged from 50 percent in the basic metals, iron and steel and fabricated metals industry group to as much as 100 percent in the motor vehicles, and miscellaneous assembly industry group. The level of importance is 50 percent in chemicals and pharmaceuticals, and 63.57 percent in pulp, paper and paper products, printing and publishing industry groups. Responses indi-

Table 6: Distances over which subcontracting is carried out (in %)

Industry Group	1-40	41-80	81-120	121-160	161-200	200+
Food, Beverages and Tobacco	15 (93.75)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (6.25)
Chemicals and Pharmaceuticals	53 (80.30)	5 (7.58)	0 (0.0)	3 (4.55)	0 (0.0)	5 (7.58)
Domestic and Industrial Plastics and Rubber	2 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Basic metal, Iron and Steel and Steel and Fabricated Metal Products	10 (90.91)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (9.09)
Pulp, paper and paper Products Printing and Publishing	24 (92.31)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.85)
Textiles, Wearing Apparel and Leather Products	32 (76.19)	1 (2.38)	0 (0.0)	0 (0.0)	0 (0.0)	9 (21.43)
Wood and Wood Products (including furniture)	1 (50.0)	0 (0.0)	0 (0.0)	1 (50.0)	0 (0.0)	0 (0.0)
Non-metallic Mineral Products	4 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Motor Vehicle and Miscellaneous	3 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	144 (83.72)	6 (3.49)	0 (0.0)	5 (2.91)	0 (0.0)	17 (9.88)

cated that production sub-contracting was perceived as most useful in reducing the costs of production, while it was considered as less useful at improving labour crisis management and the enhancement of research and development (R&D). The foregoing analysis tends to support the assertion in the literature that production sub-contracting increases during a downturn in an economy.

Summary and policy implications of study

This paper shows that whether in terms of number of contractors involved or volume of production sub-contracting, the textiles, wearing apparels and leather industry group dominates the production sub-contracting scene. While the number of sub-contractors engaged by any contracting firm ranged from one to a maximum of four, over fifty percent of the contractors engaged the services of a maximum of two sub-contractors. The number of sub-contractors engaged varied markedly especially in the food, beverages and tobacco; chemicals and pharmaceuticals and textiles, wearing apparel and leather industry groups. The dominant form of sub-contracting was speciality sub-contracting, mainly carried out by independent sub-contractors over short distances. Production sub-contracting became very important after the introduction of the Structural Adjustment Programme (SAP), and it was perceived by industrialists as very important in reducing the costs of production.

The research findings have implications for the development of indigenous independent entrepreneurship in particular and the industrial development of Nigeria in general. The increasing rate of production sub-contracting could be harnessed to develop indigenous entrepreneurship (see Mabogunje 1990). This is especially so as the dominant form of production sub-contracting is specialised sub-contracting carried out by independent sub-contractors. The Japanese experience shows that the promotion of industrial sub-contracting in economic development is largely motivated by the participation of small entrepreneurs. Such motivation could be in either of two forms. On the one hand is the encouragement of retirees to set up small business units with the motive of producing parts or sub-assembly of products. Such retirees will be more able to bring their experiences, acquired over the years, to bear on part production or sub-assembly of products, based on mutual trust. This kind of encouragement could be in the form of assisting such retirees to set up small business units or by providing the required capital or both. On the other hand, the government is involved in the setting up and in facilitating collaborative ventures between large and small scale enterprises, especially in the hinterlands.

The policy implications of this study are that production sub-contracting strategy could be used in effecting a more even distribution of industrial activities in all parts of Nigeria. No doubt, the development of transport and communication facilities will enhance the development of hinterlands sub-contractors. In addition, the government's initiative in encouraging the local manufacture of industrial products hitherto imported could be enhanced through the promotion of production sub-contractors. The sub-contracting of specialised aspects of industrial production could be better explored for the development of indigenous entrepreneurship. As a part of the privatisation and liberalisation programmes, sub-contracting of components or sub-assembly of products could further be harnessed to launch Nigeria into the desired goal of industrialisation. The development of the Export Processing Zone (EPZ) will facilitate the development of production sub-contracting. Production sub-contracting, is in fact a strategy for mobilising both human and material resources for industrial development.

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References

- Ajayi, D.D., 1998, *Spatial Patterns of Production Sub-contracting in Nigeria: A Case Study Lagos Region*. Ph.D. Thesis, Department of Geography, University of Ibadan.
- Arikawe-Akintola, J.O., 1986, 'The Rise of Industrialisation in the Lagos Area', in Adefuye et al. eds., *History of Lagos State People*, Lagos: Literamed Ltd.
- Ayeni, B., 1981, *The Spatial Distribution of Manufacturing Industries in Nigeria*, Ibadan, Technical Report No 2, Department of Geography, University of Ibadan.
- Ayeni, M.A.O., 1976, 'Spatial and Sectoral Changes in the Structure of Manufacturing Activities in Lagos State Nigeria', *The Nigerian Journal of Quantitative Economics*, Vol. 11, No. 3, pp. 27-46.
- Babarinde, J.A., 1995, *Industrial Migration and Residential Relocation Decisions in Metropolitan Lagos, Nigeria*, Unpublished Ph.D. Thesis, Department of Geography, University of Ibadan.
- Beneria, L., and Roldan, M., 1987, *The Crossroads of Class and Gender: Industrial Homework, Sub-contracting and Household Dynamics in Mexico City*, Chicago: University of Chicago Press.

- Berthomieu, C., and Hanaut, A., 1980, 'Can International Sub-contracting Promote Industrialisation?', *International Labour Review*, Vol. 119, No. 3, pp.335–349.
- Best, M.H. 1990. *The New competition: Institutions of Industrial Restructuring*. Cambridge: Polity Press.
- Chaillou, B., 1977, 'Definition et typologie de la sous traitance', *Revue Economique*, Vol. 28 No. 2, pp. 262–285.
- Chen, E., 1983, 'Multinationals from Hong Kong', in Lall, S. et al. (eds.). *The New ultinationals: The Spread of Third World Enterprises*, Chichester, England: John Wiley and Sons, pp. 88–136.
- Clutterbuck, D., 1985, ed., *New Patterns of Work*, New York, St. Martin's Press.
- Coase, R.H., 1937, 'The Nature of the Firm', *Economica*, 4, pp. 386-405.
- Contractor, F.J., and Lorange. P., 1988, 'Why should Firms Cooperate?: The Strategy and Economic Basis of Cooperative Ventures', in Contractor, F.J and P. Lorange eds., *Cooperative Strategies in International Business*, Lexington, MA, Lexington Books.
- Dicken, P. and Lloyd. P. E., 1990, *Strategic Behaviour of Large Business Organisations: A eographic Perspective: Location in Space*, 3rd Edition, Harper and Row.
- Donaghu, M.T., and Barff. R., 1990, 'Nike Just Did It: International Sub-contracting and Flexibility in Athletic Footwear Production', *Regional Studies* Vol. 24, No. 6, pp. 537–552.
- Echeverri-Caroll, E.L., 1996, 'Flexible Production, Electronic Linkages and Large Firms: Evidence from the Automobile Industry', *Annals of Regional Science*, Volume 30, pp. 135–152.
- Federation of Hong Industries, 1990, *Hong Kong's Offshore Investment*, Hong Kong.
- Friedman, A.L., 1977, *Industry and Labour: Class Struggle at Work and Monopoly Capitalism*, London: Macmillan.
- Holmes, J., 1986, 'The Organisational and Locational Structure of Production Sub-contracting', in Scott, A.J., and Storper, M., eds., *Production, Work and Territory: the Geographical Anatomy of Industrial Capitalism*, Boston: Allen and Unwin.
- Ighalo, J.I., 1989, 'The Locational Characteristics of Industrial Development in the Bendel State of Nigeria (1964–1967)', *The Estate Surveyor and Valuers*, Vol. 13, No. 1, pp. 32–53.
- Johnson, R.J., 1994, 'Linkages', in Johnson, R.J. et al. eds., *The Dictionary of Human Geography*, 3rd edition.
- Keeble, D.E., 1976, *Industrial Location and Planning in the United Kingdom*, Methuen, Andover: Hants.
- Lash, S., and Urry, J., 1987, *The End of Organised Capitalism*, Madison, The University of Winsconsin Press.
- Lawson, V.A., 1992, 'Industrial Sub-contracting and Employment Forms in Latin America: A Framework for Contextual Analysis', *Progress in Human Geography*, 16, pp. 1-23.

- Lee, H., and Anas, A., 1989, *Manufacturers' Responses to Infrastructure Deficiencies in Nigeria: Private Alternatives and Policy Option*, Working Paper, Infrastructure and Urban Development Department, New York: The World Bank.
- Lee, H., 1991, *Determinants of Locational Choices of Manufacturing Establishments in Lagos, Nigeria*, Unpublished Ph. D. Thesis, Syracuse University.
- Lee, R., 1994, 'Integration', in Johnston, R.J. et al., eds., *The Dictionary of Human Geography*, 3rd edition.
- Lewis, A.O., 1972, *Small-scale Industries in Western State of Nigeria - Their Character and Role*, Ile-Ife: Mimeo.
- Lewis, A.O., 1973, 'The Small-scale Industries Scene in Ile-Ife', *Quarterly Journal of Administration*.
- Lewis, A.O., 1974, 'The Development of Small-scale Industries in Nigeria's North Eastern State: Prospects, Problems and Policies', *Savana*, Vol. 3, No. 2, pp. 185-196.
- Leung, C.K. 1993. 'Personal Contacts, Sub-contracting Linkages, and Development in the Hong Kong-Zhujiang Delta Region', *Annals of the Association of American Geographers*, Vol. 83 No. 2, pp. 273-302.
- Mabogunje, A. L. 1990. 'Industrialisation within an Existing System of Cities in Nigeria', in Ayeni, B. and A. Faniran eds., *Geographical Perspectives on Nigeria's Development*, Published by The Nigerian Geographical Association, Jumark (Nig) Ltd., Ibadan, Nigeria, pp 64-79.
- Onyemelukwe, J.O.C., 1974, 'Industrial Location in Nigeria', in Hamilton, F.E.I. ed., *Industrial Organization and Decision Making*, John Wiley and Sons Ltd.
- Oyebanji, J.O., 1978, 'The Development of Small-scale Industry in Kwara State Capital, Ilorin', in Ajaegbu, H.I., and Morgan, W.T.W., eds., *Geographers and Planning in Nigeria*. Jos, pp. 244-256.
- Oyebanji, J.O., 1980, 'Small-Scale Industries in Nigeria: Their Spatial and Structural Characteristics', *Nigerian Geographical Journal*, Vol. 23, No.1&2, pp. 99-111.
- Saxenien, A., 1990, 'Regional Networks and the Resurgence of Silicon Valley', *California Management Review*, Vol. 33, No. 1, pp. 89-112.
- Schatzl, L., 1973, *Industrialization in Nigeria: A Spatial Analysis*, Munchen. Weltforum-Verlag.
- Scott, A.J., 1983, 'Industrial Organization and the Logic of Intra-Metropolitan Location I: Theoretical Considerations', *Economic Geography*, Vol. 59, No. 3, pp. 233-250.
- Scott, A. J., 1986, 'Industrial Organization and Location: Division of Labour, the Firm, and Spatial Process', *Economic Geography*, 62, pp. 215- 231.
- Scott, A. J. 1988. *New Industrial Spaces: Flexible Production, Organization and Regional Development in North America and Western Europe*, London: Pion.
- Sharpston, M., 1975, *International Sub-contracting*, Oxford Economic Paper 27, pp. 94-135.
- Storper, M., and Walker, R., 1989, *The Capitalist Imperative: Territory, Technology and Industrial Growth*, Oxford: Basil Blackwell.

- Storper, M. and Scott, A.J., 1990, 'Work Organisation and Local Labour Markets in an Era of Flexible Production', *International Labour Review*, Vol. 129, No. 5, pp. 573–577.
- Taylor, M.J. and Thrift, N.J., 1975, 'The Industrial Linkages of Auckland Manufacturers', *Proceedings of the International Geographical Union Regional Conference and Eighth Newzealand Geography Conference*, pp. 203–17.
- United Nations Conference on Trade and Development (UNCTD), 1979, *Transnational Corporation Linkages via Countries: The case of Backward Linkages via Sub-contracting*, UN Centre on Transnational Corporations ST / CTC /17, NY, UN.
- United Nations Industrial Development Organisation (UNIDO), 1974, *Sub-contracting for Modernizing Economies*, Vienna, UN.
- Vegale, L.R., et al. 1974, *Industrial Environment of a Nigerian City: Case Study of Ibadan, Nigeria*, Department of Town Planning, The Polytechnic, Ibadan, Nigeria.
- Watanable, S., 1971, 'Entrepreneurship in Small Enterprises in Japanese Manufacturing', *International Labour Review*, 102, pp. 531–575.
- Watanable, S., 1972, 'International Sub-contracting, Employment and Skill Promotion', *International Labour Review*, 105, pp. 425–449.
- Watanable, S., 1980, 'International Sub-contracting and Regional Economic Integration in the Asian Countries: The Role of Multinationals', in Germidis, D., ed., *International Sub-contracting*, Paris, Organisation for Economic Cooperation and Development, pp.210–227.
- Watanable, S., 1983, 'Technical Cooperation Between Large and Small Firms in the Filipino Automobile Industry', in Watanable, S., ed., *Technology, Marketing and Industrialisation: Linkages Between Large and Small Enterprises*, Delhi, Macmillan, pp. 71–131.
- Williamson, O. E., 1975, *Markets and Hierarchies: Analysis and Antitrust Implications*, New York: Free Press.
- Williamson, O. E., 1979, 'Transaction-Cost Economics: The governance of Contractual Relations', *Journal of Law and Economics*, 22, pp. 233–261.
- Williamson, O. E., 1984, 'The Economics of Organization: The Transaction-Cost Approach', *American Journal of Sociology*, Vol. 87, No. 3, pp. 548–577.
- Williamson, O. E., 1985, *The Economic Institutions of Capitalism*, New York: Free Press.
- Wood, P.A., 1969, 'Industrial Location and Linkage', *Area* 2, pp.32-39.