

PRODUCTION SUBCONTRACTING: A STRATEGY FOR THE SURVIVAL OF SMALL AND MEDIUM SCALE INDUSTRIES. EVIDENCE FROM MANUFACTURING INDUSTRIES IN ONITSHA METROPOLIS SOUTH EAST, NIGERIA

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ABSTRACT

This study set out to investigate production subcontracting as a strategy for the survival of small and medium scale industries. The paper discovered that enhancing the operational efficiency, reducing cost by concentrating on core function, specialization to gain professional resources, strengthening cooperation between subcontracting partners were the major factors influencing the decision to engage in production subcontracting in the region. This was corroborated by the pattern of distribution of industries in the study area which was relatively clustered paving the way for both networking and clustering co-operations among the industries in form of subcontracting as all the industries investigated in this region were involved in externalized production processes, making it possible for SMIs to operate with increased capacity. The paper recommended that industries should be strengthened by the adoption of this process as a policy in the region.

Key words: Production Subcontracting, Small and Medium Scale Industries, Manufacturing, Networks

1.0 Introduction

One of the main determinants for the growth and development of Small and Medium Scale Industries is the establishment of useful linkages arrangements which usually come in form of subcontracting processes (UNCTAD, 2004; Kumar & Subrahmanya, 2007). Small and medium scale industries play a predominant role in most developed and developing countries not only because of their number, variety and involvement in all segments of the economy but more importantly, their role in employment creation (Kumar & Subrahmanya, 2007; Kongmanila and Takahashi, 2009) Thus, from the planning stand point of view, SMIs are increasingly recognized as the principal means for achieving equitable and sustainable

industrial diversification and dispersal; and in most countries SMIs account for well over half of the total share of employment, sales and value added (Udechukwu 2003). The economy of a developing nation like Nigeria ought to be characterized by a large number of small and medium scale industries both in the informal and formal sectors (Udechukwu, 2003). This is because they not only contribute significantly to improving living standards; they also bring about local capital formation and achieve high levels of production.

The performance of SMIs in Nigeria has not been the best despite the number of programmes initiated by the state and Federal government toward promoting and sustaining their operations in the country. Most of these programmes till date are mainly in the areas of monetary, fiscal, industrial policies and measures. This has led to the establishment of various schemes and institutions like; Small Scale Industry Credit Scheme (SSICS), Nigerian Industrial Development Bank (NIDB), Nigerian Bank for Commerce and Industry (NBCI), National Directorate of Employment (NDE), and so on (SMIEIS, 2005). Similarly, one of the newest initiatives is the Small and Medium Industries Equity Investment Scheme (SMIEIS). This was initiated by the Central Bank of Nigeria as a means of providing long-term finances and professional guidance through participating Nigerian banks that commits 10 percent of their annual pre-tax profits to equity investment in the SMIs (Aremu and Adeyemi, 2011). As laudable as these programs are, quite a few were able to have reasonable impacts on the development of SMIs. In responds to this, small and medium scale industries in the country need to be proactive in order to realise their full potentials and remain in business. One of the ways in which this can be realised in Nigeria is through the adoption of production subcontracting arrangements which on its own involves the externalization of production processes or operation in order to achieve maximum efficiency and competitiveness.

1.2 Theoretical concepts of Production subcontracting

Subcontracting is usually defined as a situation where the firm offering the subcontract requests another independent enterprise to undertake the production or carry out the processing of a material, component, part or subassembly for it according to specifications or plans provided by the firm offering the subcontract (Holmes, 1986; Taymaz and Kilicaslan, 2005). Subcontracting has its foundations in the mechanism of linkages and economies of scale in industrial location theory. In the context of industrial sector, “linkage” refers to the flows of supplies, whether they are materials, semi-finished goods and components, or

finished products, between two commercial concerns (Keeble, 1976). Linkages are best understood in term of the theory externality economies and in particular, in term of the distinction between pecuniary and technological externalities (Hussain, 2004). There are different types of linkages - backward linkage, forward linkage, service linkage, sales or marketing linkage, vertical and diagonal linkage. In other words, subcontracting (vertical or horizontal) is a specific form of outsourcing that involves intimate relations and information exchange between firms (Heshmati, 2003).

There are two approaches to subcontracting in entrepreneurship development, namely: the traditional and the modern approaches (Watanabe, 1971; Berger & Piore, 1984; Holmes, 1986). The traditional approach looks at subcontracting as unequal, asymmetric power relationships between two different sets of enterprises: the large firms and the small firms (Berger & Piore, 1984; Holmes, 1986; Watanabe, 1971). The modern approach treats subcontracting as a network of cooperative inter-firm links among interdependent small firms forming a business ecosystem (Taymaz & Kilicaslan, 2002; Tilman, 2004; Ceglie & Dini, 1999; Rama & Calatrava, 2002).

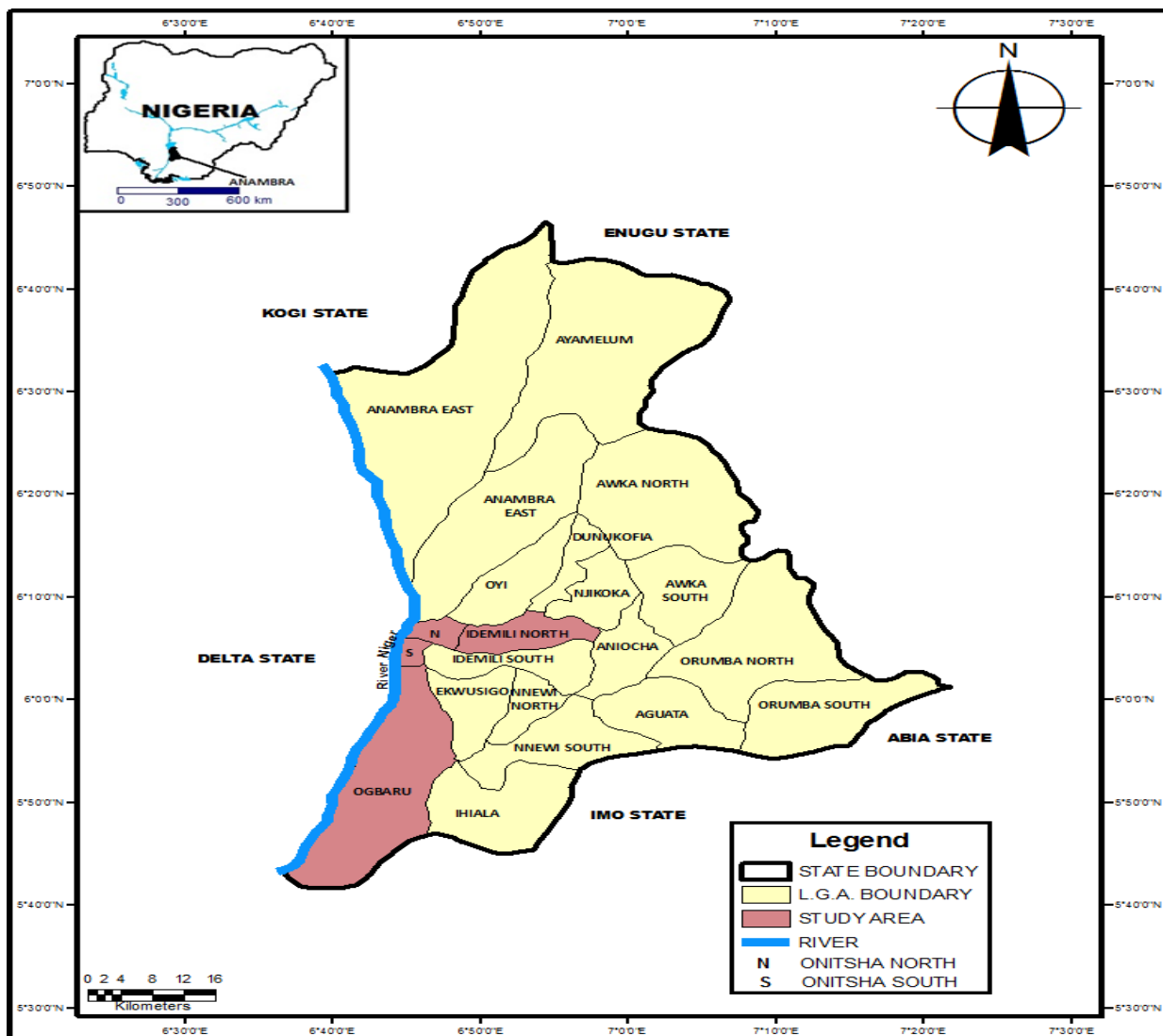
It could be said however that instead of creating hierarchies of industries, a new model based on continuum theory of gradual scaling becomes a better and more natural mode of viewing industries because their internal growth and external development is rarely done in large visible quanta but in discrete acquisition of capital and capabilities. Thus their growth is progressive from one station to another in terms of the areas and subcontractors that line within the ambits of their patronages. This view point is supported by the manifestations of the increases in the number of development establishments and increase in welfare, earnings, standard of living and overall development of the locale of the industries and the large urban-industrial space. We therefore are of the view that whichever theory of subcontracting that is applied, the end product is the overall development of the industrial units and their contribution to the industrial and socioeconomic landscape of the study area.

1.3 Brief Description of the Study Area

The study area is Onitsha metropolis, Anambra State Nigeria. The area is located geographically between Latitude $06^{\circ} 04.58^{11}N$ and Latitude $06^{\circ} 10.00^{11}N$ of the Equator and Longitude $06^{\circ} 44.59^{11} E$ and longitude $06^{\circ} 48.52^{11}E$ of the Greenwich Meridian. It is

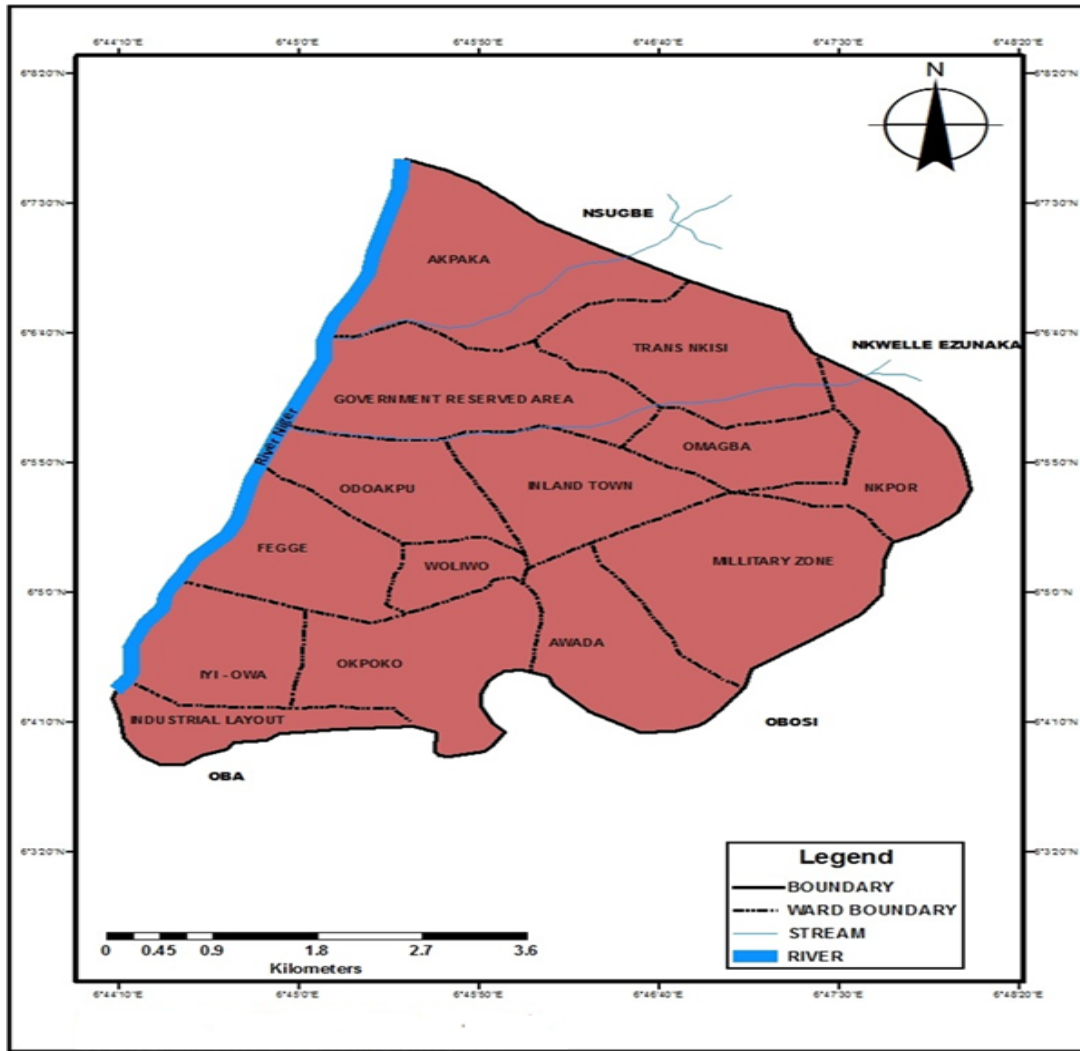
approximately 240km² north of Delta coast of the Rivers and Bayelsa States (Ofomata, 1987). The area is made up of Onitsha North Local Government (Onitsha inland town or Enu-Onitsha, and Odoakpu), Onitsha South Local Government Area (Fegge and Woliwo) and parts of Idemili North Local Government (Nkpor and Obosi including Awada; a suburb of Obosi) and Ogbaru Local Government Area (Iyi-Owa, Atani, and Okpoko). It is bounded in the North by Nsugbe, Nkwelle Ezunaka in the East, Obosi and Oba in the North and River Niger in the West (Figure 1 and 2).

Figure 1: Map of Anambra State showing the Study Area



Source: Anambra State Ministry of Land and Survey

FIGURE 2: Map of Onitsha Metropolis



Source: Ministry of Urban Planning Anambra State

The population trend of the study area has been that of a continuous increase. Just like other modern cities of the world, the population of the study area have been on a steady increase right from the inception of the area. The earliest estimate of the population of the study area was given by Adolphe Burdo in the year 1800 where he estimated the population of to be 15,000 persons (Okoye, 1975). The population figure of Onitsha metropolis according to 1991 and 2006 population census of Federal Republic of Nigeria is presented in Table 1.

TABLE 1: Population Distribution the Study Area

	1991	2006
Onitsha North LGA	121,157	124,942
Onitsha South LGA	135, 290	136,662
Npor	64,732	94,697
Obosi	85,249	124,699
Iyiowa Odekpe	21,844	31,939

Source: Nigeria Population Commission (2006)

Economically, the area is predominantly a commercial city. It is one of the largest market in Africa and one of the fastest growing commercial cities in Nigeria (Igbokwe, Ezeomodo, and Ejikeme, 2013). There are many markets existing in this city, the popular ones are: the foremost Onitsha Main market, Marine market, Ochanja market, Relief market, Ose okwe odu Market, and Nkpor new/old motor spare parts market. These enabled the area to develop as an important industrial centre, east of River Niger in Nigeria, (Igbokwe and Emengni, 2004)

1.4 Research Gap

Industries resort to subcontracting because it helps them spread risks, lower costs, gain access to key technologies reduce working capital and adjust their level of production more flexibly by passing on the burden of idle overheads to the development of industries most especially small and medium sized subcontracting firms as globalisation and new technologies challenge supply system in mature industries (Holl, 2008). Similarly, the key to increased productivity among manufacturing small and medium enterprises (SMIs) is to build their capacities through improved knowledge or technological know-how. Considering the seemingly low capital base of small and medium sectors in Nigeria and Africa as whole, industrial competitiveness, technological development and advancement cannot take place internally (inside the firm) but can be only be fostered through access to outside sources.

There have been a lot of empirical studies on the influence of production subcontracting on small scale industries. These studies include firm performance (Girma and Gorg, 2004; Morrison and Yasar, 2008; Lopez, 2009; Razzolini and Vannoni, 2010 and Gakure, Kimenia and Waititu, 2014), cost and benefits (Coase, 1937; Williamson, 1975, 1979, 1984, Scott,

1990; Abraham and Taylor, 1996, Ono, 2007 and Lopez, 2007) Determinants of production subcontracting (Taymaz and Kilicaslan, 2004; Diaz-Mora and Triguero-Cano, 2007, Kongmanila and Takahashib, 2009) etc. Most of these works have not been precise with what influences the decisions to engage in production subcontracting and the key variables that interact to make subcontracting to emerge and/or become effective. Some scholars such as (Holmes, 1986; Abraham and Taylor, 1996; Macmillan, 1995; and Lopez, 2007) in the course of their studies opined that minimisation of cost is the major explanation for production subcontracting while (Tijun, Sandal, Jiehong and Dandan, 2009) stated that the main idea of outsourcing/subcontracting have gone beyond minimization of cost. They opined that the main factors influencing the use of this production strategy are reducing costs, concentrating on core business and accessing to professional capabilities and releasing key internal resources.

Given these lines of thoughts, it is relatively difficult to make an informed assessment on what factors actually influences the decisions to engage in production subcontracting and the key variables that interact to make subcontracting to emerge and/or become effective. Judging from the tenets of subcontracting theory, the cooperation of large scale firms and small scale firms most time does not increase the capacity of the SMIs rather they are exploitative and most times, it leaves the small scale industries ruined. (Taymaz and Kilicaslan, 2004). The outcome of various researches carried out with this type of orientation may not give a desirable result in terms of policy making more especially in places or an economy dominated by small scale industries. Therefore it could be said that what influences the decisions to engage in production subcontracting and the key variables that interact to make subcontracting to emerge and/or become effective is geographical and cannot be generalized. In other words, the results of production subcontracting are largely influenced by the operational characteristics of the industries situated in a particular geographical area. This paper is therefore oriented to investigate what influences the decisions to engage in production subcontracting and the key variables that interact to make subcontracting to emerge and/or become effective in Onitsha Metropolis Nigeria.

1.4 Research Methodologies

The overriding purpose of the present study was to establish the factors that influence the decisions to engage in production subcontracting in Onitsha Metropolis, South East, Nigeria and the key variables that interact to make subcontracting to emerge and/or become effective.

To achieve this, data from field survey of small and medium scale industries from the study area during August-March, 2013/2014 were used. Field survey was conducted by the researchers from the Department of Geography, University of Nigeria Nsukka.

Our original sample size was 165 industries which included all types of industries identified in the area. Due the variations in the number of industries in each industrial group and the need to ensure a fair representation of the all the industries in each group as well as time and cost implication of the study, a stratified random sampling method was used to select 100 industries from five industrial groups found in the study area to administer questionnaire. To achieve this, 60% of the industries in each industrial group were randomly selected. This number was selected because it represents approximately 60% of the industries found in the study area as well as a balance representation all the industries that engage in similar manufacturing activities in the study area. Industrial production subcontracting processes were however identified in 80 industries out of the 100 surveyed industries. Thus the total number used as our sample size is 80 industries out of 100 industries sampled in the study area (see table 2 and 3)

Table 2: Stratified sampling of industries in the study area

Industrial Group/ Sectors	Initial number of industries	Sampled industries (60%)
Food, Beverage and Tobacco	40	24
Chemical, Paint and Allied products	30	18
Domestic and Industrial Plastics, Rubber and Form	36	21.6
Basic Metal, Iron and Steel and Fabricated Metal Products	30	18
Printing, Paper products, and Publishing	30	18
Total	165	100

Field work 2013/2014

TABLE 3: Production Subcontracting industries and their Industrial Groups in the Study Area

Industrial Group/ Sectors	Number industries
Food, Beverage and Tobacco	18
Chemical, Paint and Allied products	13
Domestic and Industrial Plastics, Rubber and Form	20
Basic Metal, Iron and Steel and Fabricated Metal Products	20
Printing, Paper products, and Publishing	9
Total	80

Field work 2014

The sampled figure represents about 80% of the total number. Data on production subcontracting were collected from primary and secondary sources. Primary data were collected through the use of questionnaire, oral interviews and field observations while documentary materials such as journal articles, textbooks and the internet formed the secondary sources on which the theoretical framework of this study was based. A pilot test on 20 firms helped to eliminate ambiguities and improve the instrument as well as test for its reliability and validity.

The questionnaire contained both open and close ended questions and was administered through direct delivery techniques. Close-ended questions asking respondents to rate various questionnaire items using a 5-part Likert-type ordinal scale representing a spectrum of subjective feelings and opinions with; 5- very important, 4- important, 3- quite important, 2- not very important, 1- not at all important were employed to solicit specific responses. A few open-ended questions elicited unique answers to general questions.

1.4.1 Data Analysis Procedure

Data were analyzed with statistical measure such as the mean and standard deviation. These statistical measures were used to analyze the factors influencing the decisions to engage in production subcontracting as well as the factors influencing the selection of subcontracting partners. Nearest neighbour analysis was used to explore the pattern of distribution of the industries in the study area. The data for Nearest neighbour analysis were derived from the

geographical coordinates of the industries. These coordinates which were rendered in degrees, minutes and seconds (DMS) were converted to decimal degrees with the aid of Tatuk GIS software in order to make them compatible with Quantum GIS tool which was used in the nearest neighbour analysis. The data were analysed using Quantum GIS software. The analytical tool of Principal Component Analysis was applied with the aid of Statistical Package for Social Sciences (SPSS) to further analyse the factors influencing the decisions to engage in production subcontracting in Onitsha Metropolis, Anambra State Nigeria. This was applied to nine (9) variables in order to bring out the underlying dimensions defining this production process. All analyses (excluding Nearest Neighbour Analysis) were carried out with the aid of Statistical Packages for Social Sciences version 17 (SPSS 17).

2.0 PRESENTATION OF RESULTS

What influences the decisions to engage in production subcontracting and the key variables that interact to make subcontracting to emerge and/or become effective in Onitsha Metropolis Nigeria will be investigated from two stand points. These stand point are:

A: To establish the location and spatial distribution of industrial units as they influence subcontracting

B: To examine the factors/motivations influencing the decisions to use production subcontracting strategies and the selection of subcontracting partners.

2.1 Factors/Motivations influencing the decision to use production subcontracting by industries

Table 4 illustrates descriptive statistics of Mean and Standard Deviation between pairs of variables. These statistical measures were used to analyze the likely factors which could influence the decisions to engage in production subcontracting and the key variables that interact to make subcontracting to emerge and/or become effective. Based on the field observation, the questionnaire synthesized 9 common factors influencing the use of production subcontracting which we asked the respondents to rank on a five point likert - type scale ranging from 1 = “not at all important” and 5 = “very important” based on how they affect their decisions.

From the analysis, the average mean value of each factor is greater than 2. This indicates that the investigated industries overall have a positive attitude towards these factors. However, the average mean and standard deviation value of reducing costs, concentrating on core business, improve quality of service and increase flexibility within the industries with average mean and standard deviation values of 4.75 (SD =0.60), 4.12 (SD =0.83), 4.32 (SD = 0.77), and 4.08 (SD = 0.77) respectively have the highest influence among the industries. These factors are greater than 4 and this reveals that they are accepted as the most significant factors influencing production subcontracting in the area. This can also be corroborated by the general knowledge which states that a low standard deviation values indicates that the data points tend to be very close to the expected value (mean). Establishing strategic partnership between the industries with high standard deviation value of 4.02, showed a high variability within the factors. This means that the industries could have other reasons for forming or establishing strategic partnership between them.

Table 4: Descriptive statistics of the factors influencing the use of production subcontracting

	N	Rang e	Minimu m	Maxim um	Mean	Std Deviation
Increase flexibility	60	3.00	2.00	5.00	4.08	0.77
Improve quality of service	60	2.00	3.00	5.00	4.12	0.83
Concentrating on core business function	60	4.00	1.00	5.00	4.32	0.77
Sharing and reducing of risk	60	4.00	1.00	5.00	3.13	1.36
Establish strategic partnership between the industries	60	3.00	1.00	3.00	2.85	4.02
Acquisition of specialized expertise	60	2.00	3.00	5.00	3.98	0.60
Access to professional resources	60	2.00	2.00	4.00	2.75	0.60
Gaining recognition around the industry	60	1.00	1.00	2.00	1.37	0.49
Reduce cost operation	60	2.00	3.00	5.00	4.75	0.60
Valid Number	60					

Source: Author's computation, 2014

Furthermore, the nine (9) variables were equally subjected to a Principle Component Analysis. This is to help extract the major underlying components influencing the general degree of importance and influence of these factors. (See table 5 for results)

Table 5: A rotated PCA of the variables influencing the use of production subcontracting by industries in Onitsha Metropolis

	Variables	I	II	III	IV
X1	Reduce cost of operation	0.28	0.74*	-0.38	0.07
X2	Increase flexibility	0.79*	0.17	0.05	-0.16
X3	Improve quality	0.93*	0.14	-0.08	-0.04
X4	Concentrate on Core business function	-0.12	0.89*	0.19	0.08
X5	Sharing and reducing risk	0.70*	-0.47	0.20	0.33
X6	Establish strategic partnership	0.00	0.10	0.03	0.97*
X7	Acquisition of specialized expertise	0.27	0.07	0.77*	-0.00
X8	Access to professional resources	0.30	0.11	-0.76*	-0.06
X9	Gaining recognition around the industry	- 0. 89*	0.13	0.10	-0.15
	Eigen value	3.07	1.65	1.41	1.11
	Percentage of explained variance	33.72	18.29	15.65	12.33
	Cumulative % of explained variance	33.72	52.02	67.67	80.00

Source: Field work and author’s computation, 2014

NB (*) Significant loading exceeding +/- 0.50

The PCA shown in Table 4 produced 5 components out of the 9 variables that together explained 80.00% of the total variance leaving 20.00% of the total variance unexplained.

Component 1 has significant loadings on four variables namely X2 – increase flexibility, X 3- Improve quality of service, X5- Shearing and reducing of risks, and X9- Gaining recognition around the industry. Component 1 has an Eigen value of 3.04 and explained 33.72% of the total variance. Component 1 highlights the need for efficiency in production by increase in flexibility. The underlying dimension identified by component 1 is enhancing the operational efficiency in the industries.

Component II has significant loading on Variables namely; X1 Reduce cost of operation and X4 – Concentrating on core business function. This component has an Eigen value of 1.65

and explained 18.29% of the total variance in the data input. This component explains the effect of cost on production. This in other words means that industries concentrating on their core competencies will help reduce the cost of production. The underlying dimension as represented by these variables is reducing cost by concentrating on core functions.

Component III with an Eigen value of 1.41 explains 15.65% of the total variation in the data input. It has significant loadings on two variables. These variables are X7 – Acquisition of specialized expertise and X8 – Access to professional resources. The underlying dimension as represented by these variables is specialisation in industrial production in order to gain professional resources.

Finally, component IV has an Eigen value of 1.11 and explains 12.33% of the total variation in the data input. It has significant loading on one variable. This variable is X6 – Establishing strategic partnership. The underlying dimension as represented by this variable is strengthening cooperation between subcontracting partners.

The results of the PCA showed that there exist links and mutual influence among the nine (factors). This is because some of the factors such as gaining recognition around the industry, establishing strategic partnership and access to professional resources which played little or no role in the decision to engage in production subcontracting by the industries (see table 3 above), were identified as important in the PCA analyses. The implication of this is that these factors even though they appear not to be recognised by the respondents, they are all subsumed into the much recognised factors. They all combine together to achieve a particular result. For instance, there will be no subcontracting if all the industries in the study area have the capacity to provide all they needed including professional resources; neither will there be flexibility nor sharing of risks if there were no strategic partnership. The results in Tables 4 and 5 shows that this work does not support the findings of (Coase's 1937, Abraham, 1990; Abraham and Taylor, 1996; Holmes, 1986; McMillan, 1995 and López, 2007) which posited that minimization of costs is the main explanation or factor influencing production subcontracting processes for subcontracting. This work also differs with the findings of Bailey, Masson and Raeside (2002) which posited that the main reason behind the use of production subcontracting strategies is for better services. In view of this, the decision to subcontract or outsource any task goes beyond minimising cost and for better services as it also includes enhancing the operational efficiency in the industries, reducing cost by concentrating on core functions, specialisation in industrial production in order to gain

professional resources and strengthening cooperation between subcontracting partners. Similarly, the analysis of factors influencing the selection of production subcontractors by the surveyed industries in the study area in order to ascertain or bring out the factors that appear most significant to the industrialist showed that high quality of service, high degree of mutual trust with subcontractors, good reputation in the industry, location and lower cost played the highest role in the decisions to select subcontractors as the average mean value of each factor was greater than 3. These variables got average mean and standard deviation values of 4.18 (SD = 0.52), 4.22 (SD = 0.52), 4.08 (SD = 0.81), 3.68 (SD = 0.57) and 3.72 (SD = 1.04) respectively. This can also be corroborated by the general knowledge which states that a low standard deviation values indicates that the data points tend to be very close to the expected value. Furthermore, the industrialist however valued less the cultural compatibility and management experience of the subcontractors than others. These factors have mean and standard deviation values of 1.73 (SD = 0.69) and 1.67 (SD = 0.57) meaning that most industrialists pay little attention to culture and management experience of their subcontractors. The cultural compatibility of the subcontractors or suppliers will be important when firms tend to form a long term strategic cooperation with the subcontract. Long term strategic cooperation with subcontractors from our observation does not currently exist between the subcontracting partners. This from our observation can be attributed to the nature of contracts utilized by the contracting partners. It was observed that most production contracts or subcontracting relationships were utilised on short terms basis. This according to the industrialists was to ensure efficiency and effectiveness on the part of the subcontractors. Management experience like the former was less significant because the industrialists were more inclined to selecting subcontracting partners who can offer the best services at any given time. (see table 6).

Table 6: Factors influencing the selection of production subcontractors

Variables	N	Range	Minimum	Maximum	Mean	Std Deviation
Previously cooperated	60	4.00	1.00	5.00	2.03	0.80
Lower cost	60	3.00	2.00	5.00	3.72	1.04
Good reputation	60	3.00	2.00	5.00	4.08	0.81
High quality of service	60	3.00	2.00	5.00	4.18	0.87

Advanced technology	60	1.00	2.00	3.00	2.62	0.49
Management experience	60	2.00	1.00	3.00	1.67	0.57
Similar culture	60	2.00	1.00	3.00	1.73	0.69
Location advantages	60	3.00	2.00	5.00	3.68	0.78
High mutual trust	60	2.00	3.00	5.00	4.22	0.52
Valid Number	60					

Source: Author's computation, 2014

2.2 Location and Pattern of distribution of industries

In the course of this work, a number of factors were observed to have influenced the location of industries in Onitsha Metropolis. These factors include transportation and communication, government policy, availability of land, and market (see table 6)

Table 7: Percentage distribution of industries and their location factors

Factor of industrial location	Percentage of industries (%)	Number of Industries
Availability of market	40.00	24
Transportation and Communication	16.67	10
Availability of land	18.33	11
Government policy	25.00	15
Total	100	60

Source Fieldwork, 2014

With reference to table 6, the availability of market influenced the location of about 40.00% of the industries in the study area. These industries from our investigations were located at these points not only to attract end users for their product but also to be close to their competitors and related industries. Transportation and communication also influenced the location of about 16.67% of the industries in the study area. These industries from our investigation were located at their various points in the study area so as to have access to roads and other infrastructural facilities. These facilities aid these industries in the movement of their raw materials as well as the distribution of their finished products. This factor to a great extent influenced the location of plastic, foam and rubber industries in the study area.

Government policy as a factor of industrial location was brought to bear in the study area in form of industrial estates. These industrial estates are reputed to be among the oldest and the largest in the Southeast including having good and accessible road networks, adequate power supply and good communication networks. Industries located in these estates equally enjoy a lot of economic concession from the Government including tax exemption. This factor accounted for the location of about 25.00% of the industries studied in the Onitsha Metropolis. The availability of land influenced the location of about 18.33% industries in the study area. Availability of land is increasingly important today because land is becoming increasingly scarce particularly in urban locations and urban centres. This consequently have made the prices for renting lands or landed properties high and unaffordable. In view of this, location of industries with reference to land availability in the study area took two dimensions. Firstly, it was observed that industrialists tend to locate their industries outside the urban centre where the landed properties are cheap and affordable. Secondly, it was also observed that other industries located within the urban centre are located on lands owned by the industrialists who may not expand or relocate their business to other area because of high cost of land. This explains why industries are found located in streets and residential areas in the study area.

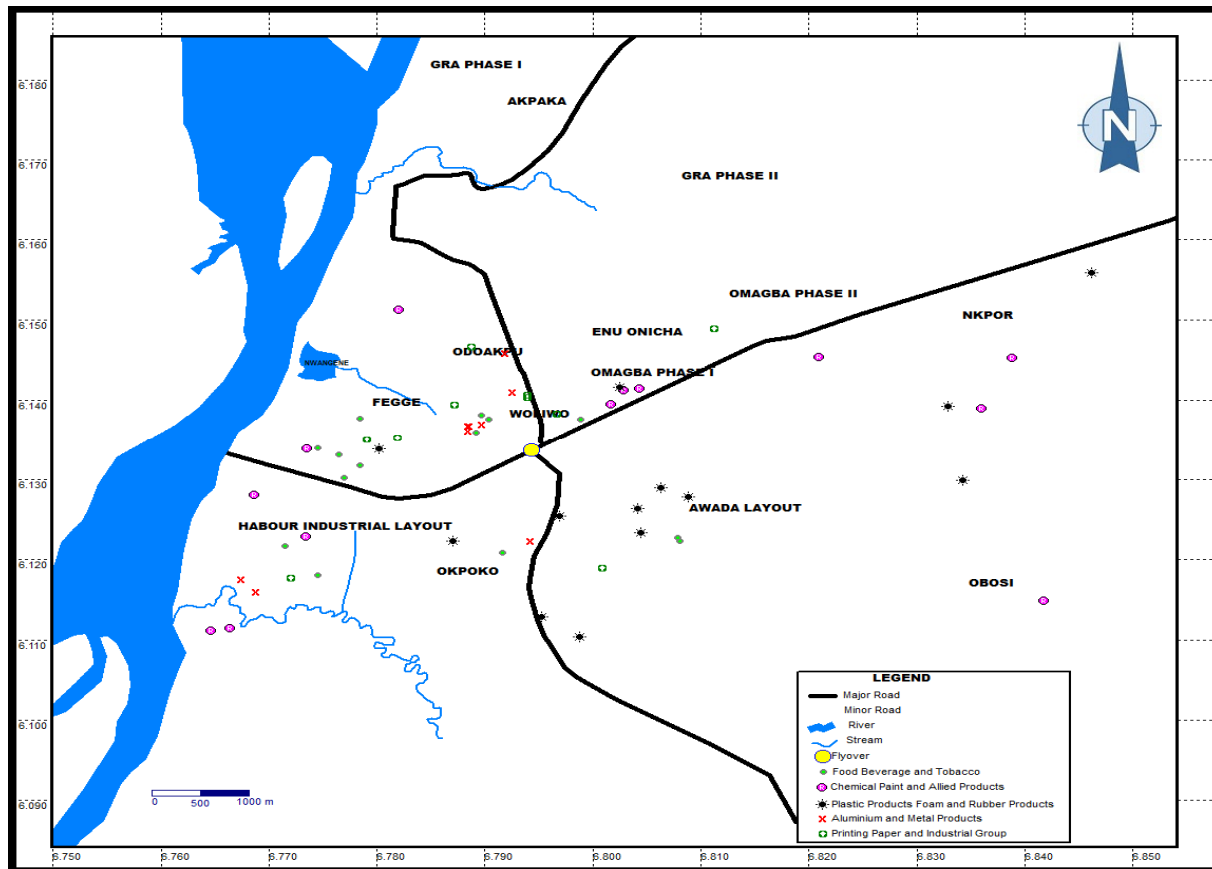
Furthermore the spatial distribution of industries engaged in production subcontracting found in various locations within the study area and how they are distributed across space showed that the pattern of distribution of industries in the study area is relatively clustered. This from our observation allowed for cooperation and networking among the industrial units in the study area in terms of manufacturing, distribution, maintenance services etc which were the forms in which different industries in the study area engage production subcontracting. (see table 8 and figure 3)

Table 8: Nearest neighbour analysis results of industries

Nearest Neighbour Indices	Values
Observed mean distances	0.01m
Expected mean distance	0.02m
Nearest neighbour index	0.34m
Total points	60

Source: Author’s computation, 2014

Figure 3: Spatial location of Industries in Onitsha Metropolis Anambra State Nigeria



Source: Goggle Map Library 2014

The results in tables 7 and figure 3 corroborate our earlier finding on the factors of industrial location where the market factor (40.00%) was observed to weigh the highest influence on the location of industries in the study area. In other words, industries in the study area were located at various points where they could gain technological and managerial know-how through emulation, tacit knowledge transfer and lower transaction costs as trust builds up and/or through the ease of transaction that comes from 'geographical proximity. Similarly industries tend to locate where there will be need for their output (both services and product) and this usually takes place among industries with complementing production characteristics. This was commonly observed among plastic and food industries in the study area. For instance the food industries such as the vegetable oil industries, table water industries and the breweries need plastic containers for the packaging and distribution of their products. The production of these materials were not done by the client industries rather they were sourced/subcontracted to the Plastic industries in the study area thus creating an already made

markets for the plastic industries as well as allowing the client firms to concentrate on their core competencies. The same goes for other industries such as the chemical, paints and plastic industries which outsource their peripheral production activities to each other. It is also important to note that these industries need each other for their markets. This result however supports the new approach to production subcontracting which laid emphasis on networking initiatives and the development of industrial cluster. This approach suggested that on the account of the common problems firms all share, small and medium scale industries are in the best position to help each other. They can do this through horizontal cooperation (they can collectively achieve economies of scale), vertical cooperation (they can specialize in their core activities and develop the external division of labour) and networking among enterprises (Pyke, 1992 and UNCTAD, 1994). This also agrees with the spirit of vertical cooperation as was suggested by Pyke (1992) and UNCTAD (1994) which state that small and medium scale industries can specialize in their core activities and develop the external division of labour thereby making it possible and easy for these industries to be competitive even without having the capacity to be competitive.

SUMMARY AND CONCLUSION

The paper summarized the status quo of production subcontracting in industries in Onitsha Metropolis Nigeria. The findings mainly indicate that the key variables that interact to make subcontracting to emerge and/or become effective in the study area are

1: the pattern of distribution of industries in the study area generally was relatively clustered. This from our investigation have allowed for cooperation and networking among the industrial units in the study area in form of manufacturing, distribution, maintenance services etc leading to the establishment of production subcontracting processes among the industries. This has also allowed the industries to be strong and competitive as they can access state of the art service from their partners without having too many risk burdens to bear. This supported the new approach to production subcontracting which laid emphasis on networking initiatives and the development of industrial cluster.

2: factors such as reducing operational costs, concentrating on core business function, improve quality of service and increasing flexibility within the industry with average mean and standard deviation values of 4.75 (SD = 0.60), 4.12 (SD = 0.83), 4.32(SD = 0.77), and 4.08 (SD = 0.77) respectively had the highest influence on the choice to use production

subcontracting processes in the region. This result showed that the industries have a general acceptance of this process as it has made them stronger and more efficient. This result also differs with the findings of (Abraham and Taylor, 1996; Holmes, 1986; McMillan, 1995 and López, 2007) which sees minimization of costs as the main explanation for subcontracting relationships. As well as the results of Tijun, Sandal, Jiehong and Dandan (2009) which found reducing costs, concentrating on core business accessing professional capabilities and releasing key internal resources as the major factors influencing the use of production subcontracting in East China. The implication of this result is that the findings on this topic cannot not be generalised as different industrial units engage in production subcontracting processes to achieve different results.

3: The factors influencing the selection of production subcontractors by industries as was analysed also showed that high quality of service, high degree of mutual trust with subcontractors, excellent reputation in the industry, location and lower cost with average mean and standard deviation values of 4.18 (SD = 0.87), 4.08 (SD = 0.81), 4.22 (SD = 0.52) 3.68 (SD = 0.78) and 3.72 (SD = 1.04) respectively appears to play major roles in the decisions to select subcontractors by industries with similar culture and management experience playing less significant roles with average mean values of 1.73 (SD = 0.69) and 1.67 (SD = 0.57) respectively. This result however has a slight difference with the existing research by Baily and Meason (2002), which suggest that high service level, low cost of service and high technical services of suppliers (subcontractors) are the most important factors determining the selection of subcontractors in Western society. This also lays credence to our earlier assertion that results from this type of study cannot be generalized as they can differ geographically

Conclusion

Our analyses so far have shown that the outcome of subcontracting strategy in production system is geographical and any economic policies initiated in order to adopt or use this process should be geographically oriented. This in other words means that the processes of production subcontracting should be adopted base on the operational characteristics of the industry as well as the economic landscape of the region. Since the basis of industrialisation in any economy lies with the small and medium scale industries, adequate protections with viable and proactive policies needs to be given to them for their survival in the industrial market. This can be achieved through the establishment polices that will make industries wishing to establish in the region to have subcontracting tendencies as a condition for

entering into the industrial sector. Industries should equally be made to sough for their industrial inputs locally as it will not only make them to seek assistance from their fellow local industries, it will also force them to support this process. This will not only create already made markets for these industries, it will also help them to hedge the risks of production bottlenecks or over-capacity as well as maintain low overheads while achieving high flexibility in both internal and external operations, and hence makes them more resilient to crisis.

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APPENDICES

APPENDIX A1: Population Distribution of the Study Area

APPENDIX A2: Stratified sampling of industries in the Study Area

APPENDIX A3: Production subcontracting industries and their industrial groups

APPENDIX A4: Descriptive statistics of the factors influencing the use of production subcontracting

APPENDIX A5: A rotated PCA of the variables influencing the use of production subcontracting by industries in Onitsha Metropolis

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Figure 1: Map of Anambra State showing the study area

Figure 2: Map of Onitsha Metropolis

Figure 3: Spatial location of Industries in Onitsha Metropolis Anambra State Nigeria