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Subcontracting and Multinational Firms Performance in Nigeria Manufacturing Industry

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Abstract

This study sought to investigate the effect of subcontracting on the Performance of Manufacturing Multinational Firms (MNFs) in Nigeria. The study employed a survey research design, through the administration of structured questionnaire to a sample of 397 management staff of the three selected firms. The validity of the instrument was tested using content validity index (CVI) through the assessment of five academics and five top staff of MNFs service firms and it was rated on a two-point scale (relevant and not relevant) which gave a value of .8819. A pilot study was conducted through test re-test method to ascertain the extent of consistency of the research instrument; the result gave a Cronbach alpha of 0.82 which indicated that the instrument is reliable. The findings revealed that, performance elements (cost reduction, production enhancement, market expansion and risk sharing) have both individual and combine effect on subcontracting, with t-value of 7.02 (0.0000), 9.88 (0.0000), 5.86 and

5.42 (0.0000) respectively. While the F-value of (63.29*0.000), (96.96*0.000), (34.52*0.000) and (29.49*0.000) respectively, suggests that the model is reliable for decision and policymaking. It further indicated that subcontracting has a positive and significant effect on MNFs performance. It is therefore recommended that, MNFs should continuously improve and adopt subcontracting policy towards sustainable performance and the government through the ministry of trade, commerce and industry should encourage both poly and geo centric orientations in subcontracting practices of MNFs.

Keyword: Subcontracting; Firms Performance; Multinational Firms; Social Network Theory; Transactional Cost theory.

Introduction

Recession in Japan led to the origin of subcontracting and this brings about the discovery of solution to the key challenges faced in the manufacturing sector. This was done in order to enhance the development of Japanese economic system before and after the Second World War. Kawasaki (1998) opined that by adopting a collaborative network approach, it was easy to structure the manufacturing challenges with presumed competitive advantage such as: cost reduction, quality assurance, effective risk sharing and compensation for subcontractors. Because of this, smaller firms were advised to engage in subcontracting methods of producing to improve the delivery period and specialization.

The need to mitigate business challenges pose by global competition, production cost, safety of product component, physical assets, information technology (IT), infrastructure risk, technical efficiency and general business risk borne out of economic and non economic environment has induce firms to embrace subcontracting as a diversification approach to enhance performance. Nwokocho, Madu, Ocheje and Olerum (2015) itemize reasons multinational firms (MNFs) opt for subcontracting to include: cost reduction, production and supply flexibility and market expansion, in order to create significance sustainable value. However, subcontracting is a long term risk sharing

and contractual relationship towards commercialized operation or task. Kawasaki (1998) noted that the prime contractor (parent firm) order the subcontractor (mostly smaller firm) with specification and quality to produce or supply component part required for the finished products.

Scholars have explore the effect of subcontracting practices on firms performance (Xayphone and Yoshi, 2010; Lew et al., 2012; Hwang and Han, 2015; Nwokocha et al., 2015) and most of the studies found that subcontracting has a positive and significant effect on firms' performance. However, studies examining the effect of subcontracting on multinational manufacturing firms (MNFs) performance in Nigeria are few and the few studies on the subject matter in Nigeria has not been able to empirically examine how subcontracting has led to cost reduction, market expansion, production enhancement and operational risk reduction. In addressing this research gap, this study empirically investigates the effect of subcontracting on manufacturing MNFs cost reduction, market expansion, production enhancement and operational risk reduction.

Theoretical Framework

There are various theories that aid the exploration of the effect of subcontracting on firms' performance. However, this study adapts social network theory and transactional cost theory.

Social Network Theory

Social networks theory was originally developed by Bourdieu (1985). The emphasis was on firms' ability to access actual or potential resources, such as information via relationship which could be formal or informal. Portes (1998) opined that firm's ability to receive economic benefits and gain access to resources base on collaborations influences interactions, even as they relate with other enterprises.

Coleman (1990) emphasized the role of social networks consisting of different entities (for example, suppliers, buyers, agencies, labor associations, enterprises). It has been argued that the theory could serve as a good training model for improving firms' performance, and could help in product marketing as networking firms could be the first buyers and suppliers (Kim and Sherraden, 2014; Kotler, 2010).

Social network theory postulates that firms exist to enhance performance thus, linking ties formally or informally to enterprises or individuals who share values and belief instrumental to the network.

Kim and Sherraden (2014) identify the nature of social networks and the effect of network size on collaborations; this has significant effect on collaboration in loosely knit networks rather than groups. Social network theory focuses on both intra-organization and inter-organization, in terms of formal and informal relationship. Intra-organizational networks often contain simple levels of analysis, specifically, among subsidiaries or semi-autonomous units. However, multinational level analyses generally trace the outcomes of collaboration with subcontractors, such as economic, production, supply or other forms of subcontracting (Portes, 1998).

Transactional Cost theory

Htay and Salman (2013) assert that transaction theory focus on accomplishing contractual relations, and assist firms to account for the actual cost of subcontracting. He stated that firms evaluate order, organize and regulate contractual practice towards boosting productivity. Coase (1984) opined that the emergence of transactional cost theory could be traced to 1930 with the aim of reducing cost of production and enhance production flexibility, while Williamson (1981) expatiate the structure of transactional cost theory to include: cost of information, search, negotiation, implicit fee, as well as subcontracting and enforcement as a result of contractual conflict

Literature review

Conceptual Review

Subcontracting

The increasing awareness on relational contractual agreement (subcontracting) has been a driving force towards market expansion, production enhancement and operational risk reduction as observed in developed and emerging economies (Bechetti and Rossi, 2000; Sonobi and Otsuke, 2006). This has spine various industrial cluster which extended the network of subcontracting towards urbanization and industrialization. Multinational firms in the manufacturing sector in Nigeria rarely share information about their subcontractor; this does not promote their competence, capacity and specialization thus, significantly influencing their sustainable performance.

However, the evolution of subcontracting in Nigeria date back to pre and post colonial era when home grown labor were contracted and

mechanized to towards accomplishing key project. This was later invigorated with the establishment of local content act in 2010, the threshold for utilization of indigenous human and material resources which encourage most local and multinational enterprises to engage more of indigenous subcontractors in their activities. Some scholars (Taymaz and Kilicaslan, 2002; Tilman, 2004; Ceglie and Dini, 1999; Rama and Calatrava, 2002) noted two approaches to subcontracting, namely: the traditional and the modern approaches. These approaches view subcontracting, in terms of asymmetric contractual relationships and a network of inter-firm collaboration among interdependent firms forming a business ecosystem between the large firms and the small firms. This approaches, looks at a group of firms collaborating (and competing) within a complex web of supportive institutions. However, subcontracting could also be view from local and global perspective.

Firms Performance

This is very important to businesses, as it determine the corporate existence of such firms. Firm performance measure can be broadly viewed from two perspectives: financial and non-financial performance measures. The financial measures include: revenue, profitability, return on asset, return on equity, cost reduction, among others, while the non-financial measures include: market share, employees satisfaction, efficiency, effectiveness, operational risk reduction, market expansion, production enhancement, among others. This study employed a combination of financial and non-financial measures, particularly, cost reduction, market expansion, production enhancement and operational risk reduction.

Tuan (2016) opines that subcontracting opportunities reduce cost of transaction; this has a multiplier effect on firms' efficiency via production enhancement, market expansion and operational risk reduction. However, relational contract agreement between manufacturers and premium subcontractors has to be shield against the risk to avoid demand shock. In that situation the premium subcontractors suffer from market instability more than the ordinary subcontractor (Nakabayash, 2016). Moreover, the nature of business environment has a significant and positive effect on the activities of subcontractors, mostly in capital-intensive environment as compared to the labor intensive environment. Capital-intensive environment are characterized by availability of superior technology.

Multinational Firms (MNFs)

Benefits of economies of scale, location and synergies' are key factors of the internalization of business leading to multinational firms' growth (Petroni, 2000). MNFs entails transaction carried out across two or more countries towards maximizing the vision and mission of stakeholders. Firms respond to global competition coupled with local and global market despite influence from various external and internal variations by an approach. Though, MNFs history is quite old as the era of colonialism where firms were shaped to facilitate colonial exploitation, exploration and international trade. In the 21st century, MNFs are characterized by export and import of goods and services, investment in foreign countries via local manufacturing or assembly operations.

MNFs confront numerous forces, which influence their performance. However, the concept of transaction across national borders is facilitated by the firm entry mode which is a function of strategies, for example: export, licensing, subcontracting, franchise, joint venture, mergers or acquisition, management or turnkey contracts, strategic alliance or foreign direct investment (FDI).

Some MNFs in Nigeria are: Cadbury Nigeria PLC, Nestle Nigeria PLC, Unilever Nigeria PLC, PZ Cussons Nigeria PLC, Dangote Group, MTN, Airtel, United Bank for Africa PLC, First Bank Nigeria PLC, among several others. MNFs boost host countries skill, revenue, employment generation, technological development and contribution to inventions and novelty.

Empirical Review

Costantino, Pietroforte and Hamill (2001) studied subcontracting through commercial and residential construction, using survey method. The result shows that operational risk of prime subcontractor are reduced, which significantly boost productivity. Though, transactional cost of the firm activities responds to availability and efficient utilization of resources towards enhancing performance. Kongmanila (2009) explore Inter-Firm cooperation and firm performance in Lao Garment Industry of Japan using both factor analysis and multiple regression analysis on data obtained from field survey. Findings show that collaboration with subcontractors, business associations and distant buyers significantly influence firm performance. It also reveals that collaboration among garment firms and distant suppliers seems to be

less significant. Though, it is very important for firms to continue to evaluate and review their subcontracting policy with suppliers to further enhance performance. However, the study fails to reveal the number of sampled population.

Lee and Kwok (2010) examined the impact of subcontracting on capital structure, using multivariate analysis. The result shows a significant level of correlation between the two construct. Nwokocha et al. (2015) investigated subcontracting constraints on firm performance using questionnaire (survey method); the result shows that the identified constraints forces firms to frequently change their subcontractors. The study recommends investment in machinery and tools among subcontractor towards increasing collaboration among firms.

Takahashi and Nham (2016) investigate the correlation between subcontracting determinants and performance of MNFs firms in Vietnam, base on theoretical approach and empirical studies. Through multiple regression analysis, finding shows that the more firms subcontract, the more effective they become. However, the study is not robust enough; it only focuses on traditional approaches alone. In addition, results seems to vary by country and sectors.

YunLi, Xin and Zhao (2017) explore market structure and performance of the Chinese multinational firms in the solar cell sector via survey method. Findings show that MNFs that patronize subcontractors with higher level of production enhancement technology and superior management capacity earn higher profits. Though, market concentration and operational efficiency are not significantly related to MNFs performance. Moreover, the nature of business environment was itemized as a major factor in determining the condition for evaluating and selecting prime subcontractor.

Methodology

The study employed survey research design, through the use of seven point Likert scale structured questionnaire. The population of the study includes all the permanent staff of PZ Cussons Nigeria PLC, Unilever Nigeria PLC and Nestle Nigeria PLC. The reason for choosing these selected MNFs is because they are among the top ten manufacturing MNFs in Nigeria.

Taro Yamane sample size determination formula was adopted to arrive at a sample size of three hundred and ninety seven (397). In deciding on the element of observation, purposive sampling technique

was employed to select 397 management staff at the head offices of the three selected firms. The reason for sourcing information from management staff is because they tend to have more strategic information about the firms than their junior staff counterpart.

The validity of the instrument was tested using content validity index (CVI), through the assessment of five academics and five top staff of MNFs. The assessors rated the instrument on a two-point scale (relevant and not relevant) which gave a value of 0.8819, which indicated that the instrument was highly valid. A pilot study was conducted through test re-test method to ascertain the extent of reliability of the instrument, the questionnaire was administered twice within an interval of fourteen days, the result of the first and second test was correlated, which gave a Cronbach alpha of 0.82, which indicated that the instrument is reliable.

Research Hypotheses

Ho₁: Subcontracting does not significantly affect the cost reduction ability of manufacturing MNFs in Nigeria.

Ho₂: Subcontracting does not significantly affect the production enhancement ability of manufacturing MNFs in Nigeria.

Ho₃: Subcontracting does not significantly affect the market expansion of manufacturing MNFs in Nigeria.

Ho₄: Subcontracting does not significantly affect the risk sharing of manufacturing MNFs in Nigeria.

Model Specification

The model specification for hypothesis one is stated below:

$$CR = f(SUBC) \text{-----} (i)$$

$$CR = \beta_0 + \beta_1 SUBC_i + \mu_i \text{-----} (ii)$$

Where:

CR represents Cost Reduction

β_0 is the constant term

β_1 is the coefficient of the estimator.

$\beta_1 > 0$

SUBC is subcontracting.

μ_i is the error term

The apriori expectation is that subcontracting is expected to affect the cost reduction ability of manufacturing MNFs in Nigeria; hence, the parameter of subcontracting should have a positive sign.

The model specification for hypothesis two is stated below:

$$PR = f(SUBC) \text{-----} (i)$$

$$PR = \beta_0 + \beta_1 SUBC_i + \mu_i \text{-----} (ii)$$

Where:

- PR represents Production Enhancement
- β_0 is the constant term
- β_1 is the coefficient of the estimator.
- $\beta_1 > 0$
- SUBC is subcontracting.
- μ_i is the error term

The apriori expectation is that subcontracting is expected to affect the production enhancement ability of manufacturing MNFs in Nigeria; hence, the parameter of subcontracting should have a positive sign.

The model specification for hypothesis three is stated below:

$$ME = f(SUBC) \text{-----} (i)$$

$$ME = \beta_0 + \beta_1 SUBC_i + \mu_i \text{-----} (ii)$$

Where:

- ME represents Market Expansion
- β_0 is the constant term
- β_1 is the coefficient of the estimator.
- $\beta_1 > 0$
- SUBC is subcontracting.
- μ_i is the error term

The apriori expectation is that subcontracting is expected to affect the market expansion of manufacturing MNFs in Nigeria; hence, the parameter of subcontracting should have a positive sign.

The model specification for hypothesis four is stated below:

$$RS = f(SUBC) \text{-----} (i)$$

$$RS = \beta_0 + \beta_1 SUBC_i + \mu_i \text{-----} (ii)$$

Where:

RS represents Risk Sharing

β_0 is the constant term

β_1 is the coefficient of the estimator.

$\beta_1 > 0$

SUBC is Subcontracting.

μ_i is the error term

The apriori expectation is that subcontracting is expected to affect the risk sharing ability of manufacturing MNFs in Nigeria; hence, the parameter of subcontracting should have a positive sign.

Three hundred and ninety seven (397) copies of questionnaires were administered to the targeted respondents. Two hundred and eighty six (286) copies were returned and found useable. The data analysis was guided by the objectives and hypotheses of the study as well as the instrument employed for data collection. STATA 14 software was employed for the analysis; this was obtained by using ordinary least square to estimate the regression model.

Results

It is evident from Table no. 1 that subcontracting, positively and significantly affect the cost reduction of manufacturing MNFs in Nigeria (coefficient = 0.4416845, $t = 7.02$, $p\text{-value} = 0.0000$). Therefore, an increase in subcontracting activities will lead to cost reduction for manufacturing MNFs in Nigeria. The coefficient of determination (R^2) suggested that 27.6% variation in cost reduction of manufacturing MNFs in Nigeria is accounted for by subcontracting, while the F-statistics ($63.29 * 0.000$) suggests that the model is reliable for decision and policymaking.

Table no. 1. Dependent Variable - Cost Reduction

Variable(s)	Coefficient	T-statistics	P-Value
C	9.67968	7.23	0.0000
Subcontracting	0.4416845	7.02	0.0000
F-Statistics 63.29 (0.0000)		R-Square- 0.2761	

Source: Author's computation from STATA 14

Table no. 2 revealed that subcontracting positively and significantly affect the production enhancement of manufacturing MNFs in Nigeria (coefficient = 0.6132685, $t = 9.88$, $p\text{-value} = 0.0000$). Therefore, an increase in subcontracting activities will lead to an enhancement in production for manufacturing MNFs in Nigeria. The coefficient of determination (R^2) suggested that 36.9% variation in production enhancement of manufacturing MNFs in Nigeria is accounted for by subcontracting, while the F-statistics ($96.96*0.000$) suggests that the model is reliable for decision and policy making.

Table no. 2. Dependent Variable - Production Enhancement

Variable(s)	Coefficient	T-statistics	P-Value
C	7.485324	5.84	0.0000
Subcontracting	0.6132685	9.88	0.0000
F-Statistics = 96.96 (0.0000)		R-Square =0.3695	

Source: Author's computation from STATA 14

It is evident from Table no. 3 that subcontracting, positively and significantly affects the market expansion of manufacturing MNFs in Nigeria (coefficient = 0.4656374, $t = 5.86$, $p\text{-value} = 0.0000$). Therefore, an increase in subcontracting activities will lead to an expansion in the market of manufacturing MNFs in Nigeria. The coefficient of determination (R^2) suggested that 17.4% variation in market expansion of manufacturing MNFs in Nigeria is accounted for by subcontracting, while the F-statistics ($34.52*0.000$) suggests that the model is reliable for decision and policy making.

Table no. 3. Dependent Variable - Market Expansion

Variable(s)	Coefficient	T-statistics	P-Value
C	11.04978	6.87	0.0000
Subcontracting	0.4656374	5.86	0.0000
F-Statistics = 34.52 (0.0000)		R-Square =0.1741	

Source: Author's computation from STATA 14

Table no. 4 revealed that subcontracting, positively and significantly affect the risk reduction of manufacturing MNFs in Nigeria (coefficient = 0.3159982, $t = 5.42$, $p\text{-value} = 0.0000$). Therefore, an

increase in subcontracting activities will lead to an enhancement in risk sharing for manufacturing MNFs in Nigeria. The coefficient of determination (R^2) suggested that 15.1% variation in risk sharing of manufacturing MNFs in Nigeria is accounted for by subcontracting, while the F-statistics ($29.49*0.000$) suggests that the model is reliable for decision and policy making.

Table no. 4. Dependent Variable - Risk Sharing

Variable(s)	Coefficient	T-statistics	P-Value
C	14.39098	12.82	0.0000
Subcontracting	0.3159982	5.42	0.0000
F-Statistics = 29.49 (0.0000)		R-Square =0.1516	

Source: Author's computation from STATA 14

Conclusion and Recommendations

The study explores the effect of subcontracting on MNFs performance via survey research design method. Findings indicated that performance elements (cost reduction, production enhancement, market expansion and risk sharing) have both individual and combined effect on subcontracting, with t-value of 7.02 (0.0000), 9.88 (0.0000), 5.86 and 5.42 (0.0000) respectively. The F-value of ($63.29*0.000$), ($96.96*0.000$), ($34.52*0.000$) and ($29.49*0.000$) respectively, suggests that the model is reliable for decision and policymaking. It further indicated that subcontracting has a positive and significant effect on MNFs performance. The adjusted coefficient of determination (R^2) revealed a 37% variation in production enhancement. These align with the findings of YunLi, et al., 2017; Nwokocha, et al., 2015; Takahashi and Nham, 2016, that subcontracting has a positive and significant effect on manufacturing MNFs performance. It is therefore recommended that, MNFs should continuously improve and adopt subcontracting policy towards sustainable performance. Also, the government, through the ministry of trade, commerce and industry should encourage both poly and geo centric orientation in subcontracting practices of MNFs.

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