NATURE AND DETERMINANTS OF SMALL AND MEDIUM SCALE ENTERPRISES LOCATION FACTORS IN ENUGU STATE, NIGERIA

***Ijeoma .G. Nwosu[1], Ignatius. A. Madu[1], and Victor Chinweike Nwokocha[1]**

[1] Department of Geography, Faculty of Social Science,
University of Nigeria, Nsukka, Enugu State Nigeria,
* Corresponding author's Email: ijeoma.ikejiofor@unn.edu.ng; Ignatius.madu@unn.edu.ng, victor.nwokocha@unn.ed.ng.

ABSTRACT

This study is aimed at assessing location factors of Small and Medium Scale industries in Enugu State. To achieve the aim of this study data were collected from field observations, questionnaire and documentary material. Data were collected on nature of SME location factors and determinants of SME location. Data were analysed using percentages and Principal Component Analysis (PCA). Results show that the 15 variables of factors of SME location were compressed to five important factors using PCA. The five factors are availability of economic factors such as market, raw material, labour, influence of infrastructure especially transportation route, family ties, agglomeration effect and Government policies. The five variables, explained 74.12% of the total variance leaving 25.88% of total variance unexplained at significant loadings exceeding +/_ 0.06. This means that before any entrepreneur sets up SMEs in Enugu state, the person must consider the availability of these variables. Also it shows that the five variables will affect the behavior of SME owner in their choice of location. Appropriate recommendation based on our findings includes provision of infrastructure especially roads and Small and medium scale industrial park, estate or clusters with up to date infrastructure.

Keywords, Enugu State, Infrastructure, Location determinants, Raw materials, Small and Medium scale industries,

1. INTRODUCTION

The location of any industry especially SMEs, is determined to a great extent by different location factors. The location factors include labour, management, industrial linkages, industrial agglomeration/economics of scale, market, transport cost, raw material availability, energy, capital and government policies in an area. The location variables might collectively (labour, market and raw material) or individually (either labour or transport) determine the location of an industry. The determinants of either one or more of the variable in affecting SMEs location depends on the goals, sector, strategy, environment and nature of business(Al-Salammi and Albaqshi, 2015). For instance, if the nature and goal of a particular SME involves raw material processing, adequate location will entail location in proximity to sources of raw material being processed to reduce production cost. Thus owner-mangers of SMEs engage in the process of careful selection of their location in order to maximize business performance (Selfiani, Davies and Bown, 2016). Location

determinants and business performance is important because If SMEs locate in a hostile and unfavourable environment, business will be affected leading to early exit and closure of the SME.

Hence, identifying the adequate determinants of SMEs location will affect performance and growth of such firms. Unfortunately, most SMEs lacks knowledge of viable location and right mixture of location factors that will position the SMEs for profit maximization and transaction cost minimization. The unviable locations have been described as a significant factor in the poor performance of SMEs in the country. Sanni (2009) asserted that these failures, have resulted to inappropriate setting up of SMEs and improper utilization of linkage opportunities available at their disposal to reduce production cost and maximize profits. Apart from maximizing profits, identifying the factors influencing SME location is significant because the knowledge may be used for directing future industrial activity to desired locations (Ramaul and Ramaul, 2016).

In recognition of the significance of SMEs in industrial and economic development (Nwosu, Onoyima, Madu and Nwokocha,2019), recent years have witnessed a growth in research on SMEs in Nigeria in general and Enugu State in particular. These studies have almost always focused mainly on characteristics of SMEs (poor education background, firm size, and inadequate technical skills), problems of SMEs (poor infrastructure, epileptic poor supply, poor access to capital) and policy formulation (Okolo, 2005; Amobi, 2006; Ugwu, 2009). Our literature search showed that there is a palpable neglect on issues of location factors of SMEs in Enugu State. The identified problems as revealed by previous research, in hindering the performance and development of SMEs affect SMEs negatively but in addition there is need to address the locational factors that favour the location of SMEs in the state. Also, the few available studies on location factors in Enugu State are studies by Ogbu (2011) which focused mainly on location factors of large scale manufacturing industries in Enugu State.

Moreover, the need to study SMEs in the State arises because manufacturing activites experience different localized problems. This means that the study on large industries which dominate the focus of Industrial Geography research globally and Enugu State in particular, have a different localized problem from SMEs.Unfortunately, the localized problem of SMEs have not been adequately analyzed in the State.Hence the objectives of this study is 1.to examine the nature of SMEs location factors. 2. To analyse the determinants of SMEs location factors in Enugu State. Consequently, an understanding of the way location influences business is critical for the SME business managers. Thus, there is need for urgent empirical analysis of location factors of SMEs in Enugu State.

2. LITERATURE REVIEW

Location Factors of SMEs

Location of SMEs plays a crucial role in determining their Survival in any location whether in developing or developed economy (Banwo, Du and Onokala, 2017). Good location for SMEs will aid in promoting the firms and making them more successful. Hence selecting the appropriate plant location is among the most important decisions a company especially SMEs will ever make. Van Noort and Rejiner (1999) categorized the factors of SME location into push, pull

and keep factors. Push factors are factors which contribute towards a business decision to move from a location. The push factors are lack of space, quality location. Pull factors on the contrary are the attractive forces of SMEs to a particular location and they include sufficient space for expansion, strategically good position and good accessibility of a place. The keep factors on the other hand are the factors that prevent SMEs from moving away from a location. Studies on location of SMEs as with large firm have been researched either by approaching individual or several factors or by studying a particular industry or by researching the location where it is developed (urban or rural location). On studies concerning several factors, Ali, Ahmad and Ali (2011) found that in Malaysia, variables that determine SMES location are international competitiveness, water supply and rates, transportation cost, cargo cost, fuel supply and rates, industrial land availability, market, consumer related matter, environmental quality and law. They further stated that of all the eleven variables, affordable land and affordable energy appears to be the most important factors. Another study by Mbugua(2011) showed that in motor spare business in Kenya, that proximity to market, competition, infrastructure and operating cost were relative importance for location. Kimelberg and Nicoli (2011) studied business location decision of Medical Devices Industry in Massachusetts using descriptive statistics. Result show that availability of an appropriate labour force in the region, availability of on-site parking, the timeliness of approval and appeals, the crime rate in the local area and tax/financial incentives were top five most important factors that determine the location of medical Device Industry. Rajkumar (2013) used Structural equation model to study the location decision of Information technology Firms in India. The outcome of the study revealed that out of seven factors of manpower, technology, social, hedonistic, industrial site, economic and government factors, 3 factors of technological factors, man power and social factors have impact on the selection of location site for Information Technology. Furthermore, Song and Liu (2013) examined the provincial development of SMEs in China using Arc GIS, result indicates that SME location hinges on several factors such as provincial economic strength, innovation, informatization, policy, labour, resources and transportation. On one factor bases, Martymuk et al (2017) found personal factors such as the characteristics of the management as the issue of location revolves around the manager or owners of SMEs. In addition he stated that cost such as low price of land, rent and labour or high demand thus in Poland where the study was carried out, SMEs favours Suburb locations. Suburb location will be preferable to reduce cost and make more profit. Curran, Lynn and O Gormay (2015) examined the role of personal factor in the location decision of Software service start up. Result from the study showed that the SME location of IT firms is affected by personal motivation of entrepreneurs to attain a desired quality of life which outweighs economic factors. Mazzarol and Choo (2003) found that personal issues in particular proximity of the industrial site to their home rather than access to transport routes or freight terminals. Hence we conclude that personal factor such as proximity to place of origin or residence; characteristics of the entrepreneur are a strong force in the entreprenuer's decision to locate an SME.

3. METHODOLOGY

The data for the study were sourced from both primary and secondary sources. The primary data was collected through structured questionnaire. Using this instrument, data was collected on the nature and determinants of SMEs. Data obtained from census of SMEs as published by Enugu State Ministry of Industries (2002) revealed that the state have a total of 1,648 registered SMEs. We further sampled 11% of

the total number which is 187 SMES. Thus 187 SMEs constitute our sample population and the questionnaire was distributed randomly to them.

The variables considered prior to location of a firm and which characterize existing pattern of industrial/firm locations are multiple in nature. These variables are therefore reduced in order to clear any ambiguity that will arise in variable explanation and management. These variables are reduced using the Principal Component Analysis (PCA) technique.. The significant loadings are considered from the threshold value of +/- 0.60.

THEORITICAL FRAME WORK

ALFRED WEBER LEAST- COST THEORY

The classical model of industrial location theory, the least cost theory is based on the work of Alfred Weber (1868-1958) and sometimes called *Weberian analysis* published in the year 1909(Kozah, 2013). It explains the optimum location of manufacturing establishments based on minimizing three basic expenses: relative transports costs, labour costs and agglomeration costs. Weber concluded that transport costs are the major consideration determining location. That is, the optimum location will be found where the costs of transporting raw materials to the factory and finished goods to the market are at their lowest. He noted however, if variations in labour or agglomeration costs are sufficiently great, a location determined solely on the basis of transportation costs may not in fact be the optimum one. In Weber's simplified world three factors influence industrial location. These are two general regional factors of transport and labour cost, and the local factor of agglomerative or deglomerative forces. Even though this model was developed to study large firms, we applied the Weber theory in our study area to examine if this classical theory can help us understand better the location of SMEs in Enugu State this 21st Century.

4. RESULTS AND DISCUSSIONS

Table 1 indicates that 90% of SMEs in Enugu State uses semi processed material for production meaning that majority of SMEs uses intermediate goods for production. The finding implies that point of deposit of raw material do not affect the location of SMEs in Enugu State. The finding are in agreement with the contemporary view of industrial location which emphasized the growing weakness of raw material sources as site for industrial location (Wolf, 2003; Picard and Dao-zhi zang, 2006; Bardi, 2007 and Ubogu, Laah, Udemezue and Bako, 2011). On the other hand, the finding is contrary to Weber theory which emphasis on raw material source as significant site for industrial location.

(Insert Table 1 here)

Result on market show that market area of SMEs in Enugu State in confined to the shores of Nigeria the import is that the internalization of SMEs is implausible. As regards types of goods, 65.8% of SMEs in Enugu state produce consumer goods as against 15.7 % that produce industrial goods. This implies the multiplier effect of SMEs in Enugu State is low because any industries that produce industrial goods will create dozens of industries that will depend on their products.

The mode of transportation as revealed by the study show that 99.9% of SMEs use road as a means of transportation. Roads are used as the rail and air transportation are not working efficiently at the moment. The availability of roads also affects the pattern of SME location as majority is clustered along major roads for access to customers. For labour, apprentice type of labour is mostly used by SMEs owners. Result also shows that capital is sourced from family member while the least sources are money lenders. The result shows the influence of the extended family system in the study area. Energy sources show that most SMEs produce their own energy by using generating set, this leads to high cost of production and subsequent high cost of product.

The outcome PCA result shown in Table 2 produced 5 components out of the 15 variables that together explained 74.12% of the total variance leaving 25.88% of the total variance unexplained.

(Insert Table 2 here)

Component 1 has significant loadings on four variables namely X1-availabilty of raw material, X2- Access to market, X3- Access to transport, X4- Availability of capital. Component 1 has an Eigen value of 3.446 and explained 22.971% of the total variance. Component 1 highlights the availability of economic factors of industrial location such as raw material, capital, market and transportation as significant to decision of SME operators to locate their firm in an area. Furthermore it explains the economic rationality and profit maximization nature of SME operators in Enugu State in their decision to locate their firm The underlying dimension identified by component 1 is "availability of economic variables cost" as a factor of SME distribution and location in Enugu State.

Component II has significant loadings on three variables namely; X10 -Availability of power, X11- presence of local amenities, X15- Availability of communication facilities. This component has an Eigen value of 3.198 and explains 21.317% of the total variance in the data input. This component explains the effect of infrastructural facilities and social amenities such as power, roads, educational facilities, pipe borne water and commercial facilities on the location of SME. This further describes the reason for the observed pattern of SME close to market, residential areas and central business districts where these facilities are readily available and easily accessible. The underlying dimension as represented by these variables is "influence of infrastructure" as a factor of SME location and distribution.

Component III with an Eigen value of 1.991 explains 13.375% of the total variation in the data input. It has significant loadings on three variables. These variables are X8 closeness to home, X13- family support, and X14 – birth place of the entrepreneur. The component highlights the influence of family support, place of origin and close proximity to home of SME operators as influential to SME location. In addition, it explains the impact of the extended family system practiced in Enugu State as contributing to location of SME. The underlying dimension is "influence of family ties" as a factor of SME location and distribution in Enugu State.

Component IV has significant loadings on two variables X5- potential for linkage, X7- location of other firms in the area. The component has an Eigen value of 1.275 and explains 8.50% of the total variance of the PCA. This component signifies the attraction of SME to a place as a result of gains it will obtain from other SMEs or large industries already in existence in the considered locality through linkages and externalities of scale which are advantages of firms in agglomeration. The underlying dimension is "agglomeration economies effect" as factor of SME location in Enugu State

Finally, component V has an Eigen value of 1.209 and explains a total variance 8.059% of the PCA. It loads significantly on one variable namely X6- Government incentives. This component highlights the influence of Government policy as a factor of SME location. The underlying dimension is therefore "Government policy" as a factor of SME location and distribution.

5. CONCLUSION AND RECOMMENDATION

PCA performed on 15 variables of SME location compressed the variables and reduced them to 5 components which SME operators consider before locating their SMIs namely accessibility and availability of economic variables (raw material, market, transport and capital), influence of infrastructure and social amenities, family ties, agglomeration economies effects . These factors together explained 74.12% of the total variance leaving 25.88% of the total variance unexplained. Our finding indicates that SME operators consider the availability of infrastructure such as roads, electricity in choosing where to site their SMEs. Thus most of them were seen located within the urban areas of the state to have access to the infrastructures present with the major urban areas of the state. We therefore suggest the construction of an industrial estate or park that will be occupied solely by SMEs. The SME park should be well equipped with good infrastructure such as good roads, pipe borne water, electricity, well-structured industrial buildings, banks, research institutions and liaison offices for world financial institutions such as International Monetary Fund (IMF), United Nations Industrial Development Organization (UNIDO) and Offices of SMEDAN and SMIES. This will help organize the proper location of SME and to decongest their sporadic location along transportation routes. Location of the offices of these world financial institutions will aid in proper monitoring and proper funding of the activities of these SMEs for their development and growth.

6. REFERENCE

Ali, H., Ahmad, S., & Ali, N. (2011). Factors determining the location of small and medium enterprises in a developing economy. *World Applied Sciences Journal*, *13*(13), 99-103.

Al-Salamin, H., & Al-Baqshi, J. (2015). Micro-Factors Influencing Site Selection for Small and Medium Enterprises (SMEs) in Saudi Arabia: Alhassa Area Using Analytical Hierarchy Process (AHP) Analysis. *European Scientific Journal, ESJ*, *11*, 28.

Amobi, I.C. (2006) "Unleashing Industrial Clusters for growth and property in south Eastern Nigeria". *Proceedings from the Enugu forum* Seminar paper 6.

Banwo, A. O., Du, J., & Onokala, U. (2017). The determinants of location specific choice: small and medium-sized enterprises in developing countries. *Journal of Global Entrepreneurship Research*, *7*(1), 16.

Bardi, M,A (2007). Dimensions of Industrial Location Factors: Review and Exploration.*Journal of Business and public Affairs,* 1(2), 1-26.

Curran, D., Lynn, T., & O'Gorman, C. *(2016). The role of personal factors in the loca*tion decision of software services start-up firms. *European Planning Studies*, *24*(3), 551-567.

Kimelberg, M.S., & Nicoli, L.A (2011). Business Location Decisions in the Medical Device Industry: Evidence from Massachusetts . *Economic Development Quarterly* XX(X), 1-16.

Kozah, E (2013). Elements of Economic Geography in Perspectives of Geography 2nd Edition Eno, J.E, Yakbu, S and Jamu, G ed Ahmadu Bello University Press Limited, Zaria, Kaduna Nig, pp151-165.

Martyniuk-Peczek, J., Martyniuk,O., Gierusz, A and Peczeck, G (2017). Determinants of SME location in a sub urban area: Evidence from the Gdansk-Gdynia-Sopot Metropolitan Area. *Urbani Izziv* 28, 122-134.

Mazzarol, T., & Choo, S. (2003). A study of the factors influencing the operating location decisions of small firms. *Property management*, *21*(2), 190-208.

Mbugua, J.N (2011). Factors influencing Business Choice by Small and Medium Sized enterprises in Motor Spare business along Kirinyaga road in Nairobi, Unpublished research project School of Business, University of Nairobi.

Nwosu, I. I., Onoyima, R. O., Madu, I. A., & Nwokocha, V. C.(2019). The socioeconomic effects of small-scale women businesses in broom production and marketing industry: A panacea for sustainable development.*Journal of Enterprising Communities: People and Places in the Global Economy*, 13(3), 283-295.

Ogbu, S.O. (2011). Identification and Approximate Clustering of Factors in the location of Industries in Enugu State-Nigeria. *Nigeria journal of Geography and the Environment*, 1(1), 422-434.

Okolo, R.O. (2005). SME's a tool to eradicating Poverty and existing Policies, supporting MSME's in Nigeria in general and Enugu State in particular. *A paper presented during MSME' s cluster forumExhibition*. Enugu, Nigeria.

Picard, P.M and Dao-zhi, .Z. (2006): "Industrial Location: A synthesis of Chamberlin and Ricardo, CORE, Universite Catholique de Louvian, Belgium.

Rajkumar, P (2013). A study of the factors influencing the location selection decisions of Information Technology Firms. *Asian Academy of Management Journal*, 18(1), 35-54.

Ramaul, N. K., & Ramaul, P. (2016). Determinants of industrial location choice in India: a polychoric principal component analysis approach. *Journal of Quantitative Economics*, *14*(1), 29-56.

Sanni, O.O. (2009). *Small Scale Industry: Problems of establish small Business Enterprise in Nigeria case study: Alahteef Nigeria Limited*. Unpublished B.Sc. Project University of Applied Science

Sefiani, Y., Davies, B., & Bown,R (2016). The Perceptual effects of location on the performance of Small Business MPRA paper No. 74768 accessed from https://mpra.ub:uni-muenchen.de/74768/ .date. 11/26/2019; 3:40 PM.

Song, Z &Liu, W (2013). Spatial distribution of Small and medium sized enterprises (SMEs) and its determinants in China. *Geographical Research* 32(12), 2233-2243.

Ubogu, A.E., Laah, J.G., Udemezue, C.E & Bako, A.R (2011). Determinants of the Locational Decisions of informal sector Entrepreneurs in Urban Zaria. *Journal of Geography and Geology,* 3 (1).

Ugwu, D.S. (2009). Baseline study of small and Medium Scale poultry production in Enugu and Lagos States of Nigeria. *World journal of Agricultural sciences,* 5(1), 27-33.

Van Noort, E.A and Reijiner, I.J.T (1999). Strategic study location choice of SMEs the most Important determinants EIM Small Business Research and Consultancy Zoetermeer, Netherlands ISBN 90-371-0714-1.

Wolf, .N. (2003): "Endowment, Market Potential and Industrial Location: Evidence from interwar Poland (1918-1939): London School of Economics, UK.

7. Appendix of Results Tables

Table 1: Nature of SME Location Factors in Enugu state.

	Factors	Description	Frequency	Percentage
1	Raw material Nature	Semi Processed	168	90
		Natural	19	10
2	Market Area	Local	174	93
		Foreign	13	12
3	Market Type	Consumer	153	65.8
		Industrial	34	15.7
4	Transportation Type	Road	185	99.9
		Rail	01	0.5
		Water	01	0.5
6	Labour Type	Apprentice	109	58.3
		Paid Worker	78	41.7
7	Capital Sources	Family	78	41.7
		Bank	24	12.8
		Co- operative Society	4	2.2
		Money lenders	3	1.6
		Individual Friends	35	18.7
		Personal Savings	43	23

8	Energy Sources	Power Holding(PHCN)	53	28.3
		Private Generator	101	54.0
		Wood	33	17.6

Source: Author's Compilation, 2019

Table 2: A Rotated PCA of the Location Determinants of SMEs in Enugu State

Components						
	Variables	I	II	III	IV	V
X1	Availability of raw material	.830*	-.180	-.319	.119	.018
X2	Access to market	.911*	.044	.060	.031	-.072
X3	Access to transport	.803*	-.245	-.304	.125	-.075
X4	Availability of capital	.892*	.004	.132	.029	-.072
X5	Potential for linkages	.084	.052	-.014	.777*	-.051
X6	Government incentives	.122	-.232	.270	-.083	-.768*
X7	Location of other firms	.033	-.056	.086	.700*	.083
X8	Closeness to home	.117	.275	.607*	.304	-.241
X9	Cost of living	.035	-.561	.272	.032	.558
X10	Availability of power	-.078	.946*	.132	-.008	.044
X11	Presence of social amenities such as school, housing, water supply	-.078	-.946*	.132	-.008	.044
X12	Personal likeness of the area	.493	-.283	.251	-.174	.467
X13	Family support	-.013	.056	.717*	-.066	.030
X14	Birth place	.400	-.283	-.704*	-.119	.000
X15	Availability of communication facilities	-.184	.836*	.381	.044	-.022
	Eigen value	3.446	3.198	1.991	1.275	1.209
	Percentage of explained variance	22.971	21.317	13.375	8.501	8.059
	Cumulative % of explained variance	22.971	44.288	57.563	66.065	74.124

NB '*' Significant loadings exceeding +/- 0.06