The Contributions of Market Facilities in Industrial Location at the 9th Mile Area of Enugu State, Nigeria

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***Abstract*: This study on importance of market in the location of industries determined the relative contribution of market facilities in the locations of industrial plants at the 9th Mile area of Enugu State, Nigeria. Survey research design was involved and field data were obtained using the methods of questionnaire, guided interview, documentary materials, and field observations. The statistical techniques used in the analyses of the field data were; Percentage contributions and graphs (pie, and bar graphs), the weights of raw material inputs per month/year were compared with the weights of the products per month/year using Weber's Material Index (M.I.) method, standardised matrix score, and Multiple Linear Regression (MLR) analytical technique which was used to identify the level of significance of the market contributions in the locations of the industrial plants in the study area. The results of the analyses reveal that market facilities contributed in the location decisions of 28 (87.5%) of the 32 studied industrial plants in the area in which 17 and 11 industrial plants indicated that it is 1st and 2nd order factors in their locations in the study area respectively. Only 4 (12.5%) industrial plants did not consider market as an important variable in their decision to locate in the area. With frequency score of 28 (8.8%), it obtained 2nd position among the 23 identified factors in the locations of the studied 32 industrial plants in the area. The result of MLR analyses showed that market facilities contributed significantly (0.042) in the locations of the 32 sampled industrial plants in the area. In this regard, it is recommended for entrepreneurs to have eyes in the market facilities in their location decisions. Also, industries should be attracted in the study area as a result of the influx and the available industrial resources in the area.**

***Keywords*: Location, relative position, industrial plants, market facilities**

I. INTRODUCTION

Industry is an important segment of the economy, the collapse of which will result in the collapse of the economy (Sloagett and Wood, 2005; and Ogbu, 2014). It improves trade balance because home-grown products substitute imports, thus saving valuable foreign exchange (Ekholm, 2003), and the more the foreign exchange earned the better for the nation (Gates, 2006). Industry generates benefits such as the creation of wealth via the multiplier effect, prosperity, employment and is a vital component in foreign trade. Industrial activities can operate and export to gain more foreign exchange that structurally diversifies the economy, which grows faster and becomes more resilient. It is one of the processes of spatial transformation especially with migration and information flows. There has been traditionally wide support for the leading role of manufacturing in generating wealth and income, which in turn can support expansion in other sectors (Feldman, Aharonson and Baum, 2006). Development is based upon growth, which results from further industrialization and increased industrial production.

Location or the locality where an industrial plant situates is accepted to be significant in the processes of economic change. In location of industries, assembly, processing, and shipment are vital because input materials are collected to a point where processing takes place, and production and shipment of the outputs to areas of consumption. For instance, the preferred location of each individual producer is that where demand is large or supply of inputs is particularly convenient. Furthermore, there are certain places in which it is most convenient for the exchange of commodities to take place. These are great business centers or commercial towns. There are special conveniences for exchange that have favoured their rise and growth, and the mere fact that a town lies about the middle of a densely populated district is likely to make it the most convenient place of exchange for the products of that district and for articles brought from more distant parts. Therefore, it is only by studying industry as it is already located, and by investigating the principles which lie behind successful industrial location in an area, can we hope to guide its spread and progress spatially.

Geography is a science of location that is interested in the decoding spatial similarities and variations (Onyenechere, 2011). As a result, geographers are often concerned with the spatial distribution of phenomena and human activities including industries, and the processes which influence that distribution. Also, not all industries choose the same plant site because their production (costs) and market needs differ. For instance, a location because of high market demand may suffer a serious disadvantage when competitive industries begin to carve out that market (RBF, 2007). Again, the existence of active industry may make the location attractive to other industries since some industries may use the products or by-products of already established firms as their raw materials (Feldman et al, 2006). Conversely, new industries may be set up to supply established firms with certain parts or materials. As the nucleus grows, it becomes a center of concentrated earning power, and therefore, of purchasing power. As such, it becomes attractive to industrial location and a better market for the products of industries (Acacha, 2020). However, many studies on industrial location

variables exist but they focus more on the characteristic descriptions and the effects of each of the location factors (Crafts and Mulatu, 2006; and Ogbu, 2008, 2011) without adequate involvement of different industrial types in order to determine the relative position of market facilities in accordance with industrial types. It is on this premise that this study was set to determine the contributions of market facilities in the attractions of different industrial activities in the study area.

II. LITERATURE REVIEW

Market is the place where manufactured goods are sold (Warn, 1995) or consumers (i.e. population) are located (Wilezewski, Lijewski, and Kortus, 1979). Warn (1995) added that industries are concerned with the potential size of a market for especially widely-used consumer products. According to Ekholm (2003) and Kinkel (2007) manufacturers must have a market – people with desire for goods and the ability to buy them. To Auty (1995), Brazil especially eastern Brazil developed economically because of large population (i.e market) for her industrial products, and proximity to market reflects an attempt to minimize transportation costs or time. This is the reason why industries especially Multinational Corporations (MNCs) are increasingly pursuing market-seeking rather than asset-seeking or knowledge-seeking strategies (Flores and Aguibera, 2007). However, Mollung (2007) showed that market is more than the population size because it includes other strength like volume of sales. Therefore, market strength varies according to weight of raw materials/products, fragility, perishability, value, and availability and it is this strength that influences plant locations.

In market-oriented firms, the weight loss of materials and components is usually small compared to the weight gain in their processing (Wong, 2007; Bacelonia Field Study Centre (BFSC), 2007). They together with Akerman (2003) explained that market has become of increasing importance in location choice of industries if the cost of transporting manufactured goods is higher than transporting non-manufactured raw materials or form a high percentage of the total costs of production. In the views of BFSC (2007), and Wong (2007) where the manufactured products are more fragile, more cumbersome to pack and handle, and more perishable or are of low unit value, their production locations are attracted or pulled by the market forces.

In another development, Schoenberger (1990), and Waugh (1998) observed that industries that ship to local consumers or if the products have short life-span like daily newspaper, products of bakeries and dairies, market attraction is more important in location decision. Furthermore, market location is important when the raw materials input are ubiquitous or industries are relatively footloose (Warn, 1995), and proximity to market facilitates is preferred where the personal interactions or contact between producers and consumers are important, and builds confidence in the market (Schoenberger, 1990). The importance of market has been augmented by Badri (2007) when he said that material linkages and cost of transporting manufactured goods draw firms engaged in successive vertical stages of production to the same metropolitan areas (market), and modern means of transport has caused markets and trade to grow (Hennings, 1992).

From this review, market strengths in influencing industrial locations over the time are not the same. Up till the first half of 20th century, the issues on weight/bulk and perishability/fragility of products, higher freight rates on finished products than raw material, and personal contact between producers and consumers were dominant factors in industrial locations. In this 21st century, these factors are still important in the market attractions of industrial locations, but more vibrant features of market are considered. These features are the size of market which is considered in terms of volume of sales and demand for industrial products, development in transport facilities in order to make transport easier, cheaper cost and reduction in the effect of the friction of distance, and linkage effects as well as the advantages of industrial agglomerations as found in Europe by Intel Corporation (2005), and Cortright (2001a and b). In Singapore and Malaysia similar results were obtained by Rohit et al (2003). In sub-saharan Africa, those market variables are significant in the attractions of FDI as in Nigeria, Botswana, Kenya and Uganda as respectively shown by Ogunkola and Jerome (2006), Siphambe (2006), Mwega and Ngugi (2006), and Obwana and Egesa (2006). Also studies by Majuk, Erim and Ajor (2010); St. Matthew-Daniel (2012); Monday (2011); Amsterdan (2009); and Dixon-Ogechi, Haran, and Aiyeku (2009) in different parts of Nigeria and different industrial activities show that the contemporary market attributes affect the activities and location of industrial plants in Nigeria. For instance, Sambo (2010) even lamented that the dwindling patronage, especially by all tiers of government and their agencies who account for the bulk of vehicle purchases is affecting automobile industry in Nigeria. It is in the belief of these that this study became important in order to identify the relative positions of market facilities in the locations of different industries in an emerging industrial area of the 9th Mile area of Enugu state, Nigeria.

III. MATERIALS AND METHODS

There were fifty two (52) industrial plants in the study area. However, only 32 of them were sampled in this study. This was because 2 industrial plants, VSS Feeds, and Royal Harvest Nig. Ltd were not at the time of data collection functioning and so were not included in this study for the lack of the required information. Also, 18 of the 50 functional industrial plants for restrictions on the release of information concerning them refused to fill our questionnaire. These 32 industrial plants represent 64.0 % of the 50 functional industrial plants in the area. The population of this study comprised the management of the 32 accessible and functional industrial plants located at the 9th Mile area.

Relevant data were collected through questionnaire, guided interviews, documentary materials, and field observations. In

this study, many statistical techniques were used in the analyses of the field data. Percentage contributions and graphs (pie, and bar graphs) were used to determine the degree of influence of market facilities as well as transportation costs on both raw materials and product in the locations of the industrial plants in the area.

To determine the appropriate orientation of the industrial plants either towards the market or raw material, the weights of raw material inputs per month/year were compared with the weights of the products per month/year using Weber's Material Index (M.I.) method given by Weber (1929) and Bale (1981) as;

$$M.I. = \frac{WR}{WP} \quad \text{.....1}$$

Where WR = weight of raw material input per month/year, and WP = weight of the products per month/year.

If M.I. is unity i.e. one (M.I = 1), the industrial plant can locate either at the market or raw material sources. If M.I. is greater than unity (M.I. > 1), the industrial plant should locate at the raw material sources because the weight of raw material(s) is greater than the weight of the products. If M.I. is less than unity (M.I. < 1), sources of market location is more important than any other choice since the product is heavier than the raw material(s). Moreover, standardized percentages of the degrees of influence of the market facilities were used to identify the position of market compared with other factors in the location of each of the 32 studied industrial plants.

In addition, Multiple Linear Regression (MLR) analytical technique was used to identify the degree of the market contributions in the locations of the industrial plants in the study area. It is a statistical technique which accurately measures the relationship between the dependent or criterion variable (location characteristics) and a set of independent or predication variables (factors of location of industries). Thus, it determines the separate influence of each independent variable acting in conjunctions with other variables.

IV. RESULTS AND DISCUSSIONS OF THE MAJOR FINDINGS

The following variables facilitated the determination of the effect of market facilities in industrial locations in this study; product weights, value of the products, fragility/perishability of products, and transfer costs involved in the movement of products.

At the 9th Mile area, market facilities were attractive in the location of industrial plants. Even with reference to the calculated Material Index (Table 1), all the studied industrial plants have great concern for market in their location decisions. Typical examples are the locations of 13 industrial plants i.e. 40.6 % with M.I. > 1 (Table 1) at market area for high volume of sales. They ought to have located at the sources of raw materials because their raw materials are heavier than their products. Also, their products have very high perishability/fragility rate. Again, some of their products sell at low rate, and as such are always close to the market to avoid high price due to transfer costs. Again, 4 industrial plants or 12.5 % shown on Table 1 in which neither their raw materials nor products are perishable/fragile, still locate close to their market even when their raw materials are heavier than products. This case stresses the importance of market attractions in order to serve their customers best and obtain high volume of sales.

From Table 1 and as shown on Fig. 1, 11 industrial plants (34.4 %) whose material indices are in each case, one, were pulled towards market in their locations because their products are demanded in small units by the consumers. The character of industrial products as regards their perishability/fragility resulted in the pull of market facilities in the location decisions of such studied industrial plants at the 9th Mile area. Four (4) industrial plants that represent 12.5 % whose products are more perishable/fragile and difficult to handle than the raw materials from which they are made, are attracted to market locations (Fig.1). Such firms are spatially established at Ameke in both north and north-west, Ngwo-Uno in the east and Nsude in the south. Some of their products exhibit similar behaviour since bottled minerals such as sprite, mountain dew, etc and sachet water are more difficult to handle than raw materials such as water, sugar, beverage base and concentrate from which they are made. The market locations of industrial plants are increasing because the pulling forces of market are more than raw materials even for industrial plants whose products and raw materials are both perishable/fragile. 34.4 % or 11 industrial plants in our study area as found on Table 1 are good examples. We found out that market locations are preferred when the products weigh more or are bulkier than the raw materials.

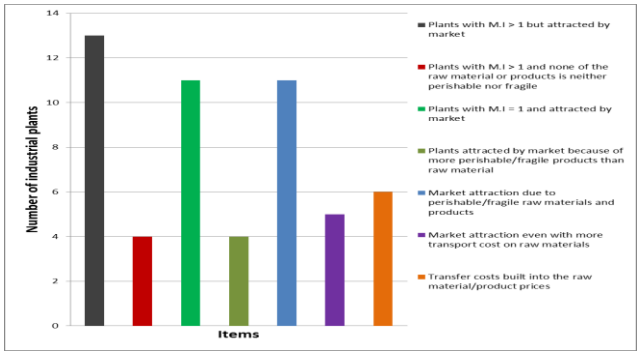
Table 1: Nature and Material Indices of the Industrial Plants

S/N	PLANT	MATERIAL INDEX	NATURE OF MATERIAL	
			RAW MATERIALS	PRODUCTS
1	Nigerian Bottling Co Plc	2.9	Perishable	Fragile
2	O.F.D. Oil Expeller	1.3	Neither perishable nor fragile	Perishable
3	7up Bottling Co. Plc	3.0	Sugar-perishable, Water-perishable Concrete-fragile Acidulants-perishable	Fragile
4	Pagosina Block Industry	0.4	Cement-perishable Others-neither perishable nor fragile	Fragile
5	Rancco water	1.0	Perishable	Perishable and fragile
6	Jomo Metal Nig. Ltd.	2.3	None is fragile or perishable	Perishable

7	Aqua Rapha Investment Nig. Ltd	1.2	Neither perishable nor fragile	Only sachet water and ice block are fragile and perishable
8	Aptro Filling Station	1.0	Fragile	Fragile
9	Ugo Bakery Industry	7.3	Flour, yeast, egg and butter are perishable	All are perishable and fragile
10	Alex Enterprise	1.7	Neither perishable nor fragile	Perishable after about 1 ½ years
11	Synco Oil Ltd.	1.0	Fragile	Fragile
12	Avec Nig. Ltd	1.7	Neither perishable nor fragile	Neither perishable nor fragile
13	Hoval Nig. Ltd.	2.2	Neither perishable nor fragile	Neither perishable nor fragile
14	Jenep Nig. Ltd.	1.0	Fragile	Fragile
15	Barnaco International Ltd.	1.0	Fragile	Fragile
16	Champion Bakery	4.7	Flour, egg, yeast and butter are perishable	All are perishable and fragile
17	Narco Oil Nig. Ltd	1.0	Fragile	Fragile
18	Efficient Petroleum Nig. Ltd.	1.0	Fragile	Fragile
19	Raphade Concrete Block Industry	0.8	Only Cement is perishable and fragile	Fragile
20	Ifesinachi Petroleum Ltd	1.0	Fragile	Fragile
21	Micco Petroleum Ltd	1.0	Fragile	Fragile
22	Nigerian Breweries Plc	0.7	Perishable	Fragile and perishable
23	Phinomar Nig. Ltd	1.3	Neither perishable nor fragile	Neither perishable nor fragile
24	Citadel Suites	1.2	Perishable except detergents	Beer and soft drinks are fragile and perishable while others are perishable
25	Pagosina Palace Hotel	1.4	Perishable except detergents	Beer and soft drinks are fragile and perishable while others are perishable
26	Glory Hotel	1.3	Perishable except detergents	Beer and soft drinks are fragile and perishable while others are perishable
27	First Bank of Nig. Plc	1.1	Service provider	Service provider
28	Sharon Paints and Chemicals Co. Nig. Ltd.	1.2	Neither fragile nor perishable	Neither fragile nor perishable
29	Graceco Sachet Water	1.1	Perishable	Fragile and perishable
30	Chisco Transport Nig. Ltd	1.0	Fragile	Fragile
31	E.O.N. Nigeria Ltd	1.0	Fragile	Fragile
32	Raylcon Petroleum Nig. Ltd	1.0	Fragile	Fragile

(Source: Fieldwork, 2021)

Fig. 1: Nature of Products and Market Attractions of Industrial Plants at the 9TH Mile Area Source: Fieldwork, 2021



Three (3) industrial plants (9.4 %) involved are Pagosina Block Industry at Ameke in the north, Raphade Concrete Block Industry at Ngwo-Uno in the east, and Nigerian Breweries Plc found at Ameke in the north-west of the area. Thus, the addition of weight in their production processes necessitated their pull towards market in the decision to locate them.

This study found that freight rate differentials in the movement of both raw materials and products exist in some of the industrial plants (Table 1). This phenomenon is observed in 5 industrial plants (15.6%) established at Ameke in the north-west, in the centre at Ifueke and at Nsude in the south. In these industrial plants, movements of final products are cheaper than that of raw materials. They ought to locate at the raw material sources in order to reduce transfer costs, but are located at the market. This situation implies that the higher rates in raw materials movement than that of the final products do not exert influence in location decisions of the contemporary industrial plants as found in the study area. The result of this study shows that the transfer costs involved in the movement of either raw materials or products of 6 industrial plants (Fig. 1) that represent 18.8 % are built into the cost/price of raw materials/products and some raw materials are supplied by the agents. The spatial distributions of the industrial plants that fall into this category are in the 3 clans of Ameke in the north-west (3 industrial plants), Ngwo-Uno in the east (2 industrial plants), and in the south at Nsude (1industrial plant).

It was found that the study area is an important market for industrial plants that are located in the region. This is because it is included as one of the market sources for every industrial plant studied. This places the 9th Mile area in a good position, serving also, as raw material sources particularly for brewing, bottling, and sachet water firms that are sited at Ngwo-uno in the east, and at Ameke in the north and north-west as well as market sources for the sale of the products of firms in the study area. Hence, the result in Fig. 1 shows that market has strong influence in the location decisions of the industrial plants in the area. The study area is central to many states from the east, west, south and northern parts of the country, Nigeria, and it is also accessible in all directions. Thus, it serves as both the local and regional market centers for industrial products and as such industrial plants that are attracted by the regional markets scramble to locate at the regional market centers in order to enjoy high volume of sales of their products.

At global level, the importance of market has been augmented by the increasing attraction of the market forces in the location choice of industrial activities. This is especially where the size of market and the developments in the modern means of transport have increased the attractions of market. Studies in different countries of the world revealed that the concern of the contemporary industrial activities is the potential size of markets (Rahman and Kabir, 2019). This is found in such countries as Nigeria, Sudan, Mexico, Brazil, China, Uruguay, England, and USA. Example, Northern Darfur in Sudan became a large market center because her people created demand for carpets by working with the wool of their animals as indicated by Ibrahim (1996). Also, in USA, rural areas are attracting business investments because more people with disposable income are relocating and changing the rural environment demographically (RBF, 2007). In the locations of MNCs Barton et al (2007) argued that European firms made important investments in developing countries for a desire to participate in rapidly growing markets.

The Relative Position of Market in the Location of the Industrial Plants:

An approach referred to as a Standardized Matrix which determined the percentage contribution of market facilities and each of the factors in each of the 32 studied industrial plants was used to identify the importance of market as a location factor for each of the studied industrial plants. This method was employed because it facilitated the weighting of market facilities and other factors in the locations of the industrial plants studied in the study area. In the matrix, the industrial plants studied formed the column and the location factors (coded A-W) (Table 2) that influenced the location of the industrial plants formed the row. This is for easy identification and assemblage of the different factors in the location of the studied industrial plants. 23 factors identified from literature review were presented to the management of the 32 studied industrial plants for their respective scoring. The location factors in each of the studied industrial plants were scored by the respondents on a scale of 1 to 5 in ascending order of importance with 5 being the most important or strongest influencing factors, 4 being influential factors, 3 being undecided factors, 2 being factors that are not influential, and 1 being factors of strongly not influential at all (Ogbu, 2008). Therefore, scale 1 and 2 are factors that were not considered important in the locations of such industrial plant(s), while scale 3 forms the boundary that separates factors that influenced and factors that did not influence the locations of industrial plants in the study area. For each of the accessible and examined industrial plants, each of the scores in the matrix (Table 3) was converted to a factor index (Table 4).

The factor(s) with the highest index (double line) for each of the industrial plants in the column is\are the strongest or most influencing factor(s) in the decision to locate such industrial plants. Also, the factor(s) with higher index (one line) for each of the industrial plants in the column is/are the strong influencing factors in the locations of such industrial plants. Thus, factors with the underlined indices either double or single are the factors that influenced the decisions to locate each of the industrial plants in the area. The number of factors that emerged was regarded as the first order factors that were chosen in the decisions to locate the accessible industrial plants, the lower index/indices (underlined once) are the second order factor(s) as found in Table 5. These are factors that were just influential in the locations of the affected industrial plants. The third order factors (Table 5) which were neutral/undecided factors formed the boundary between the strongly influential and just influential factors, and the factors that were not influential (4th order factors) and strongly not influential (5th order factors).

Therefore, 3rd, 4th, 5th order factors (indices that are not underlined) were not considered important in the locations of the affected industrial plants.

An examination of the influential factors in the study area (Table 5) reveals that it is only in 4 industrial plants (12.5%) that market facilities did not influence the decision to locate the industrial plants, while in other 28 industrial plants (87.5%), market was influential in their location decisions. Thus, availability of market facilities in the area contributed in the pull of industrial activities.

Table 2: Code numbers of the identified industrial location factors

S/N	Factor	Code No.
1	Availability of raw materials	A
2	Availability of transportation facilities	B
3	Availability of market facilities	C
4	Availability of financial/fiscal capital	D
5	availability of capital equipment	E
6	Government's industrial location policy	F
7	Government's incentives	G
8	Availability of an industrial estate	H
9	Benefits from other firms in the area	I
10	Availability of energy/power from national supply	J

11	Availability of labour	K
12	High labour quality	L
13	Availability of space for expansion	M
14	Availability of land	N
15	Suitable land surface	O
16	Birth place of the entrepreneur	P
17	Family support of the entrepreneurs	Q
18	Support of the entrepreneur by local authority	R
19	People's recognition of the entrepreneur	S
20	Free land from the entrepreneur	T
21	Availability of qualified management	U
22	Availability of sales promotion agents	V
23	Availability of infrastructure like water	W
24	Location characteristics	LC

Also, the number of factors in each industrial plant is not the same by size and relative value. It varies according to the perception of individual industrial plant, whether in the similar industrial activities or not. The same number of 12 factors in each of Pagosina Block Industry and Raphade Concrete Block Industry that are similar by activities is by chance occurrence because the factors are not the same and their significance differ even where they are the same. This is vividly illustrated on Table 6 where as an example, 17 different industrial plants showed in their location decisions that factor 'C' (availability of market facilities) is strongly influential (1st order), while the same factor 'C' is identified as just influential factor (2nd order) in the locations of 11 industrial plants. Therefore, the degrees of importance attached to market as a location factor have no spatial relationship either to the different industrial activities or to the area variations at the 9th Mile area.

Table 3: Raw Scores of Market and Other Factors that Influenced the Locations of the Studied Industrial Plants at the 9th Mile Area.

		Degree of influence of coded location factors																							
	Plants	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**TOTAL**
1	Nig. Bottling Co. Plc	5	5	5	3	2	1	2	5	5	2	5	3	3	5	3	5	3	3	3	1	5	3	5	82
2	O.F.D Oil Expeller	4	4	5	2	4	1	2	4	5	5	4	4	4	1	2	4	4	2	1	2	2	1	3	70
3	7up Bottling Co. Plc	3	4	4	1	1	4	1	4	1	4	1	1	1	1	3	1	1	3	1	2	1	1	5	49
4	Pagosina Block Industry	5	5	4	5	4	4	2	3	2	3	5	2	5	5	4	3	3	2	3	5	3	3	5	85
5	Rancco Water	5	4	4	3	2	2	1	1	2	5	4	5	4	4	4	3	4	4	1	1	4	3	5	75
6	Jomo Metal Nig. Ltd.	5	4	4	3	4	2	2	4	4	5	2	4	1	2	3	3	4	3	4	4	5	4	5	81
7	Aqua Rapha Investment Nig. Ltd.	5	4	4	4	3	2	1	3	3	3	3	4	4	3	5	2	3	2	4	2	4	4	5	77
8	Aptro Filling Station	1	5	5	2	2	1	3	4	5	4	4	1	4	3	2	2	1	1	1	3	2	4	2	60
9	Ugo Bakery Industry	5	4	5	3	3	3	3	1	3	5	4	3	3	4	1	1	5	2	5	2	5	3	5	78
10	Alex Enterprise	4	4	5	5	4	1	1	3	3	4	4	1	2	4	3	5	1	2	2	2	2	1	2	65
11	Synco Oil Ltd.	3	2	2	4	2	5	3	2	3	5	3	3	2	2	2	2	2	2	2	1	2	4	2	60
12	Avec Nig. Ltd	5	5	4	1	1	1	2	2	1	5	3	4	5	3	4	2	1	3	3	1	5	4	4	69
13	Hoval Nig. Ltd.	4	4	5	2	3	1	1	3	2	2	2	2	4	3	3	2	4	2	3	2	4	3	3	64
14	Jenep Nig. Ltd	1	5	5	4	4	2	2	4	4	5	5	2	5	4	4	2	2	1	2	1	4	4	4	76
15	Barnaco International Ltd	4	4	4	5	2	4	1	4	3	5	4	3	3	3	5	3	2	2	2	2	2	2	4	73
16	Champion Bakery	5	4	2	2	2	2	2	4	3	2	2	2	5	3	3	3	2	1	2	1	2	2	5	61
17	Narco Oil Nig. Ltd.	2	4	5	4	1	2	2	1	3	4	4	3	4	4	4	2	2	2	2	2	2	1	2	62
18	Efficient Petroleum Nig. Ltd	1	5	5	5	5	2	2	5	2	5	5	1	5	4	5	2	2	3	2	1	4	1	5	77
19	Raphade Concrete Block Industry	5	4	5	5	2	1	1	2	3	4	5	1	4	5	3	5	2	2	4	1	4	1	4	73
20	Ifesianchi Petroleum Ltd	5	5	5	4	3	3	3	3	4	5	4	3	2	1	2	4	2	1	1	1	2	1	4	70
21	Micco Petroleum Ltd.	5	5	5	4	3	3	3	3	4	5	4	3	2	1	2	4	4	2	1	2	2	1	4	72
22	Nigerian Breweries Plc	4	4	5	3	4	3	1	2	4	4	3	3	3	2	3	1	1	1	1	1	1	1	5	60
23	Phinomar Nig. Ltd	4	5	4	2	2	2	2	2	4	4	3	2	4	1	4	2	1	2	2	1	1	1	4	59
24	Citadel Suites	2	4	4	5	4	1	1	2	4	5	3	1	3	1	4	5	4	3	4	1	4	5	5	75
25	Pagosina Palace Hotel	5	4	5	5	5	2	1	3	2	4	1	2	4	5	2	3	3	4	3	4	3	4	4	78
26	Glory Hotel	5	4	3	4	2	1	1	4	5	5	3	3	4	2	3	1	2	2	5	1	3	2	5	70
27	First Bank of Nig. Plc	1	4	5	2	4	2	3	1	4	5	2	1	2	4	3	1	2	1	1	2	3	4	2	59
28	Sharon Paints & Chemicals Co. Nig. Ltd.	4	4	4	3	4	2	1	1	4	4	4	2	2	4	3	4	4	2	4	5	2	1	5	74
29	Graceco Sachet Water	5	4	4	3	4	2	1	1	4	4	4	2	2	4	3	4	4	2	4	5	2	1	5	74
30	Chisco Transport Nig. Ltd. (Haulage Div.)	5	5	3	3	4	3	2	5	4	3	4	5	4	4	3	2	2	1	5	1	4	2	3	77
31	E.O.N Nig. Ltd.	5	5	4	4	4	4	1	5	5	2	3	3	4	4	4	2	2	2	2	2	2	2	3	73
32	Raylcon Petroleum Nig. Ltd.	4	4	5	5	4	4	1	4	4	4	5	3	2	1	4	2	3	2	3	1	4	2	2	74

(Source: Fieldwork, 2021)

Table 4*:* Standardized (Percentage) Scores of Factors that Influenced the Locations of the Studied Industrial Plants at the 9th Mile Area (degree of Influence of Location Factors (coded A – W)

	Industrial Plants	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	TOTAL (%)
1	Nig. Bottling Co. Plc	6.1	6.1	6.1	3.7	2.4	1.1	2.4	6.1	6.1	2.4	6.1	3.7	3.7	6.1	3.7	6.1	3.7	3.7	3.7	1.1	6.1	3.7	6.1	100
2	O.F.D Oil Expeller	5.7	5.7	7.1	2.9	5.7	1.4	2.9	5.7	7.1	7.1	5.7	5.7	5.7	1.4	2.9	5.7	5.7	2.9	1.4	2.9	2.9	1.4	4.4	100
3	7up Bottling Co. Plc	6.1	8.2	8.2	2.0	2.0	8.2	2.0	8.2	2.0	8.2	2.0	2.0	2.0	2.0	6.1	2.0	2.0	6.1	2.0	4.3	2.0	2.0	10.4	100
4	Pagosina Block Industry	5.9	5.9	4.7	5.9	4.7	4.7	2.4	3.5	2.4	3.5	5.9	2.4	5.9	5.9	4.7	3.5	3.5	2.4	3.5	5.9	3.5	3.5	5.9	100
5	Rancco water	6.7	5.3	5.3	4.0	2.7	2.7	1.3	1.3	2.7	6.7	5.3	6.7	5.3	5.3	5.3	4.0	5.3	5.3	1.3	1.3	5.3	4.0	6.7	100
6	Jomo Metal Nig. Ltd.	6.2	4.9	4.9	3.7	4.9	2.5	2.5	4.9	4.9	6.2	2.5	4.9	1.4	2.5	3.7	3.7	4.9	3.7	4.9	4.9	6.2	4.9	6.2	100
7	Aqua Rapha Investment Nig. Ltd.	6.5	5.2	5.2	5.2	3.9	2.6	1.2	3.9	3.9	3.9	3.9	5.2	5.2	3.9	6.5	2.6	3.9	2.6	5.2	2.6	5.2	5.2	6.5	100
8	Aptro Filling Station	1.7	8.3	8.3	3.3	3.3	1.7	5.0	6.7	8.3	6.7	3.3	1.7	6.7	5.0	3.3	3.3	1.7	1.7	1.7	5.0	3.3	6.7	3.3	100
9	Ugo Bakery Industry	6.4	5.1	6.4	3.8	3.8	3.8	3.8	1.7	3.8	6.4	5.1	3.8	3.8	5.1	1.7	1.7	6.4	2.8	6.4	2.8	6.4	3.8	6.4	100
10	Alex Enterprise	6.2	6.2	7.7	7.7	6.2	1.5	1.5	4.5	4.5	6.2	6.2	1.5	3.1	6.2	4.5	7.7	1.5	3.1	3.1	3.1	3.1	1.5	3.1	100
11	Synco Oil Ltd.	5.1	3.3	3.3	6.7	3.3	8.3	5.1	3.3	5.1	8.3	5.1	5.1	3.3	3.3	3.3	3.3	3.3	3.3	3.3	1.6	3.3	6.7	3.3	100
12	Avec Nig. Ltd	7.2	7.2	5.8	1.4	1.4	1.4	3.0	3.0	1.4	7.2	4.4	5.8	7.2	4.4	5.8	3.0	1.4	4.4	4.4	1.4	7.2	5.8	5.8	100
13	Hoval Nig. Ltd.	6.3	6.3	7.8	3.1	4.7	1.5	1.5	4.7	3.1	3.1	3.1	3.1	6.3	4.7	4.7	3.1	6.3	3.1	4.7	3.1	6.3	4.7	4.7	100
14	Jenep Nig. Ltd	1.3	6.6	6.6	5.3	5.3	2.6	2.6	5.3	5.3	6.6	6.6	2.6	6.6	5.3	5.3	2.6	2.6	1.3	2.6	1.3	5.3	5.3	5.3	100
15	Barnaco International Ltd	5.5	5.5	5.5	6.9	2.7	5.5	1.4	5.5	4.1	6.9	5.5	4.1	4.1	4.1	6.9	4.1	2.7	2.7	2.7	2.7	2.7	2.7	5.5	100
16	Champion Bakery	8.2	6.6	3.3	3.3	3.3	3.3	3.3	6.6	4.9	3.3	3.3	3.3	8.2	4.9	4.9	4.9	3.3	1.5	3.3	1.5	3.3	3.3	8.2	100
17	Narco Oil Nig. Ltd. √	6.5	3.2	8.1	6.5	1.6	3.2	3.2	1.6	4.8	6.5	6.5	4.8	6.5	6.5	6.5	3.2	3.2	3.2	3.2	3.2	3.2	1.6	3.2	100
18	Efficient Petroleum Nig. Ltd	1.3	6.5	6.5	6.5	6.5	2.6	2.6	6.5	2.6	6.5	6.5	1.3	6.5	5.2	6.5	2.6	2.6	3.8	2.6	1.3	5.2	1.3	6.5	100
19	Raphade Concrete Block Industry	6.8	5.5	6.8	6.8	2.7	1.4	1.4	2.7	4.2	5.5	6.8	1.4	5.5	6.8	4.2	6.8	2.7	2.7	5.5	1.4	5.5	1.4	5.5	100
20	Ifesianchi Petroleum Ltd	7.1	7.1	7.1	5.7	4.3	4.3	4.3	4.3	5.7	7.1	5.7	4.3	2.9	1.4	2.9	5.7	5.7	1.4	1.4	1.4	2.9	1.4	5.7	100
21	Micco Petroleum Ltd.	6.8	6.8	6.8	5.6	4.2	4.2	4.2	4.2	5.6	6.8	5.6	4.2	2.8	1.4	2.8	5.6	5.6	2.8	1.4	2.8	2.8	1.4	5.6	100
22	Nigerian Breweries Plc	6.7	6.7	8.3	5.0	6.7	5.0	1.7	3.2	6.7	6.7	5.0	5.0	5.0	3.2	5.0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	8.3	100
23	Phinomar Nig. Ltd	6.8	8.3	6.8	3.4	3.4	3.4	3.4	3.4	6.8	6.8	5.0	3.4	6.8	1.7	6.8	3.4	1.7	3.4	3.4	1.7	1.7	1.7	8.3	100
24	Citadel Suites	2.8	5.3	5.3	6.7	5.3	1.3	1.3	2.8	5.3	6.7	4.0	1.3	4.0	1.3	5.3	6.7	5.3	4.0	5.3	1.3	5.3	6.7	6.7	100
25	Pagosina Palace Hotel	6.4	5.1	6.4	6.4	6.4	2.6	1.4	3.8	2.6	5.1	1.4	2.6	5.1	6.4	2.6	3.8	3.8	5.1	3.8	5.1	3.8	5.1	5.1	100
26	Glory Hotel	7.1	5.7	4.3	5.7	2.9	1.4	1.4	5.7	7.1	7.1	4.3	4.3	5.7	2.9	4.3	1.4	2.9	2.9	7.1	1.4	4.3	2.9	7.1	100
27	First Bank of Nig. Plc	1.7	6.8	8.5	3.4	6.8	3.4	5.0	1.7	6.8	8.5	3.4	1.7	3.4	6.8	5.0	1.7	3.4	1.7	1.7	3.4	5.0	6.8	3.4	100
28	Sharon Paints & Chemicals. Co. Nig. Ltd.	5.6	6.9	6.9	2.8	2.8	4.2	1.4	4.2	4.2	5.6	6.9	4.2	6.9	6.9	6.9	6.9	1.4	1.4	1.4	1.4	5.6	4.2	1.4	100
29	Graceco Sachet Water	6.7	5.4	5.4	4.1	5.4	2.7	1.4	1.4	5.4	5.4	5.4	2.7	2.7	5.4	4.1	5.4	5.4	2.7	5.4	6.7	2.7	1.4	6.7	100
30	Chisco Transport Nig. Ltd. (Haulage Division)	6.5	6.5	3.9	3.9	5.2	3.9	2.6	6.5	5.2	3.9	5.2	6.5	5.2	5.2	3.9	2.6	2.6	1.3	6.5	1.3	5.2	2.6	3.9	100
31	E.O.N Nig. Ltd.	6.8	6.8	5.5	5.5	5.5	5.5	1.6	6.8	6.8	2.7	4.2	4.2	5.5	5.5	5.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	100
32	Raylcon Petroleum Nig. Ltd.	5.4	5.4	6.8	6.8	5.4	5.4	1.4	5.4	5.4	5.4	6.8	4.0	2.7	1.4	5.4	2.7	4.0	2.7	4.0	1.4	5.4	2.7	4.0	100

(Source: Table 3)

= Strongly influential factors

– Influential factors

Not influential factors factors

Table 5*:* Important Factors in the Locations of the Studied Industrial Plants.

S/N	Industrial Plant	1st Order (strongly influential factors)	2nd order (influential factors)	No of influential factors	3rd order (neutral factors)	4th order (not influential (factors)	5th order (strongly not influential (factors)
1	Nigerian Bottling Co. Plc	A,B,C,H,I,K,N, P,U,W	-	10	D,L,M, O,Q,R,S,U	E,G,J,	F,T
2	O.F.D Oil Expeller	C,I,J	A,B,E,H,K,L, M,P,Q,	12	W,	D,G,O, R,T,U,	F,N,S,V.
3	7up Bottling Co. Plc	W.	B,C,F,H,J,	6	A,O,R,	T,	D,E,G,I,K,L,M,N ,P,Q,S,U,V.
4	Pagosina Block Industry	A,B,D,K,M,N, T,W.	C,E,F,O,	12	P,J,Q,S, U ,V,H	G,I,L,R	-
5	Rancco Water.	A,J,L,W.	Q,R,U,B,C, K,M,N,O.	13	D,P,U	E,F,I	G,H,T,S.
6	Jomo Metal Nig. Ltd.	A,U,J,W.	B,C,E,H,I,L, Q,S,T,V.	14	D,O,P,R	F,G,K,N,	M
7	Aqua Rapha Investment Nig. Ltd.	A,O,W.	B,C,D,L,M, S,U,V,	11	E,H,I,JK, N,Q.	F,P,R,T.	G.
8	Aptro Filling Station	B,C,I.	J,M,V,H.	7	G,N,T.	D,E,K,O, P,U,W.	F,L,Q,R, S,A.
9	Ugo Bakery Industry.	A,C,J,Q,S, U,W.	B,K,N.	10	D,E,F,G, I,L,M,V.	R,T.	H,O,P.
10	Alex Enterprise	C,D,P.	A,B,E,J,K,N.	9	H,I,O.	M,R,S, T,U,W.	F,G,L, Q,V.
11	Synco Oil Ltd.	F,J,	D,V.	5	A,G,I,K,V.	B,C,H,E,M,N, O,P,Q, R,S,U,W	T.

12	Avec Nig. Ltd.	A,B,J,M,U.	C,L,O,V,W	10	K,N,S,R.	G, H, P.	T,D,E,F,I,Q
13	Hoval Nig. Ltd.	C.	A,B,M,Q,U.	6	E,H,N,O,S,V, W.	D,I,J,K, L,P,R,T.	F,G
14	Jenep Nig. Ltd.	J,K,B,C,M.	D,E,H,I,N, O,U,V,W.	14	-	F,G,L,P, Q,S.	A,R,T.
15	Barnaco International Ltd.	D,J,O.	A,B,C,F H,K,W	10	I,L,M, N,P.	E,Q,R, S,T,U,V.	G.
16	Champion Bakery	A,M,W,	B,H.	5	I,N,O,P.	C,D,E,F,G,J,K ,L,Q,S,UV	R,T.
17	Narco Oil Nig. Ltd.	C	A,D,J,K M,N,O.	8	1,L.	B,F,G,P,Q,R,S ,U,W,T	E,H,V.
18	Efficient Petroleum Nig. Ltd.	B,C,D,E,H, J,K,M,O,W.	N,U.	12	R.	F,G,I,P,Q,S.	A,L,T,V.
19	Raphade Conc Block Ind	A,C,K,N,P,D.	B,J,M,S,U,W	12	1,O.	E,H,Q,R.	F,G,L.
20	Ifesinachi Petrol. Ltd.	A,B,C,J.	D,I,K,P,Q,W.	10	W,F,G,H,L.	M,O,U.	N,R,T,U.
21	Micco Petroleum Ltd	A,B,C,J.	K,D,I,P,Q,W.	10	E,F,G,H,L.	M,O,R,T,U	N,S,V.
22	Nigerian Breweries Plc.	C,W	A,B,E,I,J	7	D,F,L,K, M,O	H,N	G,P,Q,R.
23	Phinomar Nig. Ltd.	B	A,C,I, J, M,O,W.	8	K	D,E,F,G, H,L,P,R,S.	U,V.
24	Citadel Suites	D,J;R,V,W.	B ,C, E, I,O, Q, S, U	13	K,M,R	A,H	G,F,L
25	Pagosina Palace Hotel	A,C,D,E,N,	B,J,M,R,T,V,W	12	H,P,Q,S,U.	F,I,L,O,	G,K
26	Glory Hotel	A,I,J,S,W.	B,O,H,M	9	C,K,L,O,U.	E,N,Q,R,V.	F,G, P,T.
27	First Bank of Nig. Plc.	C, L, J.	B,E,I,N,V.	7	G,O,U	D,F,K,M, O,T,W.	A,H,L,P, R,S,
28	Sharon Paints & Chemicals Co. Nig. Ltd.	B,C,K,M, N,O,P.	A,J,U.	10	F,H,I,L,V.	D,E.	G,Q,R, S,T,W.
29	Graceco Sachet Water	A,T,W	P,C,E,I,J,K,N,P,Q,S .	13	D,O.	F,L,M, R,U.	G,H,V.
30	Chisco Transport Nig. Ltd. (HaulageDiv.).	A,B,H,L,S.	E,I,K,M,N,U.	11	C,D,F,J,O,W	G,P, Q,V.	R, T.
31	E.O.N Nig. Ltd.	A,B,H,I.	C,D,E,F, M,N,O.	11	K,L.	J,P,Q,R,S,T, U,V,M	G.
32	Raylcon Petroleum Nig. Ltd.	C,D,K.	A,B,E,F, H,I,J,O,U.	12	L,Q,S,W.	M,P,R,V.	G,N,T.

(Source: fieldwork, 2021)

In Mexico and Alexandria (Egypt) result is the same because Judy (2002) and Kulur (2002) showed that every location factor is unique and different industries will place greater or lesser weight on some of the factors. By this, the influence of market is dependent on decision of individual industrial plant. However, market is considered an important factor in the location of industrial plants in the area because it obtained 2nd position with frequency score of 28 (8.8%) among the 23 predictor variables in the locations of industrial plants in the study area (Table 6).

Table 6: Frequency of Occurrence and Ranks of the location Factors at the 9th Mile.

S/N	Factors (code No.)	Frequency		Total	%	Rank
		1st order	2nd order			
1	B	12	18	30	9.4	1st
2	C	17	11	28	8.8	2nd
3	A	16	9	25	7.9	3rd
4	J	14	1	25	7.9	3rd
5	W	13	8	21	6.6	5th
6	M	7	11	18	5.7	6th
7	K	7	10	17	5.3	7th
8	D	8	8	16	5.0	8th
9	I	5	11	16	5.0	8th
10	N	5	10	15	4.7	10th
11	E	2	12	14	4.4	11th
12	U	4	10	14	4.4	11th
13	H	4	9	13	4.1	13th
14	O	4	9	13	4.1	13th
15	P	5	4	9	2.8	15th
16	Q	2	7	9	2.8	15th
17	V	1	8	9	2.8	15th
18	S	3	5	8	2.5	18th
19	F	1	5	6	1.9	19th
20	L	2	4	6	1.9	19th
21	T	2	2	4	1.3	21st
22	R	0	2	2	0.7	22nd
23	G	0	0	0	0.0	23rd
	Total			318	100.0	

(Source: Table 5)

The factor ordering on Table 6 reveals that many factors cluster around some ranks. This situation necessitated the employment of Correlation analysis on the data in order to identify the relationships that exist among these industrial location factors so as to understand and sort out the contributions of market in the locations of the studied industrial plants at the 9th Mile area of Enugu State, Nigeria. Prior to the employment of correlation analysis on the data (Table 3), distribution test for normalcy was conducted.

The resulting communalities (the proportion of the variance for each factor explained by all the significant factors) from the matrix ranging from 0.590 to 0.887 found on Table 7 were high enough individually to make the variables employed significant for use for the correlation analysis.

Table 7: Communality Coefficient of the Correlation Analysis.

Variables	Expected Communality	Actual Communality
B	1.000	0.887
C	1.000	0.826
A	1.000	0.648
J	1.000	0.854
W	1.000	0.793
M	1.000	0.855
K	1.000	0.774
D	1.000	0.684
I	1.000	0.791
N	1.000	0.836
E	1.000	0.887
T	1.000	0.703
H	1.000	0.732
O	1.000	0.872
P	1.000	0.770
Q	1.000	0.675
U	1.000	0.788
S	1.000	0.797
F	1.000	0.590
L	1.000	0.796
V	1.000	0.882
R	1.000	0.824
G	1.000	0.604

Interrelationships among the Industrial Location Variables at the 9th Mile Area:

The interrelationships among the identified 23 variables of industrial plant locations at the 9th Mile area, Enugu State were determined using correlation analysis. The result is presented in a 23 x 23 matrix of interrelations for the industrial plants locations in our study area (Table 8). From the application of students t-test, a correlation coefficient threshold of + or – 0.300 is found to be significant statistically at 90% confidence level. This was based on the statistical values or degrees of correlation among the variables. Therefore, significant coefficient are those that are equal to or greater than + or – 0.300.

The result of the correlation matrix of the variables for the industrial locations reveals generally a low correlation as shown in Table 8. This is because the correlation coefficient of less than –0. 002 are found among the variables. However, a high positive correlation exists among the variables (Table 8). For instance, high positive correlation exists between variable C (availability of market facilities) and A (availability of raw material), C (availability of market facilities) and H (Availability of an industrial estate), V (availability of sales promotion agent), S (people's recognition of the entrepreneur) and U (availability of qualified management). However, correlation result among the variables in Table 8 shows that negative correlation exists between variable F(government's industrial location policy) and two variables of P (birth place of the entrepreneur), and U (availability of qualified management). In contrast, both positive and negative correlations occur between variable I (benefits from other firms in the area), and variables K (availability of cheap labour) and R (support of entrepreneur by local authority). The correlation that exists among the other variable are as found on Table 8. Many variables (Table 8) could not significantly correlate either negatively or positively with any variable(s). Typical examples are variables H (availability of an industrial lay-out/estate), and T (free land from the entrepreneur).

The problems involved in the explanation of the existence of very few significant correlation coefficients that exist side by side with many redundancies necessitated the need to employ a technique for removing the correlations that are not genuine. This according to Anyadike (2009) was in order to concentrate on those correlations that simplify the difficulties involved in the explanations. To achieve this objective, Multiple Linear Regression (MLR) analytical technique was used on the field data (Table 3) to identify the position of market in the locations of the industrial plants, and analyze the relationships among the set of dependent and independent variables especially market facilities.

The Influence of the Predictor Variables

The study used the Multiple Linear Regression Analysis to determine the combined strength of the relationship that exists between the 23 predictor variables and the locations of the industrial plants. The regression equation is shown thus;

$$Y = 2.320 - 1.245_{X1} - 0.651_{X2} + 0.485_{X3} + 0.377_{X4} - 0.320_{X5} + 0.101_{X6} - 0.027_{X7} + 0.035_{X8} -$$
$$(3.972)\quad (-2.394)\quad (-0.295)\quad (-2.372)\quad (2.352)\quad (-0.605)\quad (2.485)\quad (-2.060)\quad (0.053)$$

$$0.501_{X9} + 0.286_{X10} + 0.094_{X11} + 0.876_{X12} - 0.737_{X13} + 0.391_{X14} + 0.024_{X15} - 0.395_{X16} +$$
$$(-2.673)\quad (0.310)\quad (0.169)\quad (2.045)\quad (-3.021)\quad (0.691)\quad (2.057)\quad (0.948)$$

$$0.000_{X17} + 0.399_{X18} - 0.575_{X19} - 0.267_{X20} - 0.280_{X21} - 0.251_{X22} - 0.019_{X23} \ldots\ldots\ldots\ldots 2$$
$$(0.001)\quad (-2.462)\quad (-1.357)\quad (-2.583)\quad (-0.386)\quad (-0.544)\quad (-0.021)$$

"t" values are in parenthesis

Some of the variables such as A, C, AFC, GLP, GOI, etc were found to be statistically significant at 95.0% confidence level, while others like ATF, ACE, AIE, APE, ACL, etc were not. The result of the analysis indicates that the Multiple Linear Correlation Coefficient (R) is of 0.950, with a coefficient of multiple determinations (R^2) of 0.903 (Table 9). This implies that the combined effect of the 23 predicator variables accounts for 90.0 % of the variations in the location of the industrial plants in the area. Therefore, other variables different from these 23 variables that were utilized for this study, also, account for the remaining 10.0 % (which is quite insignificant) in the locations of the industrial plants in theArea.

Table 8*:* Correlation Matrix of the Variables Constituting the Regression Model for the Industrial Locations at the 9th Mile area.

	B	C	A	J	W	M	K	D	I	N	E	T	H	O	P	Q	U	S	F	L	V	R	G
B	1.000																						
C	-.082	1.000																					
A	-.312x	.375	1.000																				
J	-.020	-.081	.127	1.000																			
W	-.179	.093	.131	.616x	1.000																		
M	.020	.087	.041	.161	.187	1.000																	
K	-.308x	.195	-.068	-.055	-.118	.409x	1.000																
D	-.100	.123	-.240	-.098	.129	-.462x	-.329x	1.000															
I	-.090	-.033	.092	.687	.527	.134	.066	.125	1.000														
N	-.016	.070	.131	-.097	-.109	.013	-.078	.238	.085	1.000													
E	.067	-.005	.112	.449x	.251	-.078	.162	-.049	.421x	.099	1.000												
T	.500x	.037	-.327	.178	.101	.175	-.033	-.192	.133	-.136	.090	1.000											
H	-.020	.303x	-.106	.280	.013	-.055	.187	-.021	.161	-.088	.457x	.227	1.000										
O	-.130	.097	.095	.233	.115	-.022	.084	-.130	.215	.080	.278	-.087	.546x	1.000									
P	-.002	.210	-.117	-.081	.006	.052	-.069	.228	-.139	-.233	-.107	.009	.077	-.268	1.000								
Q	.251	.094	-.097	.224	.083	-.156	-.028	.499x	.112	.085	.100	-.071	-.009	.119	.186	1.000							
U	.129	-.125	-.068	.542	.195	.130	.144	-.0891	.402x	-.157	.255	.341x	.150	.163	-.251	.264	1.000						
S	.288	-.161	-.134	.088	-.044	.044	-.079	-.152	-.372x	-.222	-.219	.233	-.086	-.166	-.009	.054	.206	1.000					
F	.207	-.220	-.001	.324	.063	-.082	-.144	.028	-.025	-.339x	.092	.115	.114	.048	.042	.221	.382x	.511x	1.000				
L	.072	-.204	-.027	.091	-.074	.156	.253	-.291	.052	-.176	-.145	.118	-.182	.209	-.339x	.055	.379x	.277	-.072	1.000			
V	-.059	.043	-.005	.175	.017	-.082	.159	.064	.207	.168	.385x	.224	.377x	.453x	-.222	.185	.600x	.065	.318x	.077	1.000		
R	-.160	-.052	-.122	-.173	-.009	-.034	-.031	.090	-.135	-.009	-.108	.055	.039	.335*	-.198	-.010	.200	.123	.051	.425x	.438x	1.000	
G	.278	.057	-.107	-248	-.245	-.239	-.301*	.547*	-.139	.621*	-.146	-.020	-.079	-.093	-.013	.152	-.088	-.188	-.161	-.284	.031	-057	1.000

*=Significant coefficient of + or – 0.300 (90% confidence level)

Table 9: Model Summary

						Change Statistics			
Model	R	R square	Adjusted R Square	Standardized error of the estimate	R square change	F change	DF1	DF2	Sig. F change
1 A-W	.950[a]	.903	-.077	.22643	.903	2.365	23	8	0.041

Analysis of the contribution of market facilities to the observed variations in the location of the industrial plants at 9th mile area.

The individual contribution of the 23 predicator variables to the observed variations in the location of the industrial plants at the study area was determined using MLR analysis. The result (Table 10) shows that market facilities do not have equal explanatory consequence with reference to the t-statistics and level of significance in the locations of the industrial plants.

Table 10: Result of the Regression Analysis

	Unstandardized	coefficients	Standardized coefficients		
Model	B	Std. Error	Beta	T	Sig.
1 (Constant)	2.320	0.781		3.972	0.018
A	-1.245	0.520	-0.904	-2.394	0.044*
B	-0.651	2.204	-0.107	-0.295	0.775
C	0.485	1.578	0.115	-2.372	0.042*

D	0.377	1.071	0.206	2.352	0.023*
E	-0.320	0.530	-0.218	-0.605	0.562
F	0.101	0.209	0.149	2.485	0.038*
G	-0.027	0.452	-0.23	-2.060	0.034*
H	0.035	0.656	0.025	0.053	0.959
I	-0.501	0.744	-0.260	-2.673	0.019*
J	0.286	0.922	0.128	0.310	0.764
K	0.094	0.558	0.052	0.169	0.870
L	0.876	0.429	0.660	2.045	0.025*
M	-0.737	0.722	-0.407	-3.021	0.017*
N	0.391	0.566	0.261	0.691	0.509
O	0.024	0.425	0.015	2.057	0.029*
P	0.395	0.417	0.300	0.948	0.371
Q	0.000	0.694	0.000	0.001	0.999
R	0.399	0.476	0.310	-2.462	0.046*
S	-0.575	0.424	-0.468	-1.357	0.212
T	-0.267	0.458	-0.241	-2.583	0.035*
U	-0.280	0.725	-0.182	-0.386	0.709
V	-0.251	0.462	-0.191	-0.544	0.601
W	-0.019	0.877	-0.009	-0.021	0.984

*= significant coefficient 0.017-0.044

Descriptions of the Significant Variable(s)

In this section, only availability of market facilities (C) among the 11 significant variables (Table 10) in the locations of the industrial plants was described since the main focus of this study was to determine the contributions of market facilities in the location of industrial plants at the 9th Mile area of Enugu State, Nigeria.

This variable has significant level of 0.042. It is the opportunity of reaching people who have the ability or bargaining power to buy industrial products. This is related to the sale of industrial products, and volume of sales affects revenue, profit as well as the industrial progress. Thus, areas where capable people converge or with people who can buy industrial products are always attractive to industries. With the influx of large population and extensive pull of industrial activities, the study area is growing into a large market center for the products of industrial plants. The market growth impetus of the area that result from the teaming able population, availability of input materials, nodality as well as being central to many states from east, west, north, and south gave rise to its position as both local and regional market center for industrial products. This is one of the reasons for the significance of the variable and the attraction of all the studied industrial plants in the area in order to enjoy from the growing affluent of both local and regional markets. However, Synco Oil Ltd., Champion Bakery, Glory Hotel, and Chisco Transport Nig. Ltd. (Haulage Division) (12.5%) were pulled to the area for strong reasons other than the available market facilities. In other parts of the world either more or less developed, examples of England, China, and Sudan there is increase in demand for market as a pulling factor in industrial locations. This informed the reason for Rubalcaba, Gallego, Gallo, and Garrido (2012) to say that demand-oriented factors have the strongest explanatory power in the location of business services in the major cities of Europe.

V. CONCLUSION

In conclusion, market is very important in the industrial production activities because it is the medium through which industrial products are sold. This fact explains the reason for production activities to depend on the available market facilities for their survival, and industries are concerned with the potential size of a market for especially widely-used consumer products. As found in this study, market has become of increasing importance in location choice of industries, and more vibrant features of market are considered. These features are the size of market which is considered in terms of volume of sales and demand for industrial products, development in transport facilities in order to make transport easier, cheaper cost and reduction in the effect of the friction of distance, and linkage effects as well as the advantages of industrial agglomerations. It is on this premise that industries especially MNCs are increasingly pursuing market-seeking rather than asset-seeking or knowledge-seeking strategies in their location decisions so as to remain relevance in production activities.

VI. RECOMMENDATION

The study area is speedily growing in different industrial production and service activities as a result of its geographical position. The findings of this work also portray the area as providing growth impetus for both local and regional market facilities that are important and attractive to varieties of industrial activities be it manufacturing or service providing activities. In this regard, it is recommended for the entrepreneurs to consider the area as a new place for industrial growth opportunities because of the influx of different kinds of industrial resources into the area. Again, industrial products sale well in the area due to the availabilities of local and regional market facilities that provide demand for the products of industries in the area.

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