The Impact of Location Decision on Small, Micro, and Medium Enterprises' Performance in Johannesburg

Alice Kabamba Lumbwe, Eveth Nwobodo Anyadiegwu and Charles Mbohwa

Department of Quality and Operations Management
University of Johannesburg
Johannesburg, South Africa
alicekabamba3@gmail.com, evethn@uj.ac.za, cmbohwa@uj.ac.za

Abstract

SMMEs are drivers of economic growth in many economies. In South Africa, they play the strategic role of mediating on the triple challenge of poverty, unemployment, and inequality. However, many SMMEs fail within the first five years because of diverse challenges which they face regularly. Location decision is one of the ten critical decisions of Operations Management. Although, numerous SMMEs owners or managers do not pay attention to the importance of location decisions, yet the location of a business significantly impact on the performance and survival of the business. Several factors affect a location decision, which either provide a positive or negative outcome on business performance. The objective of this research is to examine location factors that may affect location decision and how these factors affect the performance of SMMEs. The results of the study show that positive relationships existed between electricity affordability, customer flows, safe and healthy areas of business environment (independent variables) and business performance (dependent variables). Affordability of electricity tariff scored the strongest positive relationship; showing that business owners/managers consider electricity cost as an important factor to observe when searching for suitable business premises. Each location choice provides various potentials opportunities and sometimes threats which often emerge as an advantage or an impediment. It is therefore imperative that business owners or managers pay attention and consider seriously, those factors that will determine the quality of their location decisions. This study provides SMMEs owners or managers with empirical evidence that location factors indeed affect location selection, and hence business performance.

Keywords

Small, Micro and Medium Enterprises, location decisions, business performance.

1. Introduction

While the importance of the Small, Micro, and Medium enterprises (SMMEs) is internationally acknowledged, defining an SMME is a challenging task, as SMMEs are variously defined on the basis of problematics surrounding their countries' governance, economy, social, geo-localisation opportunities, and local perspectives (Credit, 2011) (Berisha and shiroka-pula, 2015). In South Africa, The National Small Business Act of South Africa defined SMMEs as distinct business entities managed by its owner or owners. Generally, any enterprises can be classified in accordance to employment, turnover and assets. Although all three criteria are applicable to an enterprise, for practical purposes, the number of employees is regarded as the most important criterion when defining SMMEs. With reference to South Africa, the National Small Business Act 102 of 1996 stipulates that SMMEs are grouped into four levels of development: (1) survivalist, (2) micro, (3) small, and (4) medium-sized enterprises (NTSIKA, 1997: 9). The first category, "survivalist", performs in an informal way. SMMEs within this category are usually operated by unskilled individuals who seek financial survival. Survival enterprises have minimal investment, capital; hence, they do not generate as much income as they need to grow. Owners of the businesses lack basic training needed to manage a business. The second category are Micro enterprises which also operate like survivalist enterprises. However, micro enterprises are likely to change to a formal small business. In the third category of small enterprises, also called "very small enterprises", less than ten paid workers are employed. Finally, the third category, "small enterprises", belongs to the formal economy in which owners of businesses are able to employ less than hundred employees who are capable

of applying techniques and using related technology. Finally, medium enterprises operate like small enterprise, but their organizational structures include up to 200 employees (Joubert, and Schoeman, 1999) (Malefane, 2013) (Le Fleur, 2014)

Small, medium and micro enterprises play a significant role in the economy of South Africa. They create more employment than large enterprises. According to the South African National Treasury research in 2008, eight out of ten new job opportunities created in South Africa are derived from the SMMEs as they estimably contribute to the employment countrywide (Makakane, 2014). In 2016, 72.9% of South Africans were employed and 47% of these were hired by SMMESs (Rabothata, 2017).

1.1. Background

Johannesburg is South African's biggest city and capital of Gauteng province (figure 1). The city is the economic powerhouse in the Southern region of Africa and also seen as a model for Africa's economic development. Johannesburg is the wealthiest sub-Saharan city and without doubt, the economic hub of Africa (Dlamini, 2017). The city is a major contributor to the South African economy. Its economic growth rate is superior to both the national and Gauteng economic growth (Karuaihe, 2013).

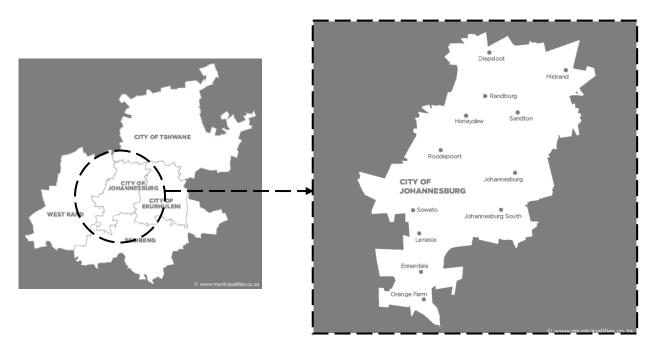


Figure 1. City of Johannesburg (Municipalities, 2018)

Good entrepreneurial undertaking requires some basic skills. These skills include leadership, innovation, and the ability to make informed decisions in the events of technical, economic, social and environmental risks. Therefore, a successful entrepreneur is someone who has the ability to manage the ever changing commercial-economic situation and taxation laws. This implies that an entrepreneur is also someone who is able to make sound strategic decisions concerning the business especially location decisions (Chatterjee and Das, 2016).

The location decision of a facility is part of a corporate planning process. Generally, an enterprise initiates the site selection process by forecasting future capacity requirements. If capacity shortages are in the forecasts, the managers may choose to subcontract, expand existing sites, or relocate to a new site. If the business owners or managers decide on relocating, the location decision is formed to accomplish the project. The structure of the location decision team depends on the enterprise organization. In some companies, the location decision team generally consists of representatives from relevant areas, such as real estate. The role of the site selection team is to identify and determine what characteristics and factors are important for the new location by considering the enterprise's overall strategy (Blair and Premus, 1987).

Generally, the starting point of many start-up enterprises initially is from informal locations, for example, the home of the business owners from where they improve and gradually grow, to the extent of deciding to relocate to more spacious and formal premises. This expansion most often results in the creation of additional job opportunities (Barnard et al., 2011).

Despite the ability of the South African SMMEs to stimulate both economic growth and job opportunities, some of them face various challenges including poor location due to lack of knowledge on decision strategies. This consequently restrain them from achieving the standards set; hence impact on the performance and productivity of their enterprise. From many scholars, location decision problems have been prevalent for a long time and, are often studied and referred to as plant or facility location problems (Chen et al., 2014). It is important for the business owners and managers to consider the implication of poor location decisions on their business's performance, since the survival and growth is dependent on location choices. As a matter of fact, SMMEs have a high possibility of failure than large and well-established businesses (Willerton, 2010). Additionally, it has been opined that location decision is the most decisive factor that determines an enterprise success or failure. Therefore, a good location is the "keystone to profitability". (Hernandez, 2001).

The first objective of the study is to identify important factors that generally affect location decision. Secondly, investigate whether relationships between the location factors and the performance of enterprises exist. The scope of this research is limited to the SMMEs in the city of Johannesburg in South Africa.

Emerging businesses contribute significantly to poverty reduction, stimulation of economic activities. Innovation is propagated as a competitive strategy to improve the productivity of the existing SMMEs (Lekhanya, 2015). This research is of value to business owners who are saddled with the problem of where to locate their businesses. It also provide an insight to business owners to gain more knowledge on locations decisions and how location choices can influence their business performance and survival. Furthermore, this study demonstrate that individual or combined factors selected can help determine if they are on the right path towards making a good location decision. In South Africa, SMMEs are extensively promoted by the local government. In fact, the provincial investment portfolios in 2017, allude to the fact that small and medium enterprise are indispensable for the development of the South African economy (Benghu, 2017).

2. Literature

Over the years, the SMME sector has been considered as an important agent in maintaining and improving the economy and development of South Africa (Adams et al., 2012). SMMEs have extensively and consistently contributed to the growth and improvement of the South African economy, particularly in the creation of employment, which also plays an important role in cultivating and enhancing socio-economic development, and reducing poverty as well as resulting in the mitigation of crime (Abor and Quartey, 2010). The performance of SMMEs has generated considerable attention from scholars and other decision-makers. Research into SMMEs performance measured SMMEs performance as overall outcomes of a business in terms of cash flow, profitability, customer satisfaction, sales growth and employee growth (Sidik, 2012) (Pooe et al., 2015).

2.1. Location decisions

Location decision is a well-established research area within Operations Management and is one of the ten major decision areas of operations management (Render and Heizer, 2016). Extant literature demonstrates the relevance of good location to cooperate prosperity (Melo et al., 2009, Drezner and Hamacher, 2004). Location decision involves the establishment of the physical geographical space to build a factory or a business. It is a long-term commitment and of strategic relevance. The need for appropriate facility location is significant for both new businesses and existing businesses. Location decision alternatives are about (1) Expanding an existing facility instead of relocating, (2) Maintaining the current location while adding another facility elsewhere, or (3) closing the existing location and locating to another site.

The objective of location decision is to maximize the benefit of an enterprise (Render and Heizer, 2016). On the other hand, location decision requires choosing a site for a business to minimize the cost of operations (Kodali and Routroy, 2006). According to Aswathappa et. al., (2010) "Plant location is the function of determining location for a plant for maximum operating economy and effectiveness." Location decision is an aspect of operations management related to the location of new business in order to optimize at least one objective such as cost, profit, distances, competitive advantage, service, or waiting time. The choice of where to locate a business is a decision that every business has to

make including in public and private businesses, military environment, national and international domains etc. (Farahani et. al., 2010).

Location decision is a broad subject, impacting many operational and logistical decisions, and location projects usually implicate long-term investments. On the other hand, an inappropriate business location can negatively affect a business performance, and may bankrupt an enterprise. Once a wrong location decision is made, it becomes extremely difficult and costly to change, particularly in large facilities (Aswathappa et. al., 2010). Thus, business owners/managers must choose not only a well performing facility for the current situation, but also a viable facility for the lifetime of the company (Farahani and Hekmatfar, 2009). A research shows that when business owners search for a location to conduct their business, they have a tendency to select a location that will satisfy the need of the business. Choosing an appropriate location can significantly increase the enterprise's market competitiveness, positively resulting in greater profit, reduced cost, and employee satisfaction. However, inappropriate location can have consequences and negative effects on the enterprise (Martyniuk et al., 2017). Therefore, before making a location decision, it is imperative for business owners to know their type of enterprises (manufacturing, service, retail or industrial) because each of them has their own specific location requirements. Then, location factors and market research should be examined so that the selection of the business location is informed by data rather than gut feeling. Location factors represent a set of crucial elements in the selection of location (Hlinku, 2014).

2.2. Strategic importance of location

Location selection plays a significant role in the strategic design of an enterprise, especially international ones (Owen and Daskin, 1998; Melo et. al. 2009). However, it is a complex process that does not allow a business to change its location frequently. Choosing the appropriate location among a given set of alternatives is difficult work requiring the assessment of both qualitative and quantitative factors (Athawale and Chakraborty, 2010).

One of the strategic decisions made by many enterprises is the location of their businesses. Render and Heizer affirmed that many companies throughout the world use the concept and techniques of location decision. Location has a considerable influence on the overall risk and profit of a business. Companies make location decisions infrequently usually because of the capacity of the facility or the changes of the labour productivity, exchange rate, cost and local attitudes (Render and Heizer, 2016).

2.3. Factors affecting location decision

When deciding on a location, the analysis to inform any location decision should include certain potential factors (MacCarthy, 2003). There are various factors affecting the business owners' decision making processes. However, Business owners can control their location decisions but are not able to control single or combined location factors (Verdonk, 2010). Heizer and Render suggested that the key success factors affecting locations decisions should be grouped based on the country, region, site decisions and type of the company. This includes: rental rates, labour, the electricity tariffs, proximity to customers, competitors, or suppliers, and attractiveness of the location (in terms of considerations such as safety and culture). Based on the liretaure, Figure 1 illustrates a theoretical framework of the factors that affect SMMEs performance. The premises cost and availability also determine where the location of the business will be (Heizer and Barry, 2014). As a matter of fact, properties offers different rental tariffs depending on the type of businesses due to the demand and supply in the property market (Barnard, et al., 2011). The factors are further discussed below:

Labour: A crucial factor in location decisions. Considered as variable costs, this factor is particularly important to location decisions and receives more attention when searching for a relevant site (Jackson, 2010). In fact, it has observed that generally location decisions are commonly made based on the labour factor. Labour includes wage rates, availability of qualified workers and labour force, workers attitudes towards the work, availability of cheap labour cost in community, as well as the overall work ethic, and the measurement of the degree of turnover and absenteeism of the area (MacCarthy, 2003; MccCubbrey, 2016).

Electricity rate: The electrical requirements of appropriate location differ based on the sector or type of the business. Nevertheless, regardless of the type of property business owners must ensure that the premises conform to health and safety regulations. Electricity is one of the largest business property expenses which can be tackled by business owners through different cost-saving approaches such as well-managed energy and lighting. These approaches can prevent enterprises from abrupt increases of electricity cost and avoid incurring those cost to end users products or services.

Proceedings of the International Conference on Industrial Engineering and Operations Management Paris, France, July 26-27, 2018

Therefore, it would be advantageous to search for premises that already have electrical energy-efficient system installed (Barnard, et al., 2011).

Location proximity to customer: Locating proximally to customers is a major factor for customer-focused enterprises, but particularly businesses providing services such as restaurant and barbers who believe that locating near the market targeted is the primary location factor. Other reason for location proximity to the customer is to avoid transportation cost of finished goods as well as maintaining the just in time (JIT) production (Eze et al., 2015).

Location proximity to suppliers: Other businesses prefer to locate proximally to raw materials and suppliers due to the transportation cost, perishability of products (Heizer, Barry, 2014). In addition, some businesses prefer to locate near their suppliers when a major raw material input is required and that raw material is costly to ship in its raw state (Barnard et al., 2016).

The inputs of some businesses are raw materials, which might be the major input to produce product or provide services. Materials might not necessarily be use for the production of products but for equipment, everything that facilitate the production process (Fuchs et al., 2011).

Location proximity to competitors: Surprisingly, some businesses prefer to locate close to other competitors. It is called "clustering". It is a concept that support the fact that locating near competitors is an indication of attraction of competition (Render and Heizer, 2014). Clustering is advantageous for both customers and businesses in the sense that for customers it decreases the time of searching a suitable enterprise because clustering provides customers various choices in a specific region, and for businesses it increases competitive advantage (Chen and Tsai, 2015). Either facing direct and indirect competitors, the competition factors commonly happen from low cost and the differentiation of products or services. Competition also involves finding good suppliers in the sense that if there are potentials customers, supplier will obtain contracts from them. Competition of the supplier can influence the whole supply chain management group because if the density of competition is high, it would affect material cost, transportation cost and quality of service (Thumawongchai and Huang, 2011).

Safety and health regulations: Every business owner should make sure that the premises location comply with safety, welfare, and healthy regulations, furthermore, the workplace environment should be comfortable for employees. Research shows that workplace environment are positively correlated with productivity and job satisfaction of employees in the sense that physical workplace has an impact on the employees attitudes. Those attitudes are formed by controlled noise level inside or outside the premises, a quality internal workplace atmosphere characterised by the right natural and artificial lighting, temperature, and adequate ventilation system (Fassoulis and Nikolas, 2015).

2.4. Businesses performance

Measuring performance is necessary for SMMEs because it helps them to determine the success or failure of the business and acts as an indicator to achieve sustainable improvement activities (Kirsten et al., 2015). Business performance is also affected by both quantitative and qualitative factors and represents both financial and non-financial aspects of the business's performance. Some financial aspects used to measure business performance include sales revenue, profitability, sales growth, cost reduction, and return on investment. (Barnard, et al., 2011). Meanwhile, non-financial aspects involve factors such as the quality of product or services, productivity, customer satisfaction, the quality of materials, the efficiency of production processes, innovation and the performance of employees (Perera and Baker, 2007) (Vos and Roulston, 2008).

The location decision conceptual framework has six independent variables and business performance as the dependent variable. The independent variables are labour, electricity rate, proximity to customer, proximity to supplier, Proximity to competitors, and safety and health. Figure 2 shows relationship between these predetermined location factors and business performance.

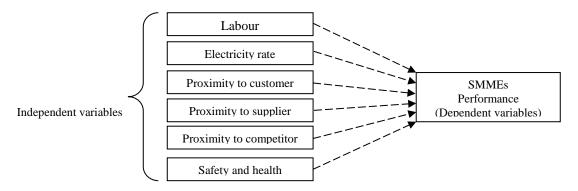


Figure 2. Conceptual framework (Authors)

3. Methodology

3.1. Research design

The objective of this research is to establish the influence of location decision factors on SMMEs' performance. The evaluation of the location decision factors was based on the literature review of Barnard, Kritzinger, and Krüger (Banard et al., 2011). The location factors were compared against the performance of SMMEs to determine their relationship.

This research used quantitative descriptive survey. A survey refers to collecting information from a sample of people through their response to series of questions, with the objective of describing and exploring human behavior (Ponto, 2015). Quantitative data refers to data or information that are descriptive in nature. They are obtained by using structured and validated data-collection instruments and statistically analyzed. The findings should be generalisable and therefore can be applied to other populations, facilitating to look at cause and effect as well as making forecasting (Leung, 2015). The purpose is to determine the relationship between an independent variable and a dependent variable in a population.

3.2. Research instrument

A survey questionnaire was used to collect the primary data for this study. The questions were designed to achieve the objective of the study. The survey was divided into two parts: the first part was dealt with the demographical aspects and the second part contained the close-ended questions. A five-point Likert scale on location factors was used in this questionnaire with responses ranging from Strongly Disagree (1), Disagree (2), neutral (3), Agree (4), Strongly Agree (5). To determine the reliability of the scale a Cronbach's Alpha calculation was conducted to test the internal consistency within the items.

3.3. Data collection

The population for this study represents business owners/managers of SMMEs in the manufacturing and service sector in Johannesburg. The targeted sample was selected from this population. Due to the time constraint 80 SMMEs were approached. Only 56 SMMEs responded by completing the questionnaire.

The respondents of the survey were informed that their responses to the survey would only be used for the purpose of the study and would remain confidential. The results obtained were an explanation on the impact of the independent variables (Labour, electricity rate, proximity to customer, proximity to supplier, proximity to competitors, safety and health regulations) on the dependent variable (SMMEs performance).

The SPSS 25 analytical software was used to analyse the data. This software was able to analyse descriptive statistics and inferential statistics such as chi-square and logistic regression. From all this, it was possible to conclude on the impact of location factors on SMMEs performance.

3.4. Data analysis

Reliability relates to the consistency of a measure. A respondent completing an instrument meant to measure a variable should approximately produce the same responses each time the test is completed (Heale, 2015). The Cronbach Alpha coefficient was calculated in order to assess the internal reliability of all items in the questionnaire.

The descriptive analysis is used to summarize the respondents' characteristics and their businesses. A number of statistical methods were used to analyse the primary data gathered from the questionnaires in order to test the relationship between the independent and dependent variables. Descriptive statistics involve gathering, reporting, and summarising data so that a simple representation of a large amount of data can be comprehended (Loeb et al., 2017).

Inferential statistics are used to draw conclusions about a population on the basis of the sample (Ali and Bhaskar, 2016). In order to verify whether relationships exist between the independent variables (Labour, electricity rate, proximity to customers, proximity to supplier, proximity to competitors and safety and health) and the dependent variable (business performance), a chi-square (χ 2) test is used. This test gives only evidence of a relationship or no relationship. On the other hand, logistic regression is used to determine which variables identified is the most important.

4. Findings and discussions

4.1 Frequency Distributions on demographic data of respondents

Survey respondents were all SMME owners/ managers and the largest demographic within the sample group was more black males between the ages of 30 and 39 years old. As indicated in Figure 3, 55.6% of the respondents were male. On the other hand, 44.4% were female. Figure 3 shows that the majority of the respondents are from black population group with a percentage of 55.4%, one possible reason for this high ratio can be the percentage distribution of the population in Johannesburg. 76.4% of the population are classified as black, 87.6% as black African, 5.6% as coloured and 4.9% as Asian/Indian (Statistics South Africa, 2011). The results also show that only 5.4% are from the white population group. Figure 5 indicates that most respondents were between the ages of 30-39 years old. 33.9% were between the ages of 20-29 years, 23.2% between the ages of 40-49 years, and 5.4% between the ages of 50-59. Few respondents who were less than 20 years old participated in the study. In summary, there are more young black South African entrepreneurs who participated in the study.

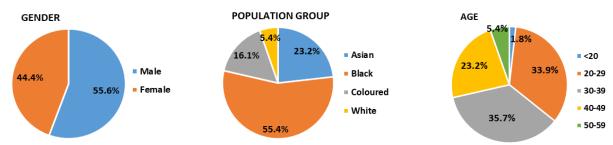


Figure 3. Demographic data of respondents

Most respondents were owners of their enterprises. Table 1 shows that 69.6% are owners, 12.5% are mangers, and 17.9% are both owners and managers of their businesses.

Table 1. Occupational level				
	Frequency	Valid Percent		
Manager	7	12.5		
Owners	39	69.6		
manager and owner	10	17.9		
Total	56	100.0		

Table 1. Occupational level

Table 2 indicates that most owners or managers who participated in the survey have a working experience within their enterprises from 3 to 6 years. 33.9% of managers or owners have from 6 to 10 years working experience, 14.3% between 10 and 20 years working experience, and few owners have been running their businesses for less than 3 years.

Table 2. Working experience

	Frequency	Valid Percent		
0-3	3	5.4		
3-6	26	46.4		
6-10	19	33.9		
10-20	8	14.3		
Total	56	100.0		

4.2. Frequency Distributions on demographical data of respondents' enterprises

The results represented in Figure 4 reveals that the majority of the business owners or managers businesses have been running between 3 and 6 years and the most common size of businesses were small enterprises counting employees within a range of 10 to 49 workers. Finally, 87.3% of respondents indicated the type of their business falling within the service sector meanwhile the 12.7% of businesses are from the industrial or manufacturing sector.

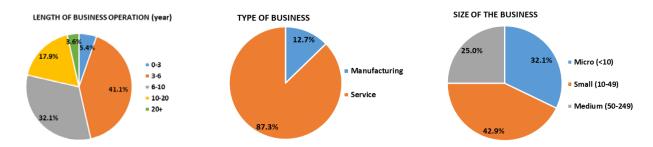


Figure 4. Demographical data of respondents' businesses

4.3. Reliability results

To determine the reliability of the questionnaire items, the Cronbach Alpha coefficients (α) were calculated. The results report on the variables, namely labour, electricity rate, proximity to customer, proximity to supplier, and safety and health. This study does not report on the Cronbach Alpha coefficients of proximity to competitors as it was not possible to calculate its reliability. Table 3 provides the results of Cronbach Alpha coefficients (α) mentioned:

Table 3. Cronbach's coefficient alpha (α) value

Variables	Cronbach Alpha (α)		
Labour	0.92		
Proximity to customer	0.69		
Proximity to supplier	0.79		
Safety and health	0.87		

A measuring instrument or item is classified as reliable if the reliability coefficient is equal to or above 0.70. The greater the Cronbach Alpha coefficients, the greater the internal reliability of the items will be (Taber, 2017). For the purpose of this study the limit of 0.70 was used. As Table 1 illustrates, some variables obtained Cronbach Alpha coefficients of above 0.70: Labour and safety and health achieved the highest internal reliability. The variable electricity rate obtained the lowest and poorest Cronbach Alpha coefficient. In conclusion, beside electricity rate, the rest of these items were deemed acceptable.

4.4. Chi-square results

The Chi-square is a worthy analysis tool that provides significant information about the nature of research data (McHugh, 2013). It examines if there is a relationship between two variables. In another words, it can test if two variables are independent or not. In order to confirm that a significant relationship exist, a *P* value should be less than 0.05 (Greenland et al., 2016). In this research, The items that pass the chi square test are the following: Healthy area

with a p value of 0.047, safe area with a p value of 0.046, customer high flow 0.042, and affordability of electricity p<0.001. The item that provides a significant result is the affordability of electricity.

Table 4. Chi square tests

	Chi square value	P value	Significance
Labour availability	0.019 ^a	0.891	NS
Reasonable labour cost	2.511a	0.113	NS
Suitable labour cost	2.511 ^a	0.113	NS
Labour skills	0.650a	0.420	NS
Electricity cost	1.702ª	0.192	NS
Affordable electricity	15.633a	0.000	S
Proximity to customer	0.015 ^a	0.902	NS
Customer accessibility	1.286ª	0.257	NS
High customer flow	4.139 ^a	0.042	S
Proximity to supplier	0.777^{a}	0.378	NS
Supplier accessibility	5.721 ^a	0.017	S
Proximity to competitors	1.542ª	0.214	NS
Safe area	3.987 ^a	0.046	S
Healthy area	3.954a	0.047	S

Although "supplier accessibility" meets most of the chi square requirements, this category does not exceed the expected count (1.73) which should at least be 5.

Based on the result in Table 4, selecting an area where the electricity tariff is affordable has significant impact on the SMMEs performance. In addition, this research demonstrates that selecting a safe and healthy area in Johannesburg will definitely affect the survival of the enterprise. Finally, locating in an area where the accessibility to suppliers is possible may influence a business performance.

4.5. Logistic regression results and interpretation

Unlike the chi-square, Logistic regression measures the strength of the relationship between the outcome variable the predictors (Liao and McGee, 2003). The logistic regression table below shows which items have the most significant relationship with the dependent variable (business performance). Affordable electricity tariff has the strongest relationship, followed by safety and health, and high customer flow.

Table 5. Logistic regression result

Items	В	S.E.	Wald	df	Sig.	Exp(B)
Safety and Health	1.606	0.644	6.218	1	0.013	4.985
Affordable electricity tariff	-2.179	0.837	6.775	1	0.009	0.113
High customer flow	-2.396	1.149	4.349	1	0.037	0.091
Constant	-3.503	2.159	2.633	1	0.105	0.030

5. Limitation and recommendations for future study

This study only targeted manufacturing and service industries in Johannesburg, South Africa. Consequently, this could limit the generality of the findings to other sectors such as the trading and distribution sectors. Hence, it is recommended that future research should cover other sectors and other geographical areas. In addition, there are many other location factors not examined in this research, such as transportation, location proximity to police station (security), location based South African laws, xenophobia, quality of life, and availability of communication network. Examining these additional location factors would provide SMMEs owners or managers with greater knowledge about location decisions. Narratives on individual experiences of SMME owners on the consequences of their location choices can enrich the understanding, therefore, in depth interviews are recommended. The interviews will allow business owners and managers to share their lived experience on the factors that informed their location choices and the perceived implications.

6. Conclusion and recommendations

Many start-up mistakes can sometimes be remedied, but a poor location decision is difficult, and sometimes impossible to change (The staff of entrepreneur media, 2015). The location of a business significantly impacts on the business's survival. Each location choice provides various potentials, opportunities and sometimes threats which often emerge as an advantage or an impediment. It is therefore imperative that business owner and managers pay attention and consider seriously, those factors that will determine the quality of their location decisions.

Given the high level of business failure among SMMEs all over the world and South Africa in particular; the study is a contribution to the illumination of the understanding of new ventures in the area of location decisions; so that they are able to make informed decisions which may improve the chances of survival of their businesses. This research has presented the perception of location decision of SMMEs in the city of Johannesburg. Particularly, the research investigated the degree to which the predetermined variables (labour, electricity factors, proximity to customers, proximity to suppliers, proximity to competitors, and safe and healthy location) affect the dependent variable which is business performance.

The research established that among all the variables, affordable electricity tariffs has the strongest and positive relationship with business performance. It was also discovered that safety and health and high customer flow have a relationship with business performance. Nevertheless, the theoretical results show that all six independent variables influence location decisions and therefore business performance.

Furthermore, more companies as part of their contribution to the growth and development of SMMEs, should sponsor programs and conferences to share ideas and experiences on the import of location decision and what criteria can be used for location analysis to enable SMMEs make informed location selection decision for their business.

Acknowledgements

The authors acknowledge the kind support of Mrs. Juliana Van Staden from Stakon University of Johannesburg who assisted with the data analysis and all SMMEs owners and managers who participated in the study.

References

- Abor, J., and Quartey, P., Issues in SME development in Ghana and South Africa, International Research Journal of Finance and Economics, Vol. 39, pp. 218-228, 2010.
- Adams, J.H., Khoja, F.M., & Kauffman, R., An empirical study of buyer–supplier relationships within small business organizations, Journal of Small Business Management, Vol 50, no 1, pp. 20–40, 2012.
- Ali, Z., & Bhaskar, S. B., Basic statistical tools in research and data analysis. Indian Journal of Anaesthesia, Vol 60, pp. 54–61. 2016.
- Aswathappa, K., Bhat, K., Shridhara, Production and Operations Management, Global Media, 2010.
- Athawale, V.M., and Chakraborty, S., Facility Location Selection using promethee II Method, Proceedings of the 2010 International Conference on Industrial Engineering and Operations Management, 2010.
- Barnard, F.L., and Akridge, J.T., and Dooley, F.J., and Foltz, J.C., and Yeager, E.A., available: https://books.google.co.za/books?id=XBu4CwAAQBAJ, publisher Taylor and Francis, 2016.
- Barnard, S., Kritzinger, B., and Kruger, J., Location decision strategies for improving SMME business performance. Acta Commercii, Vol 11, no 1, pp.111-128, 2011.
- Benghu, N., Parliamentary monitoring group. Available at: https://pmg.org.za/tabled-committee report/2930/, May 20, 2017.
- Berisha, G. And shiroka-pula, J., Defining small and medium enterprises: a critical review. Academic Journal of Business, Administration, Law and Social Sciences, 1(1): 17–28, 2015.
- Blair, J.P., Premus, R., Major Factors in Industrial Location: A Review. Economic Development Quarterly, Vol. 1, no. 1, pp. 72-85. 1987.
- Chatterjee, N., and Das, N., A study on the impact of key entrepreneurial skills on business success of Indian microentrepreneurs: A case of Jharkhand Region. Global Business Review, Vol 17, no 1, 226–237, 2016.
- Chen, L., F., Tsai, C., T., Relate location selection studies, Data mining framework based on rough set theory to improve location selection decisions: a case of a restaurant chain, pp. 197-206, 2015.
- Chen, L., Olhager, J., and Tang, O., Manufacturing facility location and sustainability: A literature review and research agenda. International Journal of production Economics, Vol 149, pp.154-163, 2014.
- Credit, M., E., A., T., Literature review on small and medium enterprises' access to credit and support in south africa,

- Dlamini, S.Q., Solid waste management in South Africa: exploring the role of the informal sector in solid waste recycling in Johannesburg, Doctoral dissertation, 2017.
- Drezner, Z. and Hamacher, H.W., Facility Location: Applications and Theory. New York: Springer, 2004.
- Eze, F., Odigbo, B., & Ufot, J., The Correlation between Business Location and Consumers Patronage: Implications for Business Policy Decisions. British Journal of Economics, Management & Trade, Vol 8, no 4, 294-304, 2015.
- Farahani H.Z., and Hekmatfar M., Facility Location: Concepts, Models, Algorithms and Case Studies, Springer-Dordrecht, Heidelberg, 2009.
- Farahani, R., SteadieSeifi, M., and Asgari, N., Multiple criteria facility location problems: A survey, Applied Mathematical Modelling, Vol. 34, pp. 1689-1709, 2010.
- Fassoulis, K., Nikolas, A., The concept of workplace. The workplace as a factor of job satisafaction and productivity, Vol 13, no 4, pp. 335, 2015.
- Fuchs, E.R.H., Field, F.R., Roth, R. and Kirchain, R.E., Plactic Cars in China. The Significance of Production Location Over Markets for Technology Competitiveness in the United States Versus the People's Republic of China. Int. J. Production Economics, [e-journal]. Available through: Science Direct database, October 16, 2017.
- Greenland, S., Senn, S. J., Rothman, K. J., Carlin, J. B., Poole, C., Goodman, S. N., & Altman, D. G., Statistical tests, P values, confidence intervals, and power: a guide to misinterpretations. European Journal of Epidemiology, Vol. 31, pp. 337–350, 2016.
- Heale, R., & Twycross, A., Validity and reliability in quantitative studies, Evidence-based Nursing, Vol 18, pp. 66–67. 2015.
- Heizer, j., Barry, R., Principles of operations management sustainability and supply chain management, 9th edition, Harlow: Pearson education limited, 2014.
- Heizer, j., Barry, R., Operations Management: Sustainability And Supply Chain Management, Global Edition, [N.p.]: Pearson. 2016
- Hlinku, A., Localization factors in decision making of location of selected enterprises, pp. 305-313, 2014.
- Jackson, M., Area development, Available at: http://www.aredevelopment.com/labourEducation/july2010/labour-trumps-factors-decision7893.shtmal?page=2 May 24, 2017.
- Joubert, J. N., & Schoeman, N. J. (1999). Small, medium and micro-sized enterprises (SMMEs) and the housing construction industry: a possible solution to South Africa's socio-economic problems. South African Journal of Economic and Management Sciences, 2(1), 21-33.
- Karuaihe, S., Human science and research council, available: http://www.hsrc.ac.za/en/review/hsrc-review-january-2015/state-of-economy-city-of-jhb, March 2, 2018.
- Kirsten, E., Vermaak, F., and Wolmarans, H., Performance measurement in small and medium enterprises: South African accountants' view, Journal Of Economic And Financial Sciences, Vol. 1, pp. 13, 2015.
- Kodali, R., and Routroy, S., Decision Framework for selection of facilities location in competitive supply chain, Journal of Advanced Manufacturing System, Vol. 5 no.1, pp. 89-110, 2006.
- Le Fleur, H., Koor, J., Chetty, V., Ntshangase, S., Mackenzie, R., Rawoot, F., informal and smme retailers in south africa, Available at: http://www.wrseta.org.za/ILDP_2014/Syndicate%201-%20Ratoon.pdf, 2014.
- Lekhanya, L. M., Public outlook on small and medium enterprises as a strategic tool for economic growth and job creation in South Africa, Vol. 4, no. 4, pp. 412, 2015.
- Leung, L., Validity, reliability, and generalizability in qualitative research. J Family Med Prim Care, Vol. 4, no. 3, pp 324–327, 2015.
- Liao, J. G., and McGee, D., Adjusted coefficients of determination for logistic regression, The American Statistician, Vol. 57, no. 3, pp. 161-165, 2003.
- Loeb, S., Dynarski, S., McFarland, D., Morris, P., Reardon, S., and Reber, S., Descriptive Analysis in Education: A Guide for Researchers, National Center for Education Evaluation and Regional Assistance, 2017.
- MacCarthy, B. I., Summary of major criteria and sub-factors affecting international location decisions. Factors affecting location decisions in international operations a Delphi study, Vol 23, No. 7. pp. 796-797. 2003.
- Makakane, M., Available at: http://morongwamakakane.co.za/smmes-play-role-south-african-economy/, May 20, 2017.
- Malefane, S.R., Small Medium, and Micro Enterprise and local economic-base restructuring-a South African local government perspective. Journal of Public Administration, Vol. 48, no. 4, pp.671-690, 2013.
- Martyniuk-pęczek, J., Martyniuk, O., Gierusz, A., And Pęczek, G., Determinants of SME location in a suburban area: Evidence from the Gdańsk–Gdynia–Sopot metropolitan area. Urbani Izziv, Vol.28, no. 1. pp.122-134, 2017.
- MccCubbrey, D., Boundless, Available at: http://www.boundless.com/users/235420/textbooks/business-fundamentals/operations-management-7/operations-decisons-33/location-decisions-175-15478/, May 24, 2017.
- McHugh, M.L., The chi-square test of independence. Biochemia medica: Biochemia medica, Vol. 23, no. 2, pp.143-149, 2013
- Melo, M.T, Nickel, S., and Saldanha-da-Gama, F., Facility location and supply chain management A review, European Journal of Operational Research, Vol. 196, pp. 401-412, 2009.
- Municipalities, Available at: https://municipalities.co.za/map/2/city-of-johannesburg-metropolitan-municipality, 2018.
- NTSIKA Enterprise Promotion Agency, The State of the Small Business in South Africa, Second Edition, Pretoria: NTSIKA, 1997.

Proceedings of the International Conference on Industrial Engineering and Operations Management Paris, France, July 26-27, 2018

- Owen, S.H., and Daskin, M.S., Strategic facility location: A review, European Journal of Operational Research Vol. 111, pp. 423-447. 1998.
- Perera, S. and Baker P., Performance measurement practices in small and medium size manufacturing enterprises in Australia. Small Enterprise Research, Vol. 15, no. 2, pp. 10-30, 2007.
- Ponto, J., Understanding and evaluating survey research. J Adv Pract Oncol; Vol 6, no. 2, pp. 168–71. 2015.
- Pooe, D., Mafini, C., and Loury-Okoumba, V.W., The influence of information sharing, supplier trust and supplier synergy on supplier performance: The case of small and medium enterprises, Journal of Transport and Supply Chain Management. Vol 9, no. 1, pp. 187, 2015
- Rabothata, S., The new age, Available at: http://www.thenewage.co.za/positive-growth-for-smes-in-2017/, May 20, 2017.
- Sekaran, U., Bougie, R., Factors that affect location decisions. John Wiley & Sons, Research Methods For Business: A Skill Building Approach. Abridged, illustrated, 2016.
- Sidik, I.G., Conceptual framework of factors affecting SME development: Mediating factors on the relationship of entrepreneur traits and SME performance, Procedia Economics & Financ, Vol. 4, pp. 373–383. 2012.
- Statistics South Africa, Available at: http://www.statssa.gov.za/?page_id=1021&id=city-of-johannesburg-municipality, 2011.
- Taber, K.S., The use of Cronbach's alpha when developing and reporting research instruments in science education. Research in Science Education, pp.1-24. 2017.
- The staff of entrepreneur media, Chosing a location for your business. Start a business in Virginia. Entrepreneur press, 2015.
- Thumawongchai, V., and Huang, L, Models and factors used for production location decisions: a review and categorizing framework, available: http://www.diva-portal.org/smash/get/diva2:438863/FULLTEXT01.pdf, October 24, 2017.
- Tony Hernandez, M. B. S., Retail location decision-making and store portfolio management, Vol. 400, 2011.
- Verdonk, N, Factors influencing location decisions. Which factors determine location in terms of outsourcing, pp. 14, 2010.
- Vos, E., and Roulston, C., SME owner involvement and business performance: Financial security rather than growth. Small Enterprise Research, Vol. 16, no. 1, pp. 70-85, 2008.
- Willerton, D., Blue mau mau, Available: http://www.bluemaumau.org/successful_site_selection_good_business_poor_location_will_become_poor_busin ess, May 20, 2017.

Biographies

Alice Lumbwe Kabamba is a Masters student with the faculty of Engineering and Built Environment at the University of Johannesburg, South Africa. She has a Bachelor of Technology in Operations management. Her research interests are in quantitative techniques, project management, and continuous improvement, and operations management.

Eveth Nkeiruka Nwobodo-Anyadiegwu is a lecture and doctoral student with the Faculty of Engineering and Build Environment at the University of Johannesburg, South Africa. Her research interests are in continuous improvement in healthcare operations, operations research application, project management, engineering education, and has published 7 academic papers.

Prof. Charles Mbohwa is a Professor at the University of Johannesburg. He has a D Eng from Tokyo Metropolitan Institute of Technology, MSc in Operations Management and Manufacturing Systems from the University of Nottingham and a BSc (honors) in Mechanical Engineering from the University of Zimbabwe. Prof. Mbohwa has been a British Council Scholar, Japan Foundation Fellow, a Heiwa Nakajima Fellow, a Kubota Foundation Fellow and a Fulbright Fellow. His research interests are in operations management, engineering management, project management, energy systems and sustainability assessment. He has published books and more than 400 academic papers.