

An Assessment of the Economic Effect of Industry Clusters on Economic Development in Zambia - A Case Study of the Lusaka South Multi Facility Economic Zone

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ABSTRACT

This paper sought to assess the economic effect of industry clusters in the Lusaka South Multi Facility Economic Zone (LS MFEZ) on economic development. The objectives of the study were: to investigate the factors that promote economic growth in LS MFEZ, to determine the economic contribution of the industry clusters in LS MFEZ and, to investigate the constraints faced by the firms operating in LS MFEZ. The major findings of the study were that the firms operating in the LS MFEZ were influenced by aspects related to reduced costs of operations, access to advanced technologies and reduced transaction costs. The study observed that the LS MFEZ contributed to the creation of employment for both skilled and unskilled labor. Further, the study revealed that operations in the LS MFEZ promoted the growth of the transport sector and strongly contributed to local and international trade. The study was also informed of various constraints faced by the firms operating in the LS MFEZ and these included huge capital requirements, inadequate infrastructure, and lack of other essential services such as electricity among others. The research recommended skill trainings for local workers as well as a policy that supports the financing and infrastructure development for the industry clusters.

Keywords-- Industry Clusters, Multi Facility Economic Zone, Effect, Economic Development

left a lot of gaps, resulting in half-baked clusters which are often not competitive, let alone not visible.

Over the years, there has been growing emphasis on the need to add value to exports and improve their competitiveness. However, exports growth has been unfavorable even after the construction of the multi-facility economic zones. This calls for stringent measures to be taken and new ideas may be derived from developed nations that have significantly benefited from industry clusters. Edinar (2019) advocates that industry clusters are imperative in the economic development of any region both in terms of their size as well as the influence they exert within a broader context. Bonga et al. (2015) add that an industry cluster approach can serve to connect community assets by fostering a strong entrepreneurial base to support the emerging clusters and to build greater connectivity among firms within and across clusters.

The Zambian government is currently investing in Multi-Facility Economic Zones, seen to be 'engines of industrial growth'. The sustained growth of Zambia's industrial sector is of high importance as the government tries to diversify the economy away from copper mining. As the country's industrial policy and strategy is refined, research which evaluates gains from industrial concentrations (e.g. firms belonging to a Multi-Facility Economic Zones) and options for increasing economic diversification gain importance.

The LS MFEZ is one of three special economic zones in Zambia. It was set up to foster an attractive business environment, promote exports, and enhance domestic trade (IDC, 2019). The LS MFEZ created industry clusters and agglomeration economies. Industry clusters are "geographic concentrations of interconnected companies, specialized supplies, service providers, firms in related industries, and associated institutions" (Porter, 2001). Agglomeration economies are the benefits that come when firms and people locate near one another in cities and industrial clusters (Glaesier, 2001).

I. INTRODUCTION

Industrial clusters were firstly embraced by Western European and North American countries in the early 20th Century. (Ketels and Memedovic, 2008). With the coming of globalization, developing nations began to adopt clusters as a model for economic development to attract investments and create job opportunities on a large scale. In the early, 2000's less developed countries including Zambia began to mirror this model as a means of spurring growth in the economy. In areas where these clusters have been realized, the implementation has often

Economic development programs that focus on industry clusters provide a number of key advantages that include stronger multiplier effects, enhancement of employment growth potential, and the promotion of firm spin-offs. With respect to employment and labor, the basic concept underpinning industrial clusters is that if there are many employers within an area, workers can change employers without changing residences. Job hopping creates advantages if workers do not know where they will be most productive or if the productivity of different firms' changes over time. Labor market pooling allows labor to be more efficiently allocated following productivity shocks, because workers can leave firms that have become less productive and move to employers that have become relatively more productive (Krugman, 1991).

Statement of the Problem

For many years, Zambia has continued to record a negative balance of trade. This has been mainly attributed to the fact that the nation has been importing more than exporting. Thus, in a bid to achieve a balance of trade, the Zambian government has been setting up Multi-Facility Economic Zones. The rationale behind the development of the Multi-facility economic zones has been to foster local manufacturing and ultimately improve the nation's exports. This research is a case study that assesses the effectiveness of economic clusters in the Lusaka South Multi-Facility Economic Zone (LS MFEZ). The LS MFEZ is one of five special economic zones established by the government to promote the local manufacturing industry through incentivizing firms that set up their operations within these Zones. The LS MFEZ which has been in existence for over ten years has been argued to not have attained the anticipated level of growth measured primarily through the employment location quotient. It was initially anticipated that the LS MFEZ could account for approximately 60% reduction in the levels of the country's unemployment rate.

Objectives of the study

The purpose of this study was to determine the extent to which industry clusters in the LS MFEZ contribute to economic development. Further, the research aimed at determining possible factors that inhibit growth of industries in the LS MFEZ. The specific objectives of the study were;

1. To investigate factors that promote economic growth within the LS MFEZ.
2. To determine the economic contribution of the industry clusters in the LS MFEZ
3. To investigate the constraints that firms face in the LS MFEZ.

II. EMPIRICAL LITERATURE REVIEW

Industry clusters are important dimensions of strong business environments. They are driven by externalities of various types, supplier relationships, the use of a common factor inputs like specialized labor markets, or knowledge spillovers. While many of these positive externalities occur naturally, their dynamics can be fostered through a mix of networking, collaboration and competition (Best, 2001). These mechanisms work in clusters in all parts of an economy, not only in knowledge-intensive industries like life sciences or information technology, as sometimes assumed. In tourism, for example, the ability of a hotel to generate value for its customers is strongly dependent on the quality of local companies in many other related and supporting industries, from agro-industries, to restaurants, to transportation, to travel agents, to shops, and to financial and health services. Creating value in clusters incorporates manufacturing and services.

Labor is a critical factor in cluster development. From the macro perspective, current studies provide insights from two directions. One is that the geographical distribution of labor is uneven; in other words, labor has geographical preferences (Pons et al., 2007) and further forms different clusters. The uneven distribution of labor causes economic performances of different regions to be unbalanced. Therefore, trade and other types of relations may be built among clusters. Existing studies have also provided explanations about combining labor with the cluster life phase (Sabates, 2005).

The second perspective is how to create, match, and integrate labor resources with other resources in the region, such as technology and patents (Oort and Bosma, 2013). For example, Antonelli et al. (2011) and Wheeler (2007) argued that labor resources and productivity are positively related.

Finally, policy making is another key aspect to note when formulating clusters. Policies can vary, they can have both positive and negative influences on the performance of firms in the industry clusters. Therefore, policy makers and entrepreneurs alike have explored how to create positive effects and avoid negative effects.

Economic clusters are part of a broader competitiveness framework (Porter et al., 2007). The prosperity of an industry cluster, and the opportunities for its companies and clusters to reach high levels of productivity, depends on the general business environment, not just the macroeconomic, social, political and legal context, geography, and other institutional aspects. A study by Zeng, 2016 reiterate that the establishment of multi facility zones in Zambia were initiated to foster an attractive business environment, promote exports, and

enhance domestic trade. He however, highlighted two key issues that inhibited the rate of economic development particularly in the Lusaka South Multifacility Zone. The first challenge was with respect to weak linkages between zones and local firms. He advanced that many firms in the zone show interests in sourcing locally, especially those in agribusiness, which will help them to reduce the logistics and transaction costs. However, local SMEs cannot meet their requirements in terms of stable volume, quality and standards.

The second challenge was with respect to incentives. The study revealed that investors within the zones and local SMEs faced challenges with unstable taxation policies which were implemented without proper consultations with the private sector. In terms of Value Added Tax (VAT), it was observed that from 2015, the government required all the exporting firms to provide the proof of export in order to claim the VAT tax. The proof included copies of export documents bearing a certificate from the Zambian Authority, copies of import certificate from the export destination countries or transit certificate from the country of transit among other documents. Submitting these documents was a challenge for the small and medium enterprises. Similarly, for zone investors, the income tax was originally exempted for 5 years from the year they begin to make profit, but at the time of the study, it had changed to the year of operation.

III. THEORETICAL LITERATURE REVIEW

Industrial Agglomeration Theory

The concept of agglomeration, which refers to the spatial concentration of people and economic activities, has attracted research interest over extended time periods at least as far back as Alfred Marshall's Principles of Economics, which was first published in 1890. In addition to Marshall (1890), other prominent scholars in this field of

research include Weber (1929) and Hoover (1937, 1948). Marshall (1890) explains the localized concentrations of economic activity using the concept of external economies of scale. According to Marshall, agglomeration advantages arise from three sets of localization economies, namely a pooled market for workers with specialized skills, the availability of specialized inputs and services, and technological spillovers. This triad of localization advantages first pointed out by Marshall has been at the core of the discussion on industry clustering and agglomeration ever since.

Flexible Specialization Theory

Alongside the agglomeration theory, the flexible specialization theory takes into consideration the economic, social and the cultural aspects and gives due consideration to macroeconomic theories of capitalist development. (Bekele, 2006). The flexible specialization school has broadened the traditional concept by adding another dimension, that is the formal and informal collaborative and informational networks, interactions through local labor markets, and shared customs and rules for developing communications and interpreting knowledge, termed collectively as untraded independencies (Storper 1995, Newlands 2003). This theory of industry clusters suggests that many of the productivity and innovation advantages of clusters can rest on the spillovers and externalities that involve public entities. (Jaffe 1989, Acs et al. 1992, Storper 1993).

The Conceptual Framework

The Conceptual framework below portrays the relationship among variables. The independent variables of the study are: Employment creation for both skilled and unskilled labour, complimented demand for goods, cross boarder trade and local and foreign investments. The stipulated independent variables are presumed to have influence on the economic impact of industry clusters which is the dependent variable.

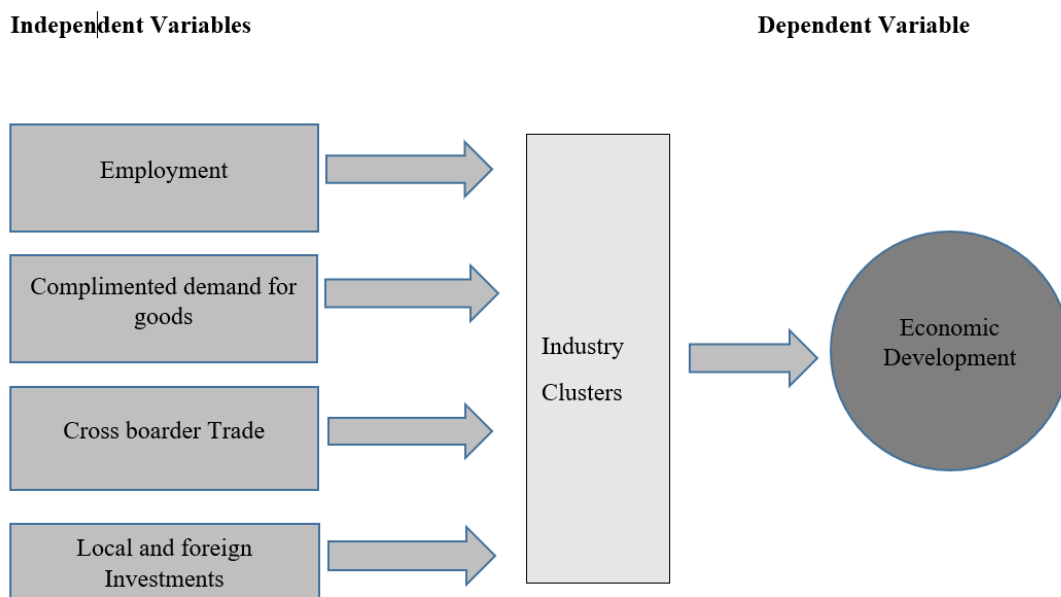


Figure 1: Conceptual Framework
(Source: Author, 2022)

Employment creation for both skilled and unskilled labour is one of the four independent variable that contributes to various aspects of economic development. These aspects include but is not limited to the generation of income, enhancing human capital development, poverty reduction and the overall wellbeing of society.

Complimented demand for goods is the second independent variable in the conceptual framework. It refers to a situation where a demand for one product is linked to the demand of another product. Complimented demand for goods increases trade volumes, encourages supply chain integration, increased specialization in goods and services which ultimately lead to increased research and development.

Cross boarder trade is the third variable of the conceptual framework. The interplay between activities within an industry cluster strengthens the competitive position of an Industry cluster such as the LS MFEZ on a global scale contributing to economic growth and development. Cross border trading not only attracts foreign direct investment (FDI) but allows industries to diversify risks into other markets. FDI brings into the country capital, expertise, technology thereby contributing to economic development.

The fourth independent variable of the conceptual framework is local and foreign investment. The combination of local and foreign investments with the other variables outlined above can create a synergistic effect that would propel a country towards sustained economic growth.

IV. RESEARCH METHODOLOGY

Research Design

This study was carried out as a case study. The design was well thought-out for a thorough analysis as Explorable, (2017) coincides that a case study is an in-depth of a particular situation rather than a sweeping statistical survey. The study took both a qualitative and quantitative approach. The design was considered suitable as it enabled the researcher to collect primary data on the economic impact of industry clusters at the Lusaka's multi facility zone.

Population of the Study

The target population of the study consisted of all 63 companies' representatives currently operating in the LS MFEZ with a cumulative total of about 7000 employees. The study mainly focused on the company representatives that had been with their respective employers since the year 2017 to date. This was because the researcher was only interested in generating findings related to the economic impact of the industry clusters for the period of 2018 through to 2020. These aforementioned company representatives were deemed appropriate because they were present in the period of interest to the researcher. To ensure that adequate views were gathered, the researcher included persons from all the active firms in LS MFEZ. Additional information was gathered through interviews with the key informants from the Ministry of Commerce, Trade and Industry.

Sample and Sampling Procedure

The study utilized the Yamane formula as adopted by Gwayi (2017) to determine the study sample size. The formula is as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

- n is the sample size
- N is population
- e is the level of precision or absolute margin of error assumed equal to 0.12542

Thus;

$$➤ = \frac{7000}{1 + 7000(0.12542)^2} = 62.99993$$

By rounding off, it was therefore decided that 63 respondents would be enough and appropriate for this study.

The sampling technique employed was the stratified random sampling technique. The respondents were selected using the stratified random sampling technique as this method allowed the researcher to collect data from a diverse available pool of respondents (Thornhill, 2012). This technique was deemed most suitable for this study as it enabled the researcher to overcome biases.

Data Collection

According to Berg (2014), the success of any research to a large extent depends on the appropriateness of the instruments used to gather data. In this study interviews, observations and questionnaires will be used as sources of primary data. The main sources of secondary data were text books, and online publications.

Data Analysis

The research adopted both a qualitative and quantitative approach, therefore, the primary data collected was both quantitative and qualitative, and then the data was coded in a Computer Software Statistical Package for the Social Sciences (SPSS) (SPSS Version 22.5) and was

analyzed using descriptive statistics. This data analytical tool was deemed appropriate by the researcher as it was beneficial for both types of data, quantitative as well as qualitative. Additionally, the researcher was afforded the freedom of selecting preferable graphs or charts that matches the requirements of the data distribution and the possibility of the occurrence of errors is minimum with the use of SPSS (Daniel, 2014).

V. RESEARCH RESULTS AND ANALYSIS

Contribution to Employment Creation

Table 1 below shows the responses of the study participants regarding their view as to whether the development of industry clusters within the LS MFEZ has contributed to employment creation. 21% of the respondents strongly affirmed that the development of industry clusters within the LS MFEZ has contributed to employment creation. 61% of the total respondents merely affirmed the assertion. While 14% were unsure, the 4% of the respondents were in disagreement with the assertion.

	Frequency	Percent
The development of industry clusters within the LS MFEZ has contributed to employment creation		
Strongly Disagree	0	0%
Disagree	3	4%
Not Sure	9	14%
Agree	38	61%
Strongly Agree	13	21%
Total	63	100%

Table 1: Contribution to employment

The study was informed that numerous economic contributions have been made by the industry clusters operating in LS MFEZ. To begin with, the study participants highlighted that the industry clusters from the diverse sectors they belong to had created so many jobs for local people. They however informed the study that a number of people working in their organizations were of foreign origin even though the jobs could also be done by the local people. The study participants also reported that the industry clusters in the LS MFEZ demanded both skilled and unskilled labor which has created jobs for the people that do not have formal training. Some respondents who were actually some of the unskilled laborers reported that the employment opportunity provided by the industry clusters helped them to stay away from a number of bad

vices such as drugs and alcohol abuse as well as other forms of crimes.

Skilled and Unskilled Labor Demand

The table below presents the study findings in relation to the assertion that both skilled and unskilled labor is demanded by the industry clusters operating in the LS MFEZ. The findings revealed that 37 respondents representing fifty-eight percent (58%) of the total respondents strongly agreed to the claim that both skilled and unskilled labor is demanded by the industry clusters operating in the LS MFEZ, while the remaining 26 representing forty-two percent (42%) respondents merely agreed with the claim. There was no opposition recorded to this proclamation.

Both skilled and unskilled labor is demanded by the industry clusters	<i>Frequency</i>	<i>Percent</i>
Strongly Disagree	0	0%
Disagree	0	0%
Not Sure	0	0%
Agree	26	42%
Strongly Agree	37	58%
Total	63	100%

Table 2: Skilled and unskilled labour demand

Complimented Demand of Goods and Services

The table below presents the study findings in relation to the assertion that the industry clusters manufacture products that complement each other and as such the demand for one item prompts demand for other items. The findings revealed that 11 respondents representing 17% of the total respondents disagreed to the

claim that the industry clusters manufacture products that complement each other and as such the demand for one item prompts demand for other items. Then 3 of the participants representing 5% of the overall study participants were unsure, while the remaining 49 representing seventy-eight percent (78%) respondents were in agreement with the claim.

The industry clusters manufacture products that complement each other and as such the demand for one item prompts demand for other items	<i>Frequency</i>	<i>Percent</i>
Strongly Disagree	0	0%
Disagree	11	17%
Not Sure	3	5%
Agree	15	24%
Strongly Agree	34	54%
Total	63	100%

Table 3: Complimented demand for goods and services

The study was informed that the existence of other manufacturing companies eases the accessibility of resources for other firms. The study participants also highlighted that the firms operating in LS MFEZ have access to efficient infrastructure development facilities as there are institutions within the multi facility economy zone that provide advisory services on infrastructure development as well as lease arrangements.

Furthermore, the study was informed that some firms operating in the LS MFEZ to improved technology for the local firms. This was said to have ultimately prompted innovations in the manner that the firms operate. The findings to this specific study objective are in line with the findings of a study conducted by Lewis (2014) who reported that multi facility economic zones allow the local firms to learn new methods and also lead to the discovery of resources. Porter (1998) also concurs that industry clusters enable higher productivity. As they provide companies with a higher operating efficiency, drawing on

more specialized assets and suppliers with shorter reaction times than when working alone. In addition, Porter (1998) explains that companies and research institutions can build connections to better learn and innovate, as tacit information and knowledge are best developed and exchanged locally.

Fostering of Cross Border Trade

The table below presents the study findings in relation to the statement that industry clusters produce more than enough for national consumption and that fosters cross border trade. The findings revealed that 14 respondents representing 22% of the total respondents disagreed with the statement that the industry clusters produce more than enough for national consumption and that fosters cross border trade. 3 of the participants representing 5% of the overall study participants were not sure. On the other hand, 72% of the respondents were in agreement with the assertion.

The industry clusters produce more than enough for national consumption and that fosters cross border trade	<i>Frequency</i>	<i>Percent</i>
Strongly Disagree	0	0%
Disagree	14	22%
Not Sure	3	5%
Agree	15	24%
Strongly Agree	30	48%
Total	63	100%

Table 4: Fostering of cross border trade

The participants of the study also reported that the operations of the multinational companies have promoted foreign direct investments which have brought forth FOREX in the country. In addition, the multinational companies have contributed to the technological advancements in the industries as well as knowledge exchange. The respondents also reported that other industries had benefited from the operations of the industry clusters, especially the transportation sector. Ultimately, they iterated the spillover effects of the economic effects of the industry clusters on a nation’s economic development.

The findings of this study are in synchronization with the findings of a study by Clusters are driven by Best (2001) who reports that clusters do not only benefit a

nation’s economy through knowledge sharing, but also the ability to reduce a nation’s unemployment rate as well as increasing the citizenry’s disposable income which ultimately increases the demand for commodities as well as credit creation in the financial sector from the savings made by the employed citizenry.

Contribution to Gross Domestic Product

The table below presents the study findings in relation to the assertion that the increased production of goods within the LS MFEZ contributes greatly to Zambia’s gross Domestic Product (GDP). The findings revealed that 30 respondents representing 48% of the total respondents merely agreed with the statement while the remaining 33 representing fifty-two percent (52%) of the respondents were in strong agreement with the claim.

The increased production of goods within MFEZ contributes greatly to Zambia’ gross Domestic Product	<i>Frequency</i>	<i>Percent</i>
Strongly Disagree	0	0%
Disagree	0	0%
Not Sure	0	0%
Agree	30	48%
Strongly Agree	33	52%
Total	63	100%

Table 5: Contribution to GDP

Further, the study was informed that the production from the industry clusters’ undertakings contributed to the availability of products on the local market which helped increase the consumption levels as well as exports which are components of computing the national income. The exports help to bridge the gaps in the balance of trade. The study was also informed that the firms operating in LS MFEZ are obligated to remit corporate taxes as well as the pay as you earn (PAYE) tax which is charged on the employees’ earnings. These taxes

when collected help to fund the government’s projects and improve the nation’s economy.

Investments Made to Develop New Firms in LS MFEZ

The table below presents the study findings in relation to the statement that there has been a lot of investments made to develop new firms within the MFEZ. The findings revealed that 4 respondents representing 7% of the total respondents disagreed with the statement. 3 of the participants representing 5% of the overall study participants were not sure. On the other hand, 89% of the respondents were in agreement with the statement.

There has been a lot of investments made to develop new firms within the MFEZ	<i>Frequency</i>	<i>Percent</i>
Strongly Disagree	0	0%
Disagree	4	6%
Not Sure	3	5%
Agree	25	40%
Strongly Agree	31	49%
Total	63	100%

Table 6: Investments to develop new firms in the LS MFEZ

Correlation Analysis

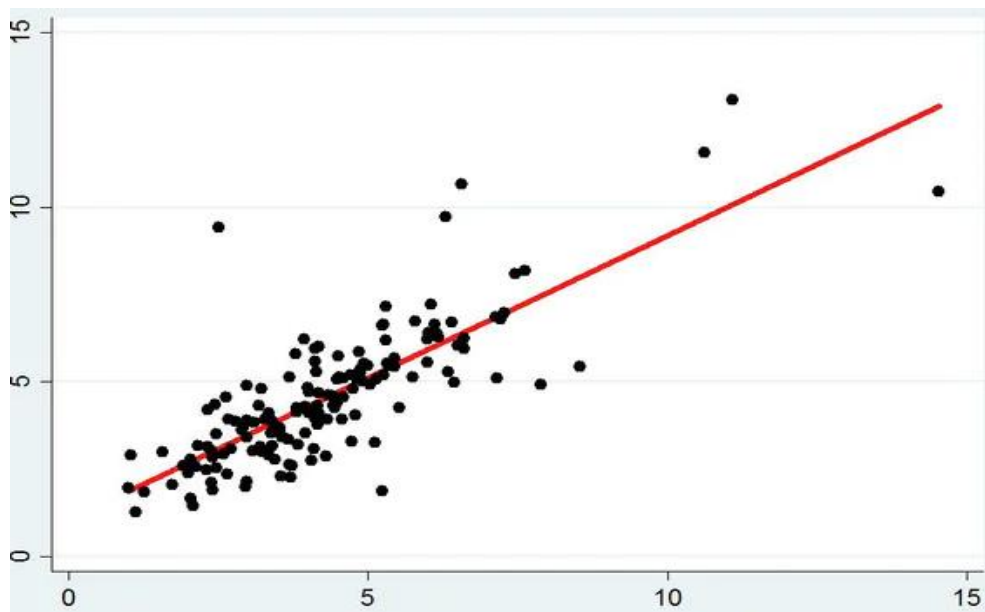


Figure 2: Correlation Analysis

All the points in the scatter diagram are around the line of best fit which signifies that a strong positive relationship exists between the established industry clusters and the nation's overall economic development. This was noted in the responses provided by the study participants that confirmed the creation of employment, contribution to national income through the exports and also the technological skills acquisition from the international expatriates.

VI. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

The findings of the study revealed that the LS MFEZ was intended to operate as a one stop shop for the provision of different goods and services. Therefore, the zone has sixty-three registered firms. However, only eighteen firms are operational at the moment. The study participants were thus drawn from the eighteen firms that are operational and these came from the eight sectors which have been highlighted in figure 4 of the previous chapter.

The study was informed that the firms that are currently operating in the LS MFEZ were mainly influenced by factors such as the reduced cost of operations as some of the raw materials or resources are sourced within the LS MFEZ. The study was informed that the existence of other manufacturing companies eases the accessibility of resources for other firms. The study

participants also highlighted that the firms operating in LS MFEZ have access to efficient infrastructure development facilities as there are institutions within the multi facility economy zone that provide advisory services on infrastructure development as well as lease arrangements. Furthermore, the study was informed that some firms operating in the LS MFEZ to improved technology for the local firms. This was said to have ultimately prompted innovations in the manner that the firms operate. The findings to this specific study objective are in line with the findings of a study conducted by Lewis (2014) who reported that multi facility economic zones allow the local firms to learn new methods and also lead to the discovery of resources. Porter (1998) also concurs that industry clusters enable higher productivity. As they provide companies with a higher operating efficiency, drawing on more specialized assets and suppliers with shorter reaction times than when working alone. In addition, Porter (1998) explains that companies and research institutions can build connections to better learn and innovate, as tacit information and knowledge are best developed and exchanged locally.

Conclusions

The study aimed at assessing the economic impact of industry clusters in the LS MFEZ. The key findings of the study were that the firms operating in the LS MFEZ were influenced by the view that firms from various sectors would be operating in the zone and the element of reduced costs that could be derived from firms operating within the same proximity that could supply other firms

with the needed materials or resources. Also, the aspects related to knowledge sharing as well as access to advanced technologies was another factor that influenced the firms' decisions to operate in the LS MFEZ. The study also observed that a number of economic contributions had been made by the LS MFEZ to the economic development of the nation. This included the creation of employment for both skilled and unskilled labor. The reduction of crime in the community resultant of the employment opportunities provided for the unskilled laborers. The increased disposable income from the increase in the number of the citizenry that have salaries, as well as the increased production of goods which are supplied to the locals as well as on international markets.

The study was also informed of various constraints faced by the firms operating in the LS MFEZ and these included huge capital requirements, inadequate infrastructure and lack of other essential services such as electricity.

Recommendations

Based on the study findings, the following are some of the recommendations for consideration:

Firstly, there is need for skills training for local workers (including potential workers to be employed in the zones) in the non-technical areas, such as basic business, professional, and work ethics, depending on the needs of the investors within the zones. In some highly demanded sectors, such as agribusiness, some basic technical trainings can be added as well. The intervention can focus on needs assessment, curriculum development and training of trainers.

Secondly, skills training for local SMEs (both managers and technical workers), starting with a few sectors that have the strongest connections (e.g., the agribusiness) with the zone investors. The training for managers will focus on business, management, marketing, as well as quality control skills, and for technical workers, the training will be more technical. The skills training center could be placed within the LS MFEZ. This activity can be done in partnership with the Zambia Chamber of Commerce and Industry (ZACCI) and sectoral associations, such as the Zambia National Farmers Union (ZNFU) or the Zambia Exports Growers Association (ZEGA).

Thirdly, a policy to that supports the financing and infrastructure development for the industry clusters should be implemented by the policy maker in order to ensure that all the sixty-three registered firms begin their operations and for the LS MFEZ to realize its objective of being a one stop shop.

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