# Enterprise Propellers (EP) and Identity of SMMEs, Informal Business and Cooperatives in Gauteng Province of South Africa[*]

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**Abstract**: For the enterprise development policies to be applied there is a need to understand the real factors that can propel it. Entrepreneurial thriving among Small, Micro and Medium Enterprises (SMMEs), informal sector as well as cooperatives in South Africa, need support in order to grow, create employment and meaningfully contribute to the development of the country. This article reports on the findings from a baseline study conducted in the Gauteng Province on the general state of SMMEs, informal sector and cooperatives. Specifically, the article aims to profile those SMMEs, informal sector and cooperatives, as well as to identify their basic needs that should be addressed by relevant stakeholders for their survival and growth. In South Africa, SMMEs, informal sector and cooperatives, remain the cornerstone for the survival of thousands of South Africans, both in rural and urban areas. Generally, the classification of those businesses in the correct categories in order to qualify for subsidy or sponsorship poses a lot of challenges, especially in the big conglomerations (Johannesburg and Pretoria) of the Gauteng province. In South Africa as well as in many other parts of the world, the classification of the SMMEs remains incongruent due to a number of factors, including the size of the countries' economies, the differences in the business environment as well as their changing conditions. A research team met to discuss the design of the study, and descriptive data were collected in order to provide a good understanding of the sampling units. A sample of 1000 SMMEs, informal sector and cooperatives, was used to carry out the study. Purposeful and convenience sampling methods were used to select the respondents. A questionnaire was designed, then sent to the Gauteng Department of Economic Development (GDED) to ensure that all the necessary profiling data was captured before its usage. The questionnaire was filled by the respondents with the presence of the field workers. A company called STRATKON was used to handle the data inputting and the SPSSX was used to analyze it. The study found that the current definition of SMMEs, according to the 1996 Act, makes it difficult to know the real identity of these businesses; hence, it suggested different categories and presented other features apt to rightly direct the aid and support towards these businesses. Recommendations to various and relevant stakeholders were formulated.

**Keywords**: enterprise propeller (EP); SMMEs; informal business; cooperatives; Gauteng province

**JEL Classification:** P13

## 1. Introduction

Out of nine provinces that make up South Africa, the Gauteng province is the smallest in square kilometres (18,176) in the country, but the largest economy and the most populated as a result of mainly hosting two major metropolises (Johannesburg & Thwane, Pretoria). According to Stats South Africa (2015), the province's contribution to the national GDP is 38%, which is 60% of its fiscal revenue, and the province is the main gateway for business to other provinces. In 2006, the FINSCOPE study revealed that there were an estimated 1 053 818 small business entrepreneurs in Gauteng province (recent figure is needed), from an estimated population of 6 653 000 people, which means that there is one entrepreneur for every six people. Ten years later, BER StatsSA (2016), reports that the whole South Africa counts 2 251 821 small businesses, of which 667 433 are formal while 1 497 860 are informal. Despite this big figure and a clearly shown interest in SMMEs, studies on small businesses have not paid attention to the categories of cooperatives and informal sector, which are big contributors to that GDP of the province and one of the main sources of sustainable livelihood of the communities mostly in the rural areas of the province.

There is a continuous relevance of studying and researching on SMMEs, informal sector and cooperatives in South Africa, and for the purpose of the current study, we are moved by two major reasons: firstly that the majority of the people of the country, remain non-participants in the main economy, but in small businesses that are poorly identified. This contributes to the ongoing debate about the SMMEs. Secondly,

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to provide basic information from which policymakers such as government and the private sector can start from to provide support to the small businesses, informal sector and cooperatives.

Scholars are unequivocal about the importance of small businesses. Because small enterprises outnumber big companies by a large margin, they therefore create employment for many more people. Furthermore, small businesses constitute a source of innovation and competition in economic sectors and contribute to poverty alleviation. The definition of SMMEs varies from nation to nation and sometimes, different defining criteria are used. For instance, in Kenya, the concept is referred to as MSMEs (micro, small and medium-sized enterprises), where a micro enterprise has a maximum number of 10 employees, and 10 to 50 employees of a small enterprise, while a medium enterprise counts between 50-100 employees (The Banking Association South Africa, 2017). In South Africa, the National Small Business Amendment Act (26 of 2003), provides an updated definition of small business and groups them into five major categories as established by the original act (SMMEs Act, 1996). Those categories are:

- Industry sector;
- Size of class;
- Number of paid employees;
- Turnover; and
- Value of assets (excluding fixed property).

In the whole South Africa, the Gauteng Province counts the most of informal SMMEs (31%) and this informal sector has grown at 14.7% between 2008 and 2015 (BER StatsSA, 2016). This provincial growth was the second best behind the Limpopo Province that grew at 34%.

With regard to the cooperatives in South Africa, the DTI defines them as "autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratic enterprise" (Thaba & Mbohwa, 2015). These organizations have a number of values that inform their existence and functioning:

- Self-help;
- Self-reliance;
- Self-responsibility;
- Democracy;
- Equality;
- Equity; and
- Solidarity.

In the tradition of their founders, cooperative members believe in the ethical values of:

- Trust;
- Honesty;
- Openness;
- Social responsibility; and
- Caring for others.

This article aims to shed more light on the state of SMMEs, informal sector as well as the cooperatives in the Gauteng Province. The article also discusses the mechanisms and interventions that are needed for their growth and sustainability. The business research investigation that will be followed will allow a better understanding of what is happening in the SMMEs, the informal and cooperative sectors so that the province is capable of assisting these businesses. We therefore hope to collect data that will inform policies and strategies in order to grow the SMMEs, informal sector and cooperatives in the Gauteng.

The article is arranged in the following manner: the next section discusses the literature review on SMMEs, informal sector and cooperatives in the province, followed by the methodology used to carry out the study. Findings will be presented in section three of the article, followed by their discussions. The article ends with a conclusion and recommendations.

## 2. Literature Review

### 2.1. Formal and Informal Sectors in SMMEs

In 2014, the South African government established a Ministry of Small Business Development in recognition of the role small businesses play in economic growth, innovation driving and unemployment alleviation. The main aim of this department was, and it remains to "facilitate the promotion and development of small businesses" (BER, 2016). It means that the ministry should help the SMMEs to grow and prosper through the necessary interventions from a clear understanding of the state of SMMEs and their needs.

This move can be contextualized as a means to navigate away from the previous regime, and its economic system that was mainly centred in the hands of a few parastatals and multinational corporations (Finn, Leibbrandt & Oosthuizen, 2014).

It has been confirmed that SMMEs play a major role in the alleviation of poverty, improving living conditions as they use huge work force and are regarded as pioneers of implementing new concepts (Kuratko, 2016). However, though they are seen as such, (Arafat El-Mobayed, 2006; Mahembe, 2011; Murimbika, 2011), posit that the majority of the SMMEs perform very poorly and some of them die in their early stages.

The concept of SMMEs in South Africa as defined in the Small Business Act of 1996 is widely criticized for encompassing a wide range of small businesses that should not be part of it. Some of these businesses are formal, while the majority of them are not even registered for VAT purpose (The DTI, 2008). Small businesses range from medium-sized enterprises such as established businesses with a possibility of employing more than 100 people, to informal micro-businesses owned and run by a single individual. This range is very wide, and in the context of providing support, it usually leads to confusion concerning the channelling of the government's support.

A large majority of small businesses are found in the lower range where they can take the form of street vendors, backyard manufacturing and services, weekend and evening jobs or occasional home-based jobs (Berry, 2002), and the pity is that they have a very low potential for growth and creating employment (The DTI, 2008). This is where the government intervention is required in relation to its policy as documented in the 1995 white paper on SMMEs development. This policy provided action plan that focused on:

- Increasing financial and non-financial support;
- Creating a demand for the products and services provided by the SMMEs; and
- Reducing regulatory constraints (The DTI, 2008).
- This action plan gave birth to institutions such as:
- Small Enterprise Development Agency (SEDA);
- The Small Enterprise Finance Agency (SEFA);
- The National Youth Development Agency (NYDA);
- Technology and Innovation Agency (TIA) and finally;
- National Empowerment Fund (NEF) (Booyens, 2011).

The financial support has been identified as one of the main challenges faced by the SMMEs in South Africa, and the third worse behind the competition and space to operate from (Agwa-Ejon & Mbohwa, 2015).

### 2.2. Focus on the Gauteng Province

This section relates the situation of SMMEs in South Africa, with a more focus on Gauteng Province. With 46% of the SMMEs, the Gauteng province is a host of nearly half of South Africa's formal SMMEs, while other provinces enjoy a high number of SMMEs in the informal sector, due to hawkers and informal traders. This concentration of SMMEs in the region, justifies further the reason for undertaking the current study, and why further studies are needed.

In Small Business Survey, 2010, a comparison about the home of SMMEs owners between Gauteng and Limpopo has shown that 23% of them resided in Gauteng, while 9.8% resided in Limpopo, thereby putting the province on the top of the SMMEs ownership in the country.

### Increase in SMMEs

In the whole South Africa, since 2008, the number of SMMEs has increased from 2.18 million to 2.25 million in 2015Q2, and this implies a percentage increase of 3%. The Gauteng province alone experienced the second highest growth of 14%, behind Limpopo that had 34% (BER, 2016). The remainder of the provinces has increased significantly below 10%, which may be the cause of slow economic growth.

### Awareness of Government's Supports

Support structures have been established throughout the country, in order to provide adequate information about the state of SMMEs. It has been argued that many SMMEs in South Africa, suffer the lack of information about the availability of the government support schemes. However, according to FINSCOPE 2010, the upper Business Sophistication Measure (BSM) - discussed later - segments, were aware of the support organizations at 70% of BSM level 7, while BSM level 6, was aware of these supports at 57%, compared to 38% of BSM level 5. In the whole country, higher awareness was observed in the Free State province (64%), while Gauteng came in second position with 62%, and in relation to the importance of this awareness, we consider this level as extremely low.

The worst scenario, however, is the poor marketing run by these governments supporting schemes. Mago and Toro (2013), point out that among those SMMEs that are aware of these supporting schemes, the majority of them do not know how and where the programs operate. An aggressive campaign is then needed for the businesses to benefit from these systems, and we will formulate a recommendation concerning this issue towards the end of this article. Once again, this issue of awareness justifies the undertaking of the current study.

In the Gauteng province, there is Gauteng Economic Development Agency (GEDA), as well as Gauteng Enterprise Propeller (GEP) (NCR, 2011) that are responsible for this awareness.

### Types and Size of the Business

The majority of small businesses in Gauteng were service providers (34.2%), compared to 78.2% in Limpopo that were in retail. In the Gauteng province, the size of the small businesses was higher than any other province, while Limpopo has the smallest size of small business (NCR, 2011). Please refer to Annexure 1 for the definition of the SMMEs in South Africa, according to the small business act 1996.

The implication of this on information solutions can help mitigate the GEDA or GEP is that more loan applications for capital will be requested from the Gauteng province than in Limpopo, where the probability of BSM 1 and 2 type businesses was at 29.2% and 31.4% respectively (Turner, Varghese & Walker, 2008). In Gauteng, the probability for BSM 6 and 7 type small businesses were highest (11.8% and 9.0%) respectively, which implies that business owners in Gauteng are likely to be able to secure a financial loan compared to those in Limpopo (Agwa-Ejon & Mbohwa, 2015).

### Financing issues

Njiro, Mazwai and Urban (2010) lament that in the Gauteng province; the financial institutions are not reaching out to SMMEs. In fact, it has been established that most of the capital (56.5%) come from the business owners themselves, 14% from friends or relatives, while 20.5% comes from bank loans. Government support was found to be 3.3%, 2.8% by ventures and 2.2% comes from grants (Njiro, Mazwai & Urban, 2010). This raises some fundamental questions about how these SMMEs can develop if the provided government's support is not reaching them. Secondly, where does the money that was supposed to help SMMEs go?

Unable to access these funds, some young people make recourse to their servings and or borrow from friends and relatives rather than borrowing from the formal financial sector. However, it is not established if the repayment is accompanied by interest, and if yes, of how much. While this may be regarded as a way of solidarity and support, and a quick solution to a problem, one would wonder how this way supports the economic growth of the country, if the money from the banks and financial institutions is not in circulation. Hence, Rogerson (2008) argued that a high segment of unbanked SMMEs in Gauteng indicates the need for further development by the banks of this market.

## 2.3. Cooperatives in Gauteng

Thaba and Mbohwa (2015) posit that in South Africa, cooperatives have been in operation since the 1800s in the form of stockvels (informal cooperatives mainly formed by blacks). Today, cooperatives operations consist of people putting money together on a regular basis, such as monthly or quarterly in order to be used for a social cause such as funerals, birthday parties, weddings and family gatherings.

In its early establishment, the South African democratic government took the cooperatives very seriously as part of the economic drivers' structures and poverty alleviations. In this regard, former President Thabo Mbeki (1999), said: "The government will place more emphasis on the development of a cooperative movement to combine the financial, labour and other resources among the masses of the people, rebuild our communities and engage the people in their own development through sustainable economic activity".

In present days, cooperatives bridge the gap between the first and second economy as people are encouraged to form cooperative enterprises, and it was proven that they contribute to poverty alleviation and lowering the unemployment rate (Thaba & Mbohwa, 2015).

## 3. Methodology

### 3.1. Research Design

Methodology in research refers to the systematic, theoretical description of the methods applied to conduct an investigation on a particular topic (Khosa and Kalitanyi, 2015). For the purpose of the current study, a group of researchers met to decide on the design and how to conduct the study. The team acknowledged the existence of data from a previous study conducted by FINSCOPE funded by FINMARK SMME in 2006. This study gathered relevant data, which needed improvement and adaptation to the situation of the moment. Since this study contained information about SMMEs, informal sector as well as the cooperatives, it was judged a useful source of information and a supporting tool to the current study. Descriptive data were collected in order to contextualise the study, and this information consisted of profiling the SMMEs, informal sector and cooperatives with a more focus on Gauteng province.

### 3.2. Sampling Method

Sampling consisted of totalling all the SMMEs, informal sector and cooperatives from the collected data and from the Gauteng province. FINSCOPE 2006 reported 5 579 767 SMMEs operating in South Africa, and 1 053 818 in the Gauteng province.

To complete the sampling, the sampling frame for SMMEs was requested from the GDED, its agencies as well as the Department of Trade and Industry (DTI). Though the data seemed to be outdated, it was considered for the period it was collected, while a more updated information was being sought. However, a listing for the informal sector and cooperatives proved to be even more challenging and almost delayed the attainment of the sample units required. With the emphasis on the informal sector, a sample of 1000 units was agreed upon as reflected in the table below.

**Table 3.1. Sample determination**

| SMMEs | | COOPERATIVES | | TOTAL |
|---|---|---|---|---|
| Formal | Informal | Formal | Informal | 1000 sample size |

| 30% | 70% | 50% | 50% | |
|-----|-----|-----|-----|-----|
| 210 | 490 | 150 | 150 | 1000 |

The table below provides various municipalities that were sources of information about SMMEs, informal sector and cooperatives according to the initial plan.

**Table 3.2. Municipalities that provided information**

| | West Rand (5LMs) | Sedibeng (3LMs) | Metsweding (2LMs) | City of Joburg (30LMs) | Tshwane (14LMs) | Ekurhuleni (39LMs) |
|---|---|---|---|---|---|---|
| **Formal SMMEs 250** | 50 | 50 | 50 | 34 | 34 | 34 |
| **Informal SMMEs 250** | 50 | 50 | 50 | 34 | 34 | 34 |
| **Formal Coops 250** | 50 | 50 | 50 | 34 | 34 | 34 |
| **Informal Coops 250** | 50 | 50 | 50 | 34 | 34 | 34 |
| Totals | 200 | 200 | 200 | 136 | 136 | 136 |
| **Grand total (planned)** | | | | | | **1008** |

For the purpose of identifying the sampling units, the above regions in the Gauteng were contacted in order to request assistance in data collection. For the purpose of data analysis in the current study, Metsweding and Tshwane were combined and SMMEs, informal sector and the cooperatives constituted the units of investigation for the study. Officers from the economic development cluster of local municipalities, advised on where to find the interviewees. However, in some cases and with great difficulty, the local structure invited members of the businesses to be interviewed at a central location. Purposeful and convenience sampling techniques were used in the study.

### 3.3. Questionnaire Design

The study made use of the previous experience of the study conducted in Orlando East, West and Zola in Soweto, to identify the financial and non-financial needs of SMMEs. Furthermore, studies conducted by FINSCOPE in 2006 and 2010 at national level and in the Gauteng province, were consulted to inspire the drafting of the questionnaire.

The questionnaire was drafted before the members of the research team provided inputs. This draft was put to the GDED to ensure that all the profiling information is included. Due to the existence of many variables arising from the nature of the study, closed ended questions were mostly used in the questionnaire. This implies that the information collected was not meant to explain why certain things happened in a certain manner but to merely describe behaviour or certain business practices and so forth. The questionnaire was pilot-tested in Johannesburg and final advice was taken and incorporated in the final draft.

### 3.4. Data Collection

The field workers for data collection were mostly 3rd year entrepreneurship students from the University of Johannesburg and one Master of Commerce student. A total number of 10 students were carefully interviewed and selected based on availability and the ability to conduct the interviews, before they underwent a five hour training for them to master the work and avoid survey errors.

Data were collected by filling the questionnaire with the presence of the interviewers. This method was preferred over drop and collect method (to avoid complaisance and delays in the process) and telephonic interviews as not everyone in the sample had access to a telephone or their telephone numbers were not known. This method also allowed interviewers to use prompts, observe the undesired behaviours of cheating and trying to please the interviewers; and they could also settle difficult interviewees. Furthermore, clarifications over "difficult" question (s) could be provided.

Below, we summarize further research methodology pertinent to the data collection process:

The interviewers possessed extensive experience since three-quarters of them have been working with the researcher in other studies such as the ones conducted for GDED.

Completed questionnaires were checked for quality of data or mistakes. Those with errors and mistakes were returned to the interviewers for data recollection. Those interviewers who did not match up to the expectations were requested to leave.

The timing of the interviews was between 09:00 and 16:00, which offered all the interviewees to be reached at their operating spots. However, due to security reasons, all interviewers had to leave the areas by 15:30.

Besides the questionnaire and its information, the interviewers were also capable of recording other information from observations and indirect comments from the interviewees. This additional information was captured during the meeting between both the researchers and interviewers.

The central administration of the municipalities wrote activity reports about the research activity and the respondents' attitude towards the research, during which a lot of interesting revelations were observed. For instance, if the ANC was not popular in a particular area, there was a resistance and reticence to participate with attitudes of "whose problem is it?" while pointing out the undelivered service promises. This was a serious limitation in the study.

### 3.5. Data Processing and Analysis

Due to time constraint, data processing was outsourced as follows:

STRATKON handled all the data inputting using their preferred service provider;

"Under Hill Business Solutions", a private sector organization with excellent service delivery records, did data analysis.

Data cleaning was done to ensure data integrity, after which SPSS 21 version was used to analyze it. One of the main approaches for analyzing data was to develop a business sophistication measure (BSM) on the data collected, in order to be used to cross-tabulate the SMMEs, informal sector and cooperatives into various categories. This would assist in better understanding their profiles across all study variables. The content of this process is comparable to market segmentation, a marketing process consisting of subdividing a large heterogeneous market into smaller homogenous groups of customers with similar characteristics in order for the business to serve them efficiently.

Similarly, the BSM needed proper identification of discriminating variables.

Principal component analysis was used to identify variables to be used in the BSM analysis. This process reduced the number of variables to only include those, which would offer a significant discrimination or explanation between segments of SMMEs, cooperatives and the informal sector;

The business sophistication concept was used in the process of profiling of SMMEs, informal sector and cooperatives, with an assumption that these sectors operate on a continuum of a number of factors that determine business sophistication.

Despite being a broad approach, the business sophistication is usually based on business practices, and the existing economic and business infrastructure for doing business. For instance, the FINSCOPE study used a total of 25 factors for this purpose of business sophistication. This suited their study, but was not found to be appropriate for the current study. It was believed that fewer factors which were not inter correlated would better cluster the different sectors in a number of BSMs. To summarize, the development of the BSM analysis involved the following:

Nine questions were selected for the business sophistication measure model. These were discussed by the steering committee to ensure consensus and for the final results to be accepted as useful and valid;.

Sophistication scores on a scale of 1 to 6 where 1 is "least sophisticated" and 6 is "most sophisticated" were allocated to the responses to the selected questions;.

In some instances respondents chose the "refuse/do not know" option or values were missing. In such instances, the final BSM score was calculated on the average of only the questions the respondents answered.

Questions were given equal weighting. A simple average was used to calculate the final BSM score;

Small businesses, informal sector businesses and cooperatives with the lowest BSM scores were placed in group 1 and those with the highest scores were placed in group 7;

The same approach used in the FINSCOPE study in using PCA was simulated in the current study. This provided validation of the research results as accepted methods were used.

## 4. Findings of the Study

This section will be presented as follows: First, the results regarding the profiling of the three sectors (SMMEs, informal sector and cooperatives) will be given, followed by a discussion and policy recommendations to suggest ways to support these entrepreneurs to develop, be sustainable and grow. The rationale of adopting this approach was the desire to provide a framework for detailed policy and strategy for adequate interventions.

By adopting this approach, we also aim at highlighting the difference between the current study and that conducted by FINSCOPE, both of which are different in terms of purpose, scope and unit of analysis.

### 4.1. Summary of the BSM

The information contained in the section below, summarizes the information across all BSMs. Despite the significance of these results, it is worth noting that a proper assessment and interpretation in the right context and at the right level is necessary. This assessment and contextualising the results will involve depicting issues around formality and informality of business undertakings and adding descriptions of the nature of cooperatives. With this undertaking, we are therefore making further differentiation between this study and others and thereby making a rich contribution to the body of knowledge in this exciting field.

Along with the above, we need to clarify our conceptualization of what these BSM categories mean in the context of the SMMEs so that we remain relevant to the current government discourse at national and provincial levels. The question here is, which official government classification should be used to match the BSM categories 1 to 7? While this remains unanswered question, South Africa is not alone. Speaking about South Africa, Jackson (2015) appends that the categorization of SMMEs, both nationally and internationally remains a difficult process for both researchers and academics.

As mentioned earlier, small businesses in South Africa are defined according to the Small Business Act (South Africa, 1996). If this definition is used, it will result in only four categories that can be used, that is micro, very small, small and medium enterprises. This, we argue is good but it forces many different types of entrepreneurs to be grouped together making it difficult to understand the fine differences needed for support interventions.

It is our belief that previous impact studies conducted in the Gauteng Province should have shown that the use of the SMMEs definition has led to strategies that are not appropriate, resulting in low impact from the interventions made. Frequently, people ask why so much money is being spent on promoting SMMEs, the informal sector and cooperatives when the desired impacts are not being realized? In our view, this is mostly a result of using the wrong segmentation model and therefore inappropriate service offerings are made to the target market. Worse still is that with the lack of useful descriptions, profiling market segments policy and strategy are based on uninformed data and consequently are later seen as disjointed, resulting in low achievement of impact.

We therefore chose to use the following subdivisions, with a hope of including all the categories of SMMEs, thereby making easy the assessment for policy formulation and channelling of support:

- Survivalist entrepreneurs;
- Very small enterprises;
- Micro enterprises;
- Small enterprises;
- Medium enterprises.

Below is our attempt to insert these subdivisions into the various and right categories in the BSMs. An attempt needs to be made to come up with a model in order to address this matter, yet this can only be done after the study and not before. This means that the BSM categories used in this study will have to make sense of the segmentation of entrepreneurs in the SMMEs space, which includes the informal sector and cooperatives. Below is a model to align the BSM categories:

**Table 4.1. Categorization of SMMEs**

| SMMEs Categories | BSM Category |
|---|---|
| Survivalists | 1,2 (Lower end) |
| Very small entrepreneurs | 3 (Lower medium) |
| Micro enterprises | 4 ( Medium) |
| Small enterprises | 5 ( Lower  upper) |
| Medium enterprises | 6 and 7 (Upper end) |

As pointed out above, this will be justified after the results are analyzed and will contribute to the current theory on the definition of SMMEs according to the Small Business Act of 1996. In the meantime, this categorization is believed to be reasonable and will be used throughout this study. The information below presents a summary around the profiling variables.

## 4.2. Business Profiling

This section is very important as it describes the type of businesses inside the various BSM classifications of SMMEs, the informal sector and cooperatives. The nature of businesses, income levels, location of businesses and the effort needed to conduct businesses (distance, assistance and the number of hours of business) are discussed. To remain relevant in the context of the national classification of the SMMEs (Small business act of 1996), this profiling will show, whenever possible, the similarities between our classification and that of the act.

### 4.2.1. BSM and Business Involvements

### SMMEs

It should be noted here that the small business act 1996, classifies the businesses according to the industries they operate in. This section seeks information about the types of the businesses the respondents are involved in.
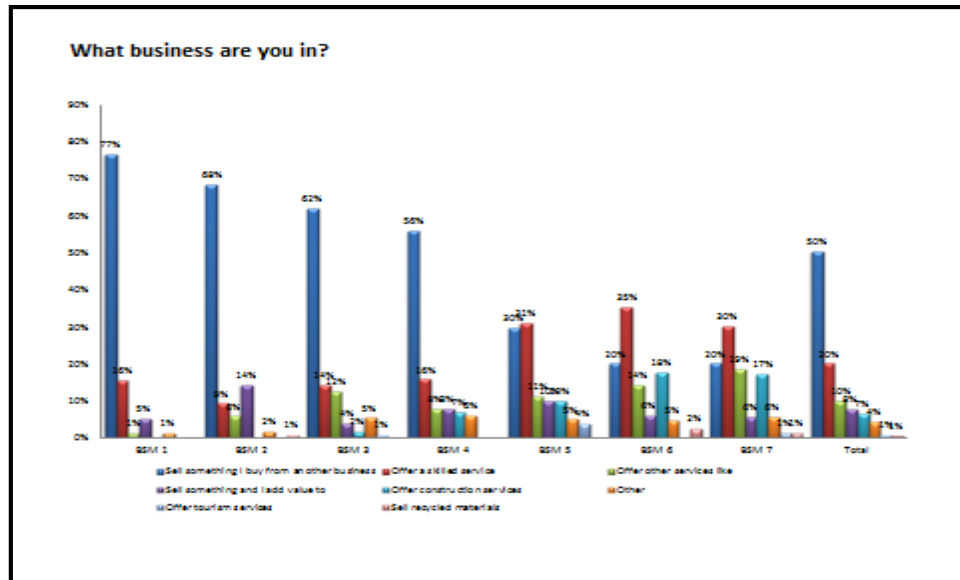
**Figure 1. Business involvement**

From the above Figure 1, the following information is reflected:

Generally, 50% of all SMMEs are involved in buying and reselling activities.

BSM 1 (77%) to BSM 4 (56%) is involved in trading, and this trade implies buying something at a given cost and selling it at another given price, plus a mark-up. Linking production to consumption has always been known to be a critical function and a cornerstone of trade among entrepreneurs and this is reported as having been very common among Africans in South Africa before apartheid policies. It is then interesting to see that this function is still recognized despite many comments about the lack of entrepreneurship among Africans and so it is encouraging to see that this still exists even in the low BSMs. Our appeal to the national and the GDED is to examine whether this practice can be upgraded to better fit the modern business operations.

Though all BSMs depict entrepreneurial orientation, this seems to be limited at the lower levels as very low value-addition is carried out at these levels. Since this entrepreneurial orientation is very common from BSM 1 to 7, it should inform the direction of the policy in order to encourage entrepreneurs to add value so that their products can sell at higher prices on the market. The realization of this observation, government's opinion of technological orientation is necessary, especially if it is paired with a close collaboration with the institutions of higher learning to produce that instrument. It is our conviction that the Gauteng province can make a big difference in developing and supporting SMMEs, informal sector and cooperatives by developing the appropriate technologies.

From the figure above, we further notice that 20% of the respondents are involved in the fields of hairdressing, plumbing, electrical, painting, landscaping and day-care centres and this is more common in BSM 5 to 7 (small and medium enterprises). As mentioned above, entrepreneurs from these segments have attained higher educational levels. Nevertheless, business training is required.

It is also observed that 10% of BSM 5 to seven (small to medium businesses) do more business in areas such as car washing, gardening, transport, catering and events. The numbers of entrepreneurs in BSM 1 to four are very low and yet these types of business areas do not require highly developed skills.
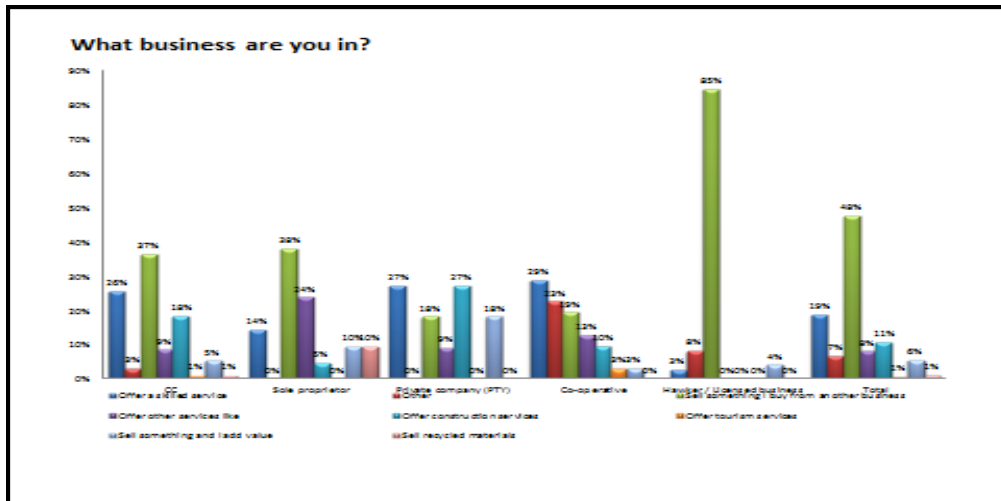
**Cooperatives**

**Figure 2. Types of business involvement by the cooperatives**

The figure above depicts a picture that cooperatives seem to offer more specialized services (27%) than close corporations, sole proprietors and private companies. However, as seen from the figure 2, cooperatives are not much involved in the construction sector and can thus not be included in the public works programs, which is unfortunate. However, they can involve any other type of the business in South Africa.

It was expected that cooperative members would be mostly found in trading than in any other sector where 95% are in trading. The current study confirmed such expectation, which demonstrates consistency of the study and data integrity.
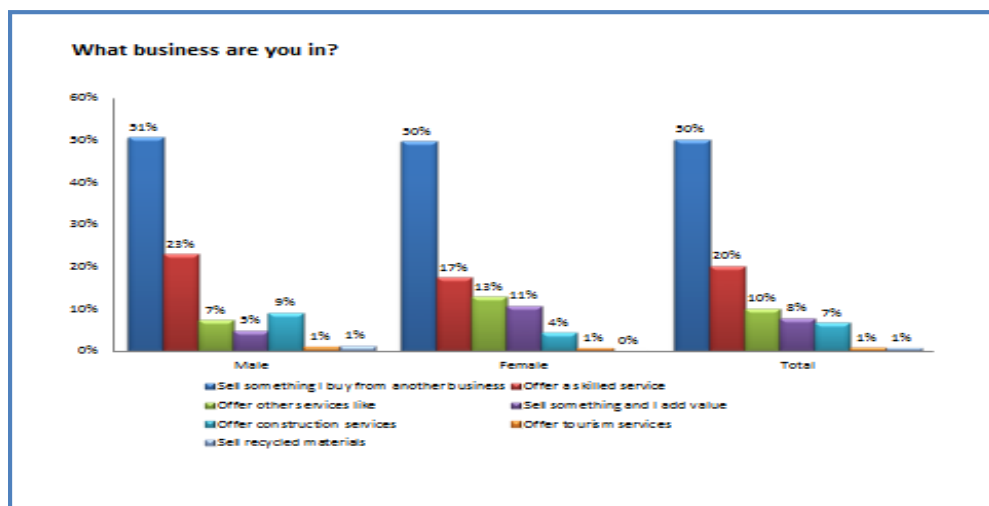


**Figure 3. Gender involvement into small businesses**

In our attempt to discover the identity of the SMMEs, the role of women's involvement was investigated and the results are shown in the figure 3 above:

The most interesting finding is that there is no difference between men and women in business involvement, as they are both equally represented in trading.

With regard to the skills in providing services, the percentage varies between men and women to the extent of 23% and 17% respectively. This suggests that GDED needs to offer more skills training programs for women. 11% of women tend to add more value than their male counterparts, while there are half as many women in construction (4%) compared to men (9%).
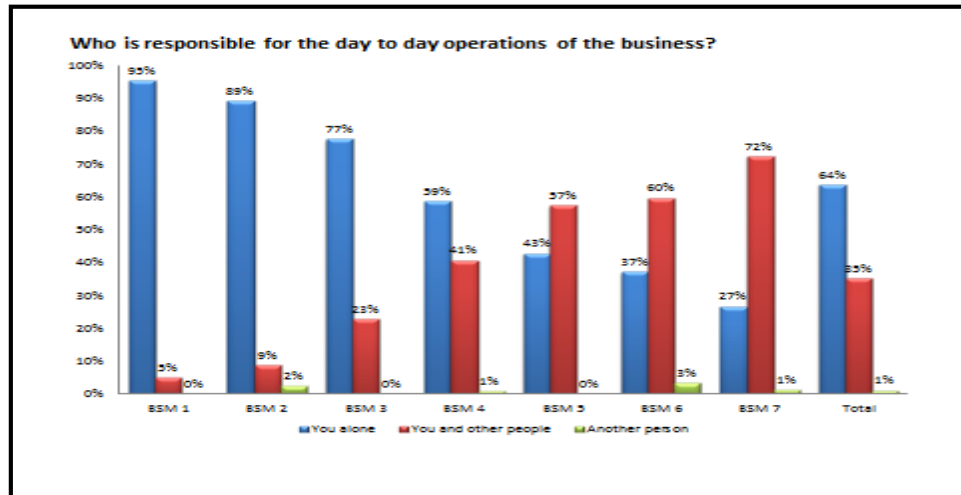
**4.2.2. Number of People Running the Business**



**Figure 4. BSM number of people running business**

To begin this section, an important note to make is that the small business act, 1996 uses the number of full time employees as one of its criteria. The current study found this as an important criterion to profile the SMMEs and cooperatives in the Gauteng province.

Some entrepreneurial theories support the view that an entrepreneur stands better chances of succeeding and make an income, if he/she runs many businesses to realize multiple sources of income. This would make sense across all levels of BSMs. To some extent, this research study supports this view as many respondents reported being engaged in additional activities like subletting. Moreover, if more entrepreneurs are involved in running several businesses at once, the higher the likelihood of them is pursuing other business opportunities.

The figure above shows that overall 64% of entrepreneurs run their businesses alone with 35% indicating that they use another person. This suggests that the likelihood of pursuing other business opportunities is low due to a total involvement in the primary business as well as limited human resources. This is also an indication of the size of the business.

A closer examination of the information reflected in the table below, suggests that different BSMs shows that BSM 1 to 4 (survivalists up to micro enterprises) are one-man operated businesses. This ranges from 95% of the survivalist level to 59% of micro enterprises. Consequently, this fact limits the entrepreneurs in terms of pursuing other business ideas.

However, BSM 4 to 7 (micro to medium) show the opposite trend in that 41% to 72% uses another person for running his or her businesses. This gives these entrepreneurs some capacity to analyse and pursue other business ideas. In other words, these businesses are also creating employment, and it would seem that this is the group that needs the business growth support provided by the GEP as an agency of the provincial government.
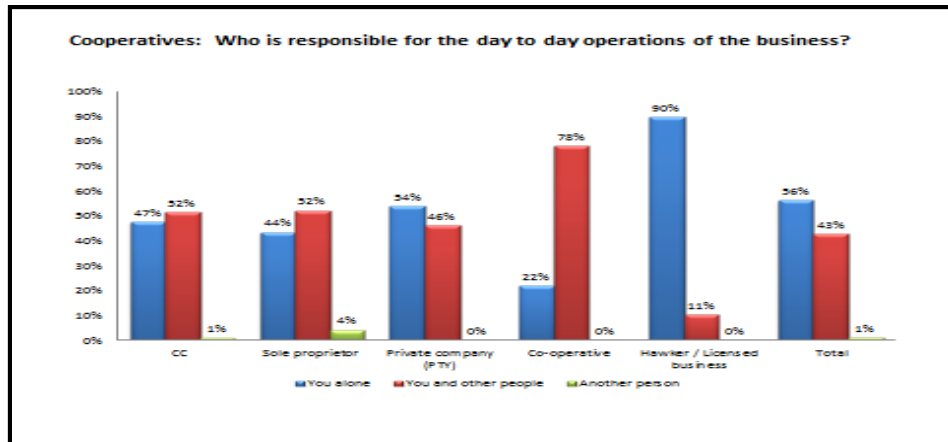
**Cooperatives**

**Figure 5. Persons operating the business as cooperatives**

Cooperatives are a collective and 78% involve more than one person running the business, suggesting a likelihood of success with a diversity in management.

Only 22% of the cooperatives are run by one person alone. This suggests a high level of trust invested in that individual, and we believe that a research comparing the success between those run collectively, and those run individually, would be interesting. We suggest that this can be a topic for future research.

**Informal vs. formal sector: People responsible**

Concerning the informal sector, the percentage of a single person running the business is 81% as compared to 58% in the formal sector. As much as this trend was expected, it is a sign of an existence of a business that adds little value in the second economy, an example of a survivalist business. This is shown in the figure below. The question becomes how can this informal sector be more entrepreneurial to exploit more business opportunities or expand their business operations for increased sales?
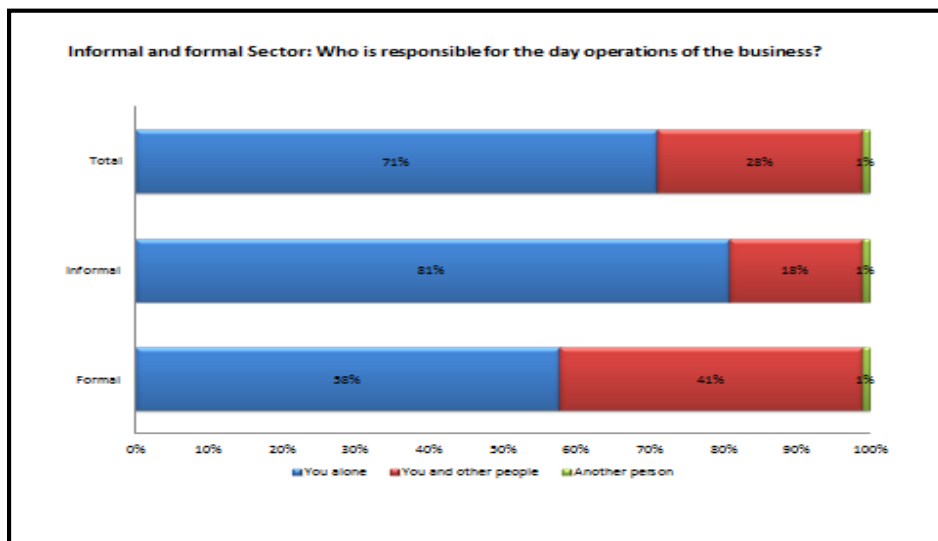


**Figure 6. Responsible person for operation of business**

From the figure 6 above, it clearly appears that from BSM 4 and 5 (micro and small enterprises) businesses start to involve other people in the running of the enterprise. This is the point of internal entrepreneurial equilibrium (IEE), and which determines the level at which an enterprise will have the desired propensity and ability to create wealth and employment. This also implies that not much should be expected from

survivalists and very small businesses with regard to employment creation, let alone tax payment. The corollary of this is that the main engines of growth will exist mostly at BSM 5 to 7 (small to medium enterprises). Once again, resources as well immediate support solutions should be directed to these categories, while the strategies of interventions to the lower categories are being formulated. Taking into account this information, this article retains the question that was posed in the baseline report as follows:

> At what level(s) should growth and support interventions be targeted? Furthermore, what type and level of interventions should be implemented to move the enterprise categories from low to high BSMs? This is the *raison d'etre* for the SMME research observatory, to provide clear indications on policy and strategy for GDED.

**Sales Turnover in 2011**

**4.2.3. Sales and Profit Analysis**

This section uses profitability criteria, to profile the SMMEs, informal sector and cooperatives at the various levels of BSMs, with the expectation that the highest sales and profitability will be from formal business and largely among the small and medium enterprises. It is worth noting that the small business act 1996, also use "Total turnover" as one of its criteria to define small businesses. Figure 7 below profiles the BSM on sales and profitability.
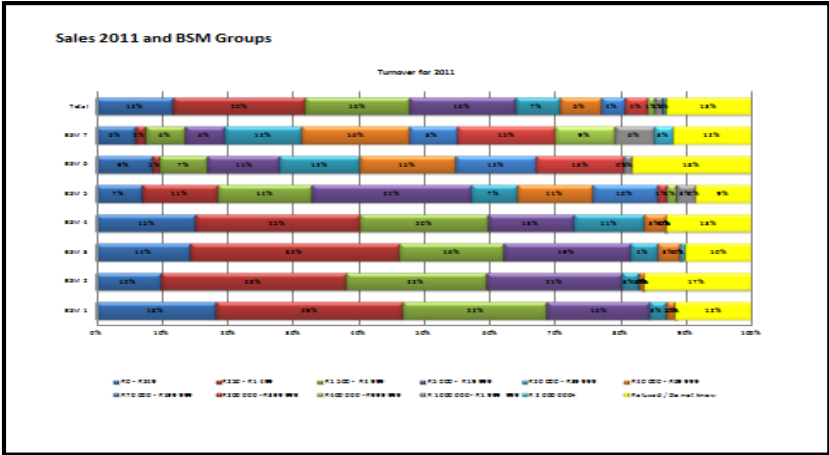


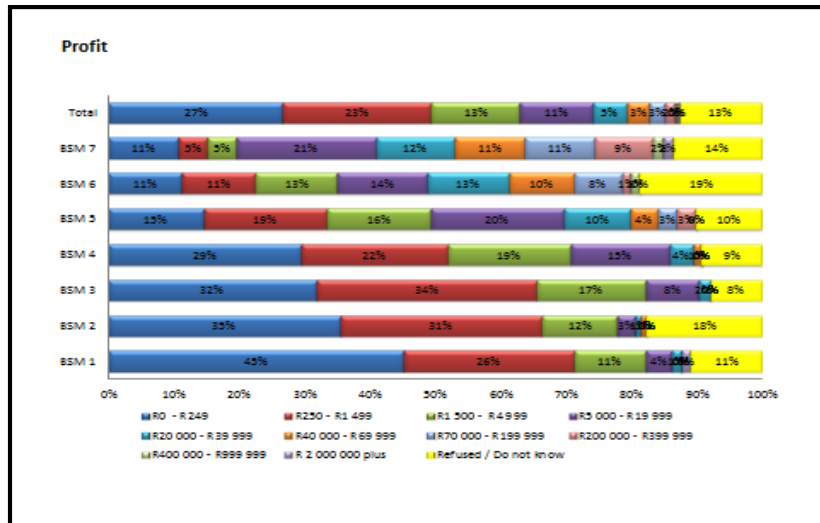**Figure 7. Sales in BSM made in 2011**

**Figure 8. Profit**

It is usually difficult to analyze sales revenue made by the various enterprises, as the respondents tend to skirt the issue in this regard. For this study, we can report the following:

The overall picture is that 16% made sales of R1 500 to R4 999,

20% made R250 to R1 999, 28% in BSM 2, 32% in BSM 3, 25% in BSM 4. It was expected that the real figures would not be revealed, and it transpires in this information.

Sales in the range of R5 000 to R9 999 was reported as follows; 16% in BSM1, 21% in BSM 2, 19% in BSM 4.

The research shows that information on sales was not freely given as 56% did not want to give the information.

This always makes it difficult to conclude on sales made my SMMEs.

The analysis on profitability indicates the same limitation as the above analysis on sales. However, the findings show that lower BSM categories (1– 4) make more profits than BSM 5 to 7, hence we conclude that due to the high cost of doing business in Gauteng, higher margins are only possible when entrepreneurs operate as survivalists or very small enterprises and informal businesses. On the other side, the profits in the higher BSM categories are affected by licenses from the local municipalities, DTI and other compliance issues. Once again, it is worth noting that when information on sales and profitability is collected, there is a lot of hiding that takes place unless accounting records are investigated.

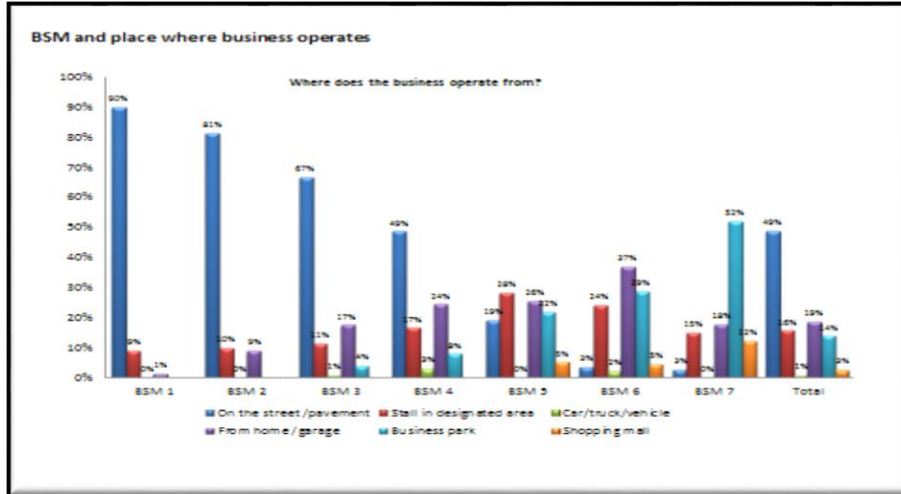### 4.2.3. Where do you do your Business?

**Figure 9. Location of business operations in BSMs**

The other important factor of consideration in deciding on business sophistication was the place or location of the business. In a number of times, government at all levels has used this criterion, among others, to determine who must receive support and interventions and thereby raising the potential for growth. In 2009, when the GEP financed some studies, it was ascertained that business premises where the main issue hindering the growth of entrepreneurs in some Soweto areas of Orlando East, West and Zola. Figure 9 above pints the following picture:

Forty-nine percent of respondents in BSM 1 to 4 (survivalists, very small and micro enterprises) operate on the streets.

Sixteen percent have stalls in designated areas and these are in BSM 3, 4, 5 and 6.

Nineteen percent operates from home (BSM 4, 5 and 6). There are positives in operating a business from home, such as reducing the rental costs or other fees involved when operating in designate municipal areas. However, this could also indicate the type of business that is not formal.

Operating in shopping malls is low and more commonplace in BSM 7.

Looking at cooperatives and other forms of businesses, the following picture emerges in terms of location.
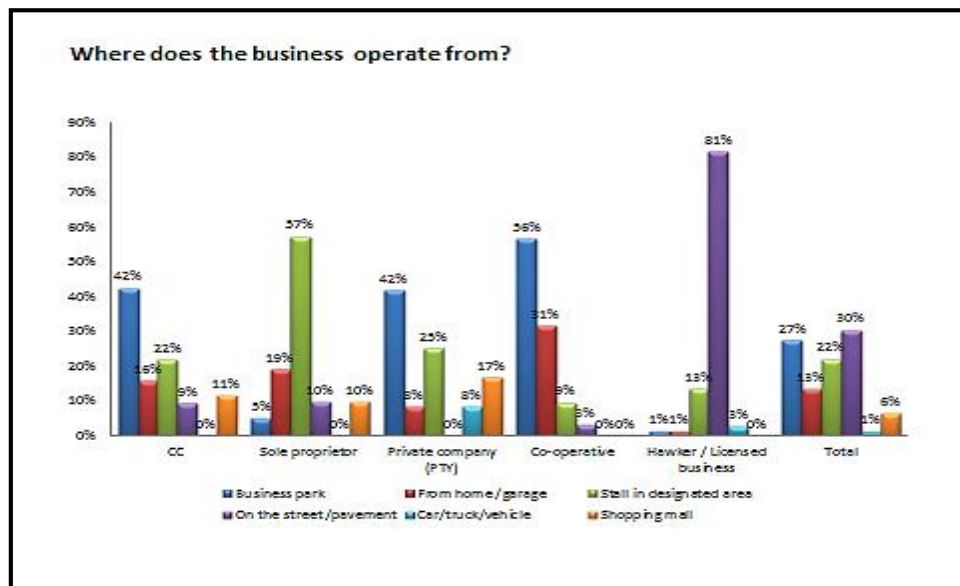
**Figure 10. Where cooperatives operate from**

Fifty six per cent of cooperatives operate in business parks with 31% operating from home. This is expected in the start-up years and considering the type of business.

Eighty one per cent of hawkers operate on the streets.

Forty two per cent of closed corporations and Ptys operate in business parks.

The creation of incubators in these business parks is thus one way GDED can grow the SMMEs in BSM 5 to 7. These businesses were operating from the Business Park already, and this very much encouraging as they have made things easier in terms of accessing them and identification of all their needs.

Fifty seven per cent of sole proprietors operate in the streets and these could be informal businesses, as they do not have to register. However and sadly, this situation is much similar to that of other African countries whose economies and level of competitiveness are far below that of South Africa as pictured below.

*In Malawi, Kamuzu Banda built a market in Lilongwe for the informal sector to sell their products to tourists. He recognised the importance of the informal market and created a market linkage intervention.*

*In Dar- es- Salaam, Tanzania, the informal market is lined up in Soweto Road. These businesses offer construction, carpentry, food services and more, and are open to buyers and not harassed by authorities. This is the* **Jua kali** *informal sector, which has made a huge contribution to the Kenyan economy.*

*In Uganda, the informal sector businesses line the street from Entebbe airport to Kampala and these sell food to foot traffic, vegetables, curios and so forth. These businesses open from 08:00 and close past midnight. These businesses are thriving and vibrant!*

*In Zambia, the Soweto market exists where the informal sector sells products from water to the most expensive boerewors from South Africa to spare parts for cars. This is a place where people go for anything they need.*

### 4.2.5. Business Infrastructure

In the current study, business infrastructure section can be compared to the section of Total value of assets of the organization that was used in the definition of small business act of 1996. The facilities available for the operation of a business are as expected. For example, BSM 1, 2, 3 and 4 operate in poorer conditions than their counterparts in BSM 5 to 7.  The table below provides a summary:

Survivalists, very small and micro enterprises (BSM 1-4) have very poor access to the following:

Storage space;

Meeting rooms;

Poor business policies and plans like business and marketing plans, vision and mission statements, staff training plans, financial records, postal addresses, security guards, VAT registration. Surprisingly, they also do not have business bank accounts.

On the other hand, access to business facilities was slightly higher, but at a very low level for BSM 5 and 6. Only BSM 7 had reasonable access.

We sadly observe the fact that the aspects where the business is poor in, are the ones that are critical for running a successful business.

**Table 4.2. Access to Facilities**

Which of the following does your business have access to?

| | BSM 1 | BSM 2 | BSM 3 | BSM 4 | BSM 5 | BSM 6 | BSM 7 | Total |
|---|---|---|---|---|---|---|---|---|
| Running water | 65% | 75% | 80% | 75% | 85% | 98% | 95% | 80% |
| Electricity | 30% | 44% | 40% | 55% | 84% | 92% | 93% | 60% |
| Toilets inside | 44% | 66% | 55% | 49% | 55% | 55% | 51% | 54% |
| Toilets outside | 9% | 16% | 26% | 37% | 79% | 90% | 92% | 47% |
| Storage Room | 6% | 12% | 29% | 42% | 54% | 64% | 77% | 39% |
| A kitchen | 5% | 28% | 25% | 32% | 44% | 65% | 65% | 36% |
| Meeting / boardroom | 2% | 7% | 15% | 25% | 42% | 56% | 55% | 27% |
| A written business plan | 2% | 10% | 18% | 22% | 32% | 54% | 65% | 27% |
| A vision or mission statement | 0% | 0% | 3% | 10% | 25% | 67% | 93% | 25% |
| Written financial records | 0% | 0% | 3% | 10% | 15% | 43% | 80% | 19% |
| Written training plan for staff | 0% | 0% | 0% | 11% | 22% | 42% | 72% | 18% |
| Written marketing plan | 0% | 0% | 1% | 5% | 17% | 49% | 71% | 18% |
| Postal address | 0% | 0% | 0% | 5% | 17% | 37% | 71% | 16% |
| Phone / cell phone | 0% | 0% | 1% | 7% | 7% | 27% | 61% | 13% |
| Security guards | 0% | 0% | 0% | 1% | 9% | 33% | 45% | 11% |
| VAT registration | 0% | 1% | 3% | 6% | 7% | 23% | 44% | 11% |
| DTI registration | 0% | 0% | 0% | 0% | 4% | 10% | 45% | 7% |
| Business Bank Account | 0% | 0% | 1% | 1% | 6% | 15% | 27% | 8% |

## 5. Conclusion and Recommendations

The main aim of this article was to discover the real identity of the SMMEs, informal sector and cooperatives in the Gauteng province of South Africa. To achieve this, the study conducted a Business Sophistication Measure (BSM), which culminated in categorizing those businesses in five different categories (Survivalists, very small, micro, small and medium), which correspond to seven different BSM categories (lower end (1 and 2), lower medium (3), medium (4), lower upper (5), and upper end (6 and 7).

It was then found that from medium to upper end categories of the SMMEs, the informal sector and cooperatives are worthy of support due to:

A variety of businesses they are involved in

Create more employment, as they involve other people in their businesses. In fact, 41-72% of these businesses use other people in these categories of 4-7 of BSM.

Growth is likely possible from BSM 5 to BSM 7.

Surprisingly, lower BSMs make more profit than upper BSMs due to higher cost of operating business, and high profit margins are possible when one operates as survivalist or very small.

The study discovered that 49% of SMMEs (BSM 1-4) operates from the streets, while BSM 7 operates in the shopping malls.

Finally, BSM 1-4 operates in poor conditions without the necessary facilities such as running water, storage, etc., while BSM 5-7 have reasonable access to decent facilities.

In brief, these are the characteristics of the SMMEs, informal sector and cooperatives as the 2016 baseline study reports. These findings constitute a paramount discovery that can support policy makers as well as funders to channel their aids for the development of these businesses.

We therefore recommend that supporting institutions become aware of these needs so that they can respond accordingly.

The study mentioned the lack of awareness of the support structures by the businesses, as the highest awareness rate being about 62%. It is recommended that these structures intensify their awareness campaign in order to efficiently support the businesses.

Another major issue uncovered in the study was the unwillingness of businesses to reveal their financial information. It is also recommended that the concerned shareholders run educational sessions about the importance of government having this information, and run trainings for all the necessary needs of the SMMEs.

Due to importance in job creation and driving completion by BSM level 5-7, it is recommended that supporting structures strength their interactions with these businesses and support them as they show potential for growth.

It is also recommended that once this report and the other area reports are completed, a GDED strategic planning workshop be held to distil all the relevant findings so that inputs can be made to guide the current Gauteng SMME Policy and Development Strategy.

It is important to make these strategies live documents, as they are a means of responding to current challenges and aligning them for a vision and strategic fit.

> Concluding remark: A policy needs to be put in place to guide just how long an entrepreneur should be assisted in starting up, establishing their business and growing to higher levels. Once the expected time frame has been reached a critical review should be conducted to determine whether support should continue or stopped. Strategy will give more credence to the GDED support initiatives. This would also make it easy to monitor the performance of the various GDED agencies meant to develop and promote SMMEs. Cooperatives and the informal sector.

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# The Icelandic Quality Oriented Environmental Policy

**Ionel Sergiu Pirju [1]**

**Abstract:** Iceland, state member of the Nordic Cluster (Norway, Denmark, Sweden, Finland, Iceland) is dominated by equalitarian cultural values which encourage the collective distribution of resources and common action. The Scandinavian Nations are having one of the highest levels of the environmental protection laws in the World ant their performance orientation is situated in bottom up position inside the European Union (sustainable development with emphasis on quality of the products). The environmental performance is the expression of a human oriented society where the manifestation of institutional collectivism is among the greatest value-added for the national welfare. The objective of this article is to examine the environmental management strategy in Iceland as part of the Nordic equalitarian cultural values and the benchmarking influence of the Nordic performance in this field.

**Keywords**: sustainability; management performance; environment; Iceland

**JEL Classification:** F64

## 1. Introduction to the Icelandic Environmental Particularities

The premise for this study is that the dissemination of the Nordic environmental approach could be an excellent comparative pattern for the emergence of new start up environmental projects of European nations. If is convergence in the environmental protection, it is possible in the future to organize common projects to enhance the long-term sustainability. The Nordic Cluster is formed by Sweden, Denmark, Norway, Finland and Iceland, sovereign nations with common history and cultural background. The Baltic States are not included in this cluster, although are in the proximity and their way of life is under the influence of the Scandinavian principles.

According to the International Economic Forum (2018) all the Nordic nations: Sweden, Denmark, Norway, Finland and Iceland are in a bottom up position in aspects as: quality of life, social equality, competitiveness and economic growth. Except Iceland, the rest of this nations have not been affected by the recent economic crises, but we cannot sustain the existence of a Nordic classical

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performance pattern, specific to this cluster. Iceland and Norway are not members of the European Union and are not included in the Euro Zone. Finland is member of the EU, accepted the Euro, but Denmark and Sweden, states members of the Union are having their own monetary policy (Pirju, 2017).

The Nordic states are characterized by a strong individualism (Kristiansson, 2009) which could be related with the intention of managerial achievements in all the sectors of the life -public or private.

The core of this research is to analyze the Icelandic perception of the environment protection and the quality of performance orientation in this field. Related with its population, 334 252 people (World Bank, 2016) Iceland is the nation with the highest influence on the World cultural heritage. The island started to be colonized by the Norwegian dissidents between 870-930 AD and around 1125 a local scholar, *Arni the Wise*, had making the first mention of the name Icelandic (Islendingabok, 2006). The traditional holydays of the Icelanders are celebrating the symbiosis between the mankind and the nature and the message which is disseminated is based on the preservation of this special relationship. On the national day, 17-th of June, the nation is represented by a young woman *Fjalkonan*, in translation the Lady from the Mountains, who dressed in traditional costume is offering a poetic recital (Bjornsson, 2008). Iceland is a strong democracy and the Parliament, *Althingi,* is the first Parliament in history (Karlsson, 2000). This form of political synergy is a Viking manifestation of proto-democracy.

The environmental protection is highly evaluated in this area where the climate is polar and arctic subpolar, but the North Atlantic current is providing a high variety of maritime life. Even the North Pole is very close, the frozen zones are not close to the shores, where the temperatures are positives in the Summer. The South, where it is concentered most of the population is wetter and warmer than the far North (World States, 2009). The country's exterior is dominated by fiords and the rocky interior is mostly uninhabited with lava field and volcanic sand. There are three national parks: *Vatnajokull, Snaefellsjokull* and *Thingvellir* and the conservation national policy is the starting point for making Iceland one of the World champions in environmental protection. From a geological perspective, this place is a very active one, there is a high number of geysers (the name is Icelandic), the most famous is *Strokkur,* erupting every 10 minutes. The isle is composed by basaltic rocks, the consequence of frequent volcano activities as it is happening in the case of Hawaii archipelago. In Iceland there are more than 30 active volcano producing distinctive lava types such as riolite and andesite. The island of *Surtsey* is one of the newest territories from the planet emerged after volcano activities between 1963 and 1968. In March 2010 the volcano *Eyjafjallokull* erupted after 200 years, forcing thousands of people to leave their properties. The cloud of

volcanic ash had been crossed a part of Western Europe having a strong impact on the air transportation and the global interconnectivity (Pirju, 2017).

The transport pollution is not a national problem, even in Iceland there is a car at 1.5 inhabitants. The administrative road network it is about 13 000 km, only 4 600 km are paved, the rest being used for rural transportation. The public transportation is represented only by buses, there are no trains, but we can find103 airports in all the country. The sustainable energy sources (geothermal and hydrological) are providing electrical independence in proportion of 85%. The goal of Iceland is to become independent in this field until 2050 when the *Karahnjukavirkjun* hydroelectric plant will be 100% operative. There is the intention to develop a high voltage cable between Iceland and Great Britain to export the electricity (ibidem).

The fauna is one of the most reduced on the Planet, the only terrestrial mammalian is the polar fox, the presence of the polar bears is an exception being the consequence of their constant migrations in searching for food. The Vikings brought with them the raven, the sacred bird of the Gods on the mainland, there are no reptiles or amphibians capable to adapt and survive to the natural conditions. The vegetation of Iceland compared to the other Nordic States is quite rare, missing on the third quarters of the area. The northern grass prevails and is used to feed the livestock and the most common three is the Nordic birch. In small number there are: poplar trees, ashes, junipers and willows. There are written mentions in the medieval Viking literature, the Saga, that in the IX-th century the entire country was afforested from the mountains to the ocean (Egil Saga, 2005). The need for fuel, the alert spread of the livestock had been the main causes for the cutting of the forests. In present more than 100 000 km $^2$ from the soil is affected by the erosion (Montgomery, 2007).  There are projects of deforestations but seems a big challenge for the local communities to reach, even in part, the quantity and the quality of the traditional forests attested in the Sagas.

Starting from this reality, the article will present the Nordic cultural equalitarian approach and its influence for the future environmental strategy in Iceland.


## 2. Nordic Equalitarian Values, the Premise for Economic Sustainability

The power distance is a corner stone of the Nordic mentality.  In Iceland, the representative democracy has the goal to transpose the wishes of inhabitants in public policy. In the most cases, the protest manifestations are not under the patronage of political parties. Many citizens organizations, without political links, are influencing the authorities trough spontaneous strikes or public manifestations (Kristiansson, 2009).

The Nordic Cultural values are the expression o f a free equalitarian system where the common welfare is not a theoretical approach, but a common way of life. The

power distance, which represents the acceptance of equal distribution in a society of hierarchy and power is according to Hofstede Center (2018) extremely low in the Nordic Cluster. The scores are 30 for Iceland, 33 for Finland, 31 for Norway, 31 for Sweden and 18 for Denmark (Hofstede Center, 2018). We can infer that the Nordic culture is an equalitarian one and is offering the second chance for everyone, regardless ethnicity or religiosity and minimalizes the social disparities. The hierarchy is established by common consultations and it is maintained to organize a company and to monitories the efficiency.

For example, in Iceland, where the questionnaire was made the personal competencies are the base for the public leadership and not the personal and political connections as it is happened in South Eastern Europe. The low power distance is the axe for the social equalitarianism because only the independent citizens can prevent the tyranny of the few, and this low power distance is the essence of the democracy.

Uncertainty avoidance it is quite low in Scandinavia, in public the people are extremely calm and well-mannered and there is hard to identify a collective stress. The feelings of uncertainty are not personals and when it occurs are a common preoccupation for all the community and not only for a determined segment of the population. The conflict management it is related to the openness for change, the intention to accept the risk situations and to be on the top of the activities. In Iceland there is a positive attitude which essence is represented by the verbal phrase: "*theta reddast*" in translation: it will sort by itself. This attitude is not the expression of the fatalism, because no matter a situation could be, in the end all the problems will be solved, and the rules could be extended according to the necessities (Kristjandottir et ali, 2015). The effects of this attitude are characteristic for a society where is no external pressure for the achieving performance. For the common welfare there is no problem to change the rules and the old traditions, because a formal traditional way of doing business it is accepted only when is rooted in the reality and generates profits. The environmental protection is favorized for a low uncertainty avoidance, because for improving the existing *status quo* there is no high rank official pressure and the essence is the consensus and the common action of the responsible citizens.

The Nordic states are characterized by the respect for the individualistic values, the provocations are accepted and there is no tendency to search for the external protection: family, political group etc. Another feature of this area is the existence of high feminine values where the common security, altruism and work collaborations are among the social responsibilities. In the Nordic countries there is not a long-term orientation, the people are searching to improve a situation in the same moment when a problem was detected. The environmental protection strategy

has no delay on its implementation and the goals are realistic, but the results are expected to be accomplished as soon as possible.

The low number of rules, the reduced bureaucracy are making the collective implication in ecological management more effective and well structured. The above-mentioned countries are characterized by one of the highest amounts of income *per capita* and there is the interest to preserve it. If the Danish economy is based on innovation, transport and agriculture (Duelund, 2008), the Swedish on telecommunications and manufactures (Holmberg & Akerblom, 2008), in Iceland and Norway the origin of welfare is based on social responsibility (Grenness, 2000) and is interconnected with the environmental protection. Norway is one of the biggest exporters of crude (oil and natural gases) and the economy of Iceland is depending on the ocean fishing industry and recently tourism and geothermal energy.

In Iceland the natural resources are not a monopoly of the Government and the civil society is directly involved in their long-term protection and conservation. The environmental protection is sustained by a protectionist economy where the Unions are having an important role in the management of the ecological issues. The social trust in the collective measures for the environmental protection is a pillar which can guarantee sustainable development and economic growth, institutional responsibility and educational involvement. The promotion of ecological principles in the academic curricula is highly evaluated among the Nordic partners and constitute a successful benchmark for another countries.

The Nordic principles of environmental protections are closed to the principles of European Union and are not very linked with the Nord American approach. European Union, as a soft power aims to achieve environmental protection through innovation and creativity, in contrast with the American model based on high quality no matter the costs. Iceland, as the rest of the Nordic countries, promotes knowledge based-economy principles where are valuated intangible goods: thinking out of the box, creativity and sustainable innovation.

In the Nordic management, creativity and innovations are considered more important for the increasing of the GDP than the traditional managerial approach, based on high cost, investments in training etc. (Torvatn, et alli, 2015). The creativity is possible because there are common characteristics as high levels of GDP, equality in income distributions (Calmfors, 2014) which are based on real democracy of the government structure and the social trust.

### 3. Importance of Performance Oriented Environmental Strategies in Iceland

A well-educated nation is always a leader in the global environmental issues. The education in Iceland, as in the rest of the Nordic Cluster is dominated by performance orientation and the effects are positive. Mandatory education period, *grunnskoli*, includes primary and secondary education, which take place in the same institution. The environmental education is well represented in the national curricula and the educational management is very sensitive regarding this subject. In the ecological protection we can notice a perfect synergy between the policy of the leaders and civil society. The human orientation in supporting the ecological stability is a key subject in the educational strategy of the national universities. The most famous university is University of Iceland, but a strong reputation is having also: University of Reykjavik, University of Akureyri, Agricole University of Iceland and Bifrost University. The education, like in the rest of the Scandinavian states, is based on secular principles (Fox, 2008) and the civil society has a real influence in choosing the educational curricula. In consequence, the environmental provocations are not avoided and the interest for this field is supported by generous funds. In Iceland, 3,5% from GDP is allocated for research, more than the average in European Union: 2,3%. The intention is to increase the amount of funds to 4% until 2020. The effects are obvious since 2010 when the UNESCO Science report placed the tiny state on the 9 position on the top of research, alongside with: Taiwan, Switzerland and Germany and above former pioneers in research as: France, Great Britain or Canada.

In June 2016, under the aegis of European Economic Space grants, the author realized a survey in Bifrost University from Iceland about the perception of performance orientation. Performance orientation express the willingness to encourage and rewards the excellence and performance achievements in a group (Chhokar et all., 2008; House et all, 2004).

The interviewing representative sample (55 persons, 21 males and 34 women) was formed by adult scholars, professors and students from the above-mentioned University. All the questions were answered via computer and the questions included the assessment of the future pillars what counts for the long-term competence and performance of Iceland. One of the items was about the future oriented behaviors in achieving constant welfare. The results of the analysis presented in the Figure 1 shows that the highest numeracy score is for future investments in tourism 18 %, followed by the focuses on environmental and green energy interest, 15%.
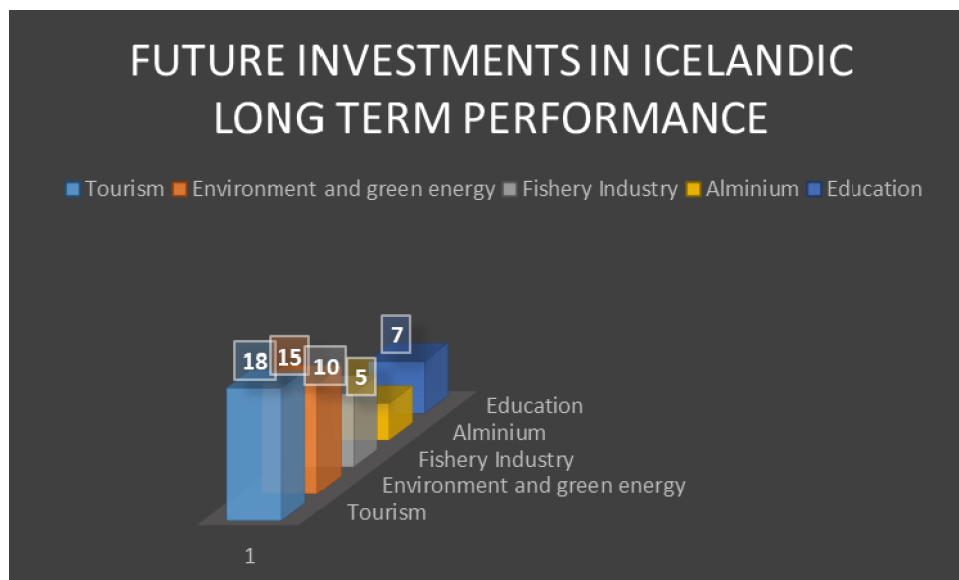
**Figure 1. Long term Icelandic vision about performance orientation investments in Bifrost University**

The above figure indicates that is a low magnitude of difference between the investments in tourism and the environmental protection which means that for the members of Bifrost University community the fulfillment of everyone is related with a great concern for the ecological sustainability.

Such a protectionist attitude in Iceland enables a search for creative solutions with strong expressions for the quality-oriented environmental policy.

Iceland is a state which has an environmental policy focused on the development of the internal market and the long-term prosperity for all its citizens. The manner of promoting the environmental strategy is a benchmarking model for the rest of the countries, where in many cases those issues are not considered as top priorities. The performance of a country could be measured by the environmental achievements and the intention of the political class to respect the international protocol in this field, no matter the economic costs for the national economy. The Bifrost academic community is the living proof of the existence of the "theory of the same goal" (Liu & Wen, 2011) where the scholars and alumni are able to express their talent in improving performance of their work because there is no lack of external conditions for enhancing the innovative behavior and performance of the people. There is a functional relationship between the quality-oriented environmental policy, the innovative capability of the educational system and administratively skilled leadership. The questionnaire about the Icelandic performance describe important aspects of consensus and action-oriented

preference for controlled pragmatism without affecting the environmental standards.

The Icelandic doing business approach is stakeholders oriented, based on dialogue and the ecological interest is having a high impact on the country long term sustainability. All the persons are seen as important competitive factors for the companies (Zhou & Shalley, 2003; Shalley et all., 2009) and the environmental policies are common problems for enhancing the performance of regional entrepreneurship.

The environmental Icelandic foreign policy is based on three pillars: the European pillar, the Atlantic pillar and the Rest of the World pillar (Bergmann, 2007). Being a ministate, in the environmental representation around the World, Iceland is linked with the official position of another Nordic states, especially Denmark and Norway. The Atlantic state joined to European Free Trade Association (EFTA) in 1970 and starting with 1994 is a member European Economic Area, which means a *de facto* acceptance of the European Union environmental policy (Bergmann, 2014). Because of the economical interconnections, Iceland adopted ¾ of the European legislation and almost 1/5 of laws passed by the Icelandic parliament are inspired by the European Laws, a higher percentage than in many Member States (Bergmann, 2011).

From the above-mentioned information, we can infer that in the environmental policy, even Iceland it is not a EU member, it is still an important partner in the fight against pollution. It is normal for Icelanders to promote a pro green policy, because according to the Global Peace Index, this nation is the most pacific country in the Word with a high political stability (Institute for Economic and Peace, 2018).

Based on the information provided by the site Economy, Politics and Welfare of Iceland (2017), as a direct effect of high environmental implication among the civil society, the Government announced new strategies for improving the long-term sustainability. The new plan, entitled Iceland 2020 is based on public consultations between the local officials and all the stakeholders interested in personal development and environmental protection. New ecological start up projects will be financed, the line of credits will be more accessible for the people in need, the public education will be the central pillar for the promotion of the environmental good practices.

For Icelanders the technological innovations with impact in green sustainability are as important as the investments in human capital. Those new technologies maximize on long term the profit of the national companies and are preparing the firms for the global competitions with the direct competitors. The environmental conservationism is related in Iceland with the investments in education.

In Iceland and in all the Nordic countries, the learning by doing process is supporting the environmental protection, because only some well-prepared personnel is capable to protect the nature and in the same time to increase the profit. The green policy is reflected also in the economic performance, because if in 1904 the purchasing power was similar to Ghana, in the end of the XX century it was superior to Denmark, with an increasing rate of 2,6% per year (Halldorson & Zoega, 2010).

We can describe the environmental policy of Iceland as unique, because the nation has as base for the prosperity the industry on the conservation of its maritime resources. The long-term financial policies, high technology of the fishing fleet supported the protection of the wild life and the maintenance of pure ecosystems. There is also an economic interest because 35-40% of the Icelandic GDP is provided by the fishing industry (Thorhallsson & Vignisson, 2004) and there is the intention to conserve the biodiversity as long it is possible.

The national strategy for a performance oriented environmental approach was attributed by the Bifrost University Staff to the homogeneity of the population, compared to the rest of the Scandinavian nations, there is a low share of immigrants (Albæk & Rosdahl, 2017) and the effects of the decompositions of the society are still very low.

To perform, the Icelanders are developing an autonomous nation based on inspirational cross-cultural orientation with a close relation between performance, motivation and encouragement. The Icelandic society is characterized by a rapid change of mentality and a high preference for business opportunities, but the technological development is under the rules of visionary environmental policy.

## 4. Conclusions

It seems normal for Iceland to adopt a pro environmental policy, because traditionally the national economy was supported by the exports of agriculture and fish industry (Sjovaag & Bergmann, 2012). The position of the country, in the middle of the Atlantic Ocean, is giving the access to a great number of maritime live and its protection is a normal condition for the preservation of the future welfare. The industrialization of the nation was not produced in the same period as in the rest of Scandinavia and the effects of it had been less aggressive as it was happened in the main land.

In conclusion, the Icelandic people by understanding the importance of environmental sustainability through national practices and values are better prepared for new business opportunities in the future.

As all the Nordic countries, Iceland is supporting the corporate performance through a quality-oriented environmental policy. The successful theory and practice of regional management is working not for the self interest of the political elite, but for the common good under the aegis of a team spirit within the organizations. The Nordic conscience is transcending the indifferences of many nations for whom the social competence is something that goes beyond the ecological responsibility.

In Iceland there is a performance orientation related with altruism and the economic growth is centered not only with the fight against poverty but also with the ecological responsibility and environmental concerns. The human rights, the gender equality and the quality oriented environmental policy are shown continuity in sustainable development and are associated with a visionary and intellectually stimulating approach. The passion for common welfare, the productivity on the international markets and the feedback for the common problems are constructive related with innovativeness and motivations. A cultural mantra for the Icelandic high-scoring environmental policy could be: high degree of environmental actions through collective responsibility.

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# Human Capital Investment and Economic Growth: A Test of Endogenous Growth Theory in Two Developing Countries

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**Abstract:** This paper evaluates the relationship between human capital investment and economic growth in two sub-Saharan African countries (Kenya and South Africa). The paper applied a quantitative approach and secondary data were collected from the World Bank economic and education indicators from 1987 to 2016 (30 years). A cross sectional panel data arrangement gave a total of 60 observations and the fixed effect panel regression was applied using the Gretl econometrics package. The paper adds a nuance to previous methods and results by adding yearly time dummy in the model. Results show that investment in human capital is positively related to economic growth in the two sub-Saharan African countries. The paper highlights the significance results from time dummies, which shows that time is of essence in empirical analysis of this relationship and that investment in education would yield positive result on economic growth with timing considerations; this indicates that a waiting attitude is essential when investing in human capital. The paper recommends that economic policy makers should, in addition to universal primary education, commit more resources to secondary and university education to increase the stock of human capital in Africa as secondary and university education produce middle and high-level human capital. Improved policy that would fortify the colleges and universities in Africa would produce and retain quality human capital in Africa to spur economic growth. It also recommends that future research should consider the inclusion of yearly dummies when analysing the relationship between human capital investment and economic growth.

**Keywords**: emerging economy; economic growth; women in parliament; sustainable development

**JEL Classification:** E24; J24; O2; O10; O11; J16

## 1. Introduction

Globalization of economic systems and the attendant market integration has shifted modern economic growth thought slightly forward from the classical growth thought of Adam Smith, David Ricardo and Carl Marx. Economic development

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alternatives after the neoclassical economic thought have metamorphosed to modern economic growth thought that has ushered an increasing approach of inward search for growth. Consequently, a myriad of growth models has been proffered, amongst which is the endogenous economic growth model, which has emerged not as a replacement of classical economic growth model but as a complement (Bende-Nabende, 2018; Jones, 1995; Aghion, Howitt, Howitt, Brant-Collett & García-Peñalosa, 1998; Romer, 1994; Rivera-Batiz & Romer, 1991).

Human capital occupies the crux of endogenous economic growth approach given its ability to create assortment of innovation and education is held as the key to human capital development. Accordingly, there is a preponderance of research acclaiming that human capital stock contributes a significant boost to a country's economic growth (IIASA, 2008). Therefore, improvement in education provides a necessary pre-condition to long-term economic growth; albeit numerous findings about the role of education, IIASA (2008) highlights that education might not always prove to be a sufficient condition. Given that human capital is the hall-mark of endogenous economic growth theory, many researchers have been investigating how human capital relate to economic growth and/or development; some have concentrated on a country evidence whilst others have dwelt on a cross-country evidence (Ogundari & Awokuse, 2018; Acharya & León-González, 2018; Tyndorf & Glass, 2017; Li, Loyalka, Rozelle & Wu, 2017; Barro, 2001; Benhabib & Spiegel, 1994).

Tyndorf and Glass (2017) argue that a combined creation of stock of human capital through college and university education boosts economic growth in developing countries. Other researchers have looked at the combined contribution of human capital and health on Sub-Saharan Africa economic development and found that health is more positively related to economic development in Africa than human capital (Ogundari & Awokuse, 2018). Evidence from Li, Loyalka, Rozelle & Wu (2017) show that investment in education leads to higher income across countries, and it is well known that increased income results in higher growth. Barro (2001) found that countries with higher stock of human capital experience higher economic growth; similarly, in a cross-country analysis, Benhabib & Spiegel (1994) found a positive relationship between human capital and economic development. In their study of selected countries in Asia and Africa, Acharya and León-González (2018) concluded that there is a significant relationship between remittances and economic growth which is made possible through investment in human capital.

This paper contributes to the existing literature on human capital and economic growth by examining two countries in Sub-Saharan Africa, which have not received a joint study in prior literature, which is Kenya and South Africa; it should be noted that other research in this concept has dwelt on large samples neglecting

the need to pause and narrow the investigation to smaller sample, which Hamlin (2010) indicates might increase accuracy of result. Furthermore the paper makes contribution by including the yearly dummies to accommodate future effect. The paper adds a nuance to the existing literature by focusing on investment in human capital and economic growth, which has received little attention mostly in the two selected countries. Accordingly, the question that underpins this paper is whether investment in human capital is related to economic growth in two sub-Saharan African countries, hence the research objective is to analyse the relationship between human capital investment and economic growth in the two sub-Saharan African countries. From the research findings, the paper proffers some policy recommendations for economic development in Africa and provides further research agenda.

The subsequent sections of the paper has the following structure: after this introduction, the paper presents a brief overview of endogenous growth theory, thereafter a brief review of related literature follows. Thereafter, the next section presents the methodology, results from analysis and discussions and the paper closes with a conclusion

## 2. Endogenous Growth Theory

In economics, the endogenous growth theory argues that economic growth is facilitated from inside the system, which flows from the processes inherently existing within the system (Zhang, 2018; Aghion et al., 1998). The crux of endogenous growth theory is found the advocacy that a nation's economic growth depends to a large extent on a nation's human capital. Furthermore, the status of development in human capital of a nation can be measured with the extent of investment in education (Lin, 2017; Jorgenson & Fraumeni, 1992). Accordingly, Jorgenson and Fraumeni (1992) highlight that a greater proportion of US post-war economic growth was influenced by investment in education. This is the reason why many countries offer free education to the extent possible, hence education is seen as an investment in human capital. The endogenous theory of growth was initiated to challenge what the originators refer to as the insufficiencies in the neoclassical growth model of Solow-Swan (Akcigit, 2017; Romer, 1994). Hence, the endogenous approach is a new theorisation that highlights the long-run growth ability of an economy that is caused by endogenous variables, which is contrary to the exogenous variables ubiquitous in the neoclassical theory of growth (Grossman & Helpman, 1994).

One of the neoclassical growth model propounded by Solo-Swan holds that at the long run, output is conditioned on two factors, which are the progress in technology and population growth (Zhang, 2018). Given that the long-run

neoclassical growth model depended on exogenous factors, it virtually connotes that government policy had little or nothing to do with growth (Romer, 1994). The quality of human capital nurtures innovation and innovation is the key to novel technology for new goods and services, which in turn is acclaimed as the engine of growth (Malamud & Zucchi, 2018). Hence the more human capital is injected into the innovative sectors of any economy, the more boost in endogenous economic growth, but this can be enhanced through standards that creates incentives for innovation (Kirilenko, Neklyudova-Khairullina, Neklyudov & Tucci, 2018). Therefore, the endogenous growth theory is not a condemnation of the neo-classical growth theory, rather it is an addition meant to strengthen the neo-classical theory by introducing the inherent endogenous variables such as human capital that spins innovation and technological progress, which is pivotal to economic growth. Through the inclusion of variables embedded within the economy (endogenous), the endogenous theorists such as Arrow, Romer and Lucas brings to fore the fact that government policy could have positive or negative impact on economic growth depending on government's choice of growth approach. This has a practical implication that economic development in developing economies may not totally be abandoned to the fate of invisible hand of a perfect market. The government has a role to play to spur momentum in their pursuit for economic growth; for instance, government policy on human capital development through investment in education has been proven to be the salient strategy for the economic growth of most developed and advanced countries (Jorgenson & Fraumeni, 1992).

The growth laden implication of human capital development through education orchestrated the World Bank's conference on equity in education held in Shanghai in 2016 (World Bank, 2016). The World Bank highlighted that education is an investment for economic growth as it empowers the beneficiaries with various skills to grow new ideas for new products, services and technology, but this requires proactive government policies to improve the quality of education in all countries of the world (World Bank, 2016). It points closely to Plato's caution about the importance of education, wherein he said: "If a man neglects education, he walks lame to the end of his life." (World Bank, 2016, p. 1). The various contribution of improved education to economic growth was also given attention by World Economic Forum (2018), where it stressed that education is a distinct future of any economy as it constitutes a critical component of human capital which drives efficiency in individual worker's output and overall productive efficiency – dovetailing in economic growth of the nation (World Bank, 2016; Grant, 2017). In their analysis of the channels through which education spurs economic growth through improved productivity, the World Economic Forum details three unique avenues by which education propels growth; education raises the combined capacity of the workforce to complete tasks quicker, secondary and

tertiary education pivots the knowledge transfer regarding new information, products and technology, education also bolsters creativity toward enhancing the country's ability to create its own new knowledge, products and new technologies (World Economic Forum, 2018). The overarching summary of endogenous growth theory is that countries that have improved stock of human capital and which continues to invest in research and development will continue to experience fast economic growth rate, this is not surprising therefore while many developing countries have been left behind the trajectory of economic growth (Articlelibrary, 2018). Based on the foregoing, this paper sought to test the efficacy of endogenous growth theory by focusing on relating human capital investment in two African economies South Africa and Kenya. The subsequent section presents the method, analysis and results.

## 3. Review of Related Literature

Human capital refers to the skills, knowledge and abilities (SKAs) that human resources within a country have acquired, mostly through education and training, as well as through experience. These SKAs are critical for performance within organisations and eventual economic development of the country. For any country to achieve sustainable economic growth, they need capable human resources. Therefore, countries need to invest in development of their human capital (Rehman, Tariq & Khan, 2018). Over time, several researchers have indicated that investing in human capital through education is one of the major drivers of economic growth and sustainability (Eigbiremolen & Anaduaka, 2014; Grant, 2017).

It has been argued that human capital is not only the means, but the end to economic development and must be a focal point in any country. In terms of factors of production, only humans constitute the active factor, human resources are crucial in acquiring, utilising and maintaining the other factors of production of innovativeness and productivity. As much as the natural resources of countries make a difference in the level of socio-economic development, it is the availability of quality and quantity human resources that makes the most difference between countries with high economic growth and those with low growth (Eigbiremolen & Anaduaka, 2014). A study that utilised time series data in Pakistan showed that human capital account for about 40% of the gross domestic product (GDP) (Nowak & Dahal, 2016).

Eigbiremolen and Anaduaka (2014, p. 26) stated that "clearly a country which is unable to develop the skills and knowledge of its people and to utilize them effectively in the national economy will be unable to develop anything else". It has been documented that a high education level of employees can lead to higher

organisational performance and consequently, higher economic growth rates. Employees with higher education levels know what is expected of them in the workplace, they tend to be more innovative, and innovation results in production of better goods and services that can give a country a competitive edge (Rehman et al, 2018). "No country has achieved a sustained period of economic growth without investing a substantial amount in their workforce" (Krasniq & Topxhiu, 2016, p. 2).

There are several reasons why countries need to invest in education of the human resources for sustainable economic growth. Such reasons include the fact that people with lack of or no skills will either be unemployed or be employed in low-paying jobs. Low levels of employment come with lower income that makes it difficult for such people to develop their own children resulting in a chain and cycle of poverty that is unbroken. Unemployment of people without skills may imply them requiring compensation from welfare grants thereby further burdening the economy of the country. In addition, crime rates tend to be higher in areas of high unemployment levels resulting in a bad image for the country, a feature that will further hurt the economic growth. Research has shown that unemployment levels unemployment, poverty, dependency on social grants and crime rates tend to be correlated with education level and a ricochet effect on the economy (Krasniq & Topxhiu, 2016; Nowak & Dahal, 2016).

Organisations and companies that are most successful are the ones that effectively manage their human resources, encourage their human resources to keep developing themselves while providing them with enabling continuous learning environments (Krasniq & Topxhiu, 2016). Investment in education can be through formal education as well as informal training and development programmes that can be designed in the workplace, i.e. human capital development involves education prior to entering the workplace and that acquired during the working years. In addition, investment in education should not only focus at high school and tertiary institutions but should start from early childhood (Krasniq & Topxhiu, 2016; Nowak & Dahal, 2016). It is believed that investing in not only quantity education, but also quality education, as well as emotional and intellectual stimulation from early childhood will translate into quality human capital later in life. The investment in early emotional and intellectual stimulation in particular has been associated with emotionally intelligent human resources who can make better decisions in their personal lives and in the workplace, which improves organisational productivity and eventual better economic performance. Early education should not only be through formal education, but should be through informal learning that children acquire as they interact with other people in the society within which they operate. Social skills and emotional maturity have an effect on performance in education as well as in later performance during employment. Unfortunately a society that is plagued by social ills that include high

crime rates may not be conducive for the positive development of emotionally intelligent individuals (Krasniq & Topxhiu, 2016)

There is bourgeoning empirical research on growth and human capital. Perhaps one of the most recent in the emerging research on human capital and economic growth, especially for Africa is Ogundari and Awokuse (2018), who provides a detailed empirical analysis on the effect of human capital on the growth of thirty five countries in sub-Saharan Africa. They believe that education alone is not sufficient to represent human capital, hence they combined it with health variable. They applied the SGMM method and used a panel data of balanced genre. Their empirical analysis found that the two proxies of human capital (education and health) indicates a positive relationship with growth, but emphasized that the health variable had a larger influence than education. The findings by Ogundari and Awokuse (2018) is further reinforced by a related research, which made a projection of the effect of accumulated stock of human capital on the growth of Europe, their empirical findings from Bayesian econometric and spatial method revealed that increase in the stock human capital accumulation would boost income and economic growth of Europe in the next decade (Cuaresma, Doppelhofer, Huber & Piribauer, 2018). This finding should encourage African countries to target their economic growth model by investing more resources in education to improve their stock of human capital for expedited future growth. The futuristic element implicit in Cuaresma et al. (2018) research prompted the inclusion of yearly dummy variables in this current paper to see which future year would be significant between human capital and growth. Whilst the above two research covers regional levels, Arora and Jalilian (2018) examined this concept at the sub-national level, which is somewhat scanty in the literature; they evaluated how human capital and financial development related to economic growth in twenty three states in India.

This paper purposively drops the health variable used Ogundari and Awokuse (2018) within the African context and uses the rate of investment in education combined with the yearly dummies to check if these two would impact growth. Furthermore, although big sample is normally preferred in statistics, however, this current paper also focusses on a small sample, reason being that in big samples, the units with high performing variables tend to becloud non-performing units. Previous research indicates that in some instances small sample might increase accuracy (Hamlin, 2010).

## 4. Methodology

Many of the previous research on endogenous growth theory and economic growth have largely adopted a quantitative approach especially those that have focused on human capital and economic growth (Ogundari & Awokuse, 2018; Acharya & León-González, 2018; Tyndorf & Glass, 2017; Li, Loyalka, Rozelle & Wu, 2017; Barro, 2001). Therefore, this paper follows prior research method by using a quantitative approach. Secondary data were collected from the World Bank economic and education indicators covering 1987 to 2016 for South Africa and Kenya. The proxy for human capital investment is the total government expenditure on education whilst GDP per capita represents economic growth. The fixed effect panel data regression was used to analyse the data with the help of Gretl econometrics package version 1.9.8.

The regression model: $\gamma = \beta_0 + \beta_1\chi_1 + d_2Yr1988\ldots + d_{30}Yr2016 + \varepsilon$

Where $\gamma$ represents economic growth (GDP), which is the dependent variable; $\beta_0$ is the Y intercept, $\beta_1$ is the regression coefficient, $\chi_1$ is human capital investment, which is the independent variable and $\varepsilon$ is the error term, which represents other independent variables not used in this research. $d_2Yr1988\ldots + d_{30}Yr2016$ represent the time dummies; starting with year 1988 dummy shows that first year dummy 1987 has been excluded in order to circumvent perfect collinearity. $d_2$ to $d_{30}$ is the $2^{nd}$ and $30^{th}$ year regression coefficients of the dummies to be multiplied by the year.

### 4.1. Results

Table 1 and Table 2 present the regression results. Following this, Tables 3 – 5 present the validity tests namely the heteroscedasticity, common intercept, significance of time dummies, autocorrelation and normality of residuals.

**Table 1. Regression Result on the link between Education Expenditure and GDP Growth**

| Model 1. Fixed-effects, with 60 observations |||||
|---|---|---|---|---|
| With 2 cross-sectional units |||||
| Time-series total = 30 |||||
| Dependent-variable: GDP_Pcapt |||||
| | Coefficient | Std. Error | t-ratio | p-value |
| const | -617.749 | 1247.32 | -0.4953 | 0.62428 |
| Edu_Exp | 151.119 | 186.533 | 0.8101 | 0.42469 |
| dt2. | 71.7741 | 301.471 | 0.2381 | 0.81355 |
| dt3. | -4.83962 | 287.157 | -0.0169 | 0.98667 |
| dt4. | -39.1356 | 305.501 | -0.1281 | 0.89898 |

| | | | | | |
|---|---|---|---|---|---|
| dt5. | 101.894 | 309.369 | 0.3294 | 0.74433 | |
| dt6. | 185.725 | 309.369 | 0.6003 | 0.55311 | |
| dt7. | 236.327 | 377.864 | 0.6254 | 0.53676 | |
| dt8. | 156.829 | 329.68 | 0.4757 | 0.63798 | |
| dt9. | 61.2576 | 282.586 | 0.2168 | 0.82996 | |
| dt10. | 139.191 | 303.293 | 0.4589 | 0.64983 | |
| dt11. | 430.387 | 294.632 | 1.4608 | 0.15521 | |
| dt12. | 612.583 | 288.758 | 2.1214 | 0.04287 | ** |
| dt13. | 868.708 | 357.907 | 2.4272 | 0.02190 | ** |
| dt14. | 1092.01 | 366.835 | 2.9769 | 0.00595 | *** |
| dt15. | 1229.89 | 375.816 | 3.2726 | 0.00283 | *** |
| dt16. | 2997.09 | 381.294 | 7.8603 | <0.00001 | *** |
| dt17. | 3156.23 | 412.468 | 7.6521 | <0.00001 | *** |
| dt18. | 3072.14 | 325.131 | 9.4489 | <0.00001 | *** |
| dt19. | 3095.91 | 315.581 | 9.8102 | <0.00001 | *** |
| dt20. | 3325.02 | 329.506 | 10.0909 | <0.00001 | *** |
| dt21. | 3075.19 | 341.066 | 9.0164 | <0.00001 | *** |
| dt22. | 2769.66 | 332.571 | 8.3280 | <0.00001 | *** |
| dt23. | 2386.55 | 395.971 | 6.0271 | <0.00001 | *** |
| dt24. | 4078.75 | 415.508 | 9.8163 | <0.00001 | *** |
| dt25. | 5243.96 | 401.894 | 13.0481 | <0.00001 | *** |
| dt26. | 5718.86 | 421.953 | 13.5533 | <0.00001 | *** |
| dt27. | 6342.08 | 350.81 | 18.0784 | <0.00001 | *** |
| dt28. | 7413.11 | 293.8 | 25.2318 | <0.00001 | *** |
| dt29. | 6334.7 | 301.83 | 20.9877 | <0.00001 | *** |
| dt30. | 5225.14 | 304.21 | 17.1761 | <0.00001 | *** |

**Table 2. Summary Statistics**

| | | | |
|---|---|---|---|
| Mean of dependent variable | 2568.318 | S.D.of dependent var | 2267.707 |
| Sum of squared residual | 2233957 | S.E. of the regression | 282.4609 |
| The-R-squared | 0.992637 | The-Adjusted R-squared | 0.984485 |
| The-F(31, 28) | 121.7693 | The-P-value(F) | 6.97e-23 |
| The-Log-likelihood | -400.8845 | The-Akaike criterion | 865.7690 |
| The-Schwarz criterion | 932.7881 | The-Hannan-Quinn | 891.9839 |
| rho | -0.187039 | The-Durbin-Watson | 2.299126 |

*Validity Tests*

**Table 3. Test of Common Intercept, Significance of Time Dummies and Autocorrelation**

Test for differing-group-intercepts -
$H_0$: There is a common intercept among the groups
Test-statistic: $F(1, 28) = 0.325444$
With a p-value = $P(F(1, 28) > 0.325444) = 0.572904$
Wald-test: Testing for joint significance of time-dummies
Null hypothesis: none of the time dummies have effect on GDP
Asymp. t-statistic: Chi-square(29) = 3352.27
 with p-value = 0
Autocorrelation Test:
Durbin-Watson Test
From table 2, it can be seen that Durbin-Watson value is not far away from the value of 2, hence there is no autocorrelation.

**Table 4. Normality of Residual**

Testing for residual normality
$H_0$: error is distributed normally
T-statistic: Chi-sq.(2) = 31.7197
 p-val. = 0.000..

| interval | midpt | frequency | rel. | cum. |
|---|---|---|---|---|
| < -554.62 | -665.54 | 1 | 1.67% | 1.67% |
| -554.62 - -332.77 | -443.69 | 1 | 1.67% | 3.33% |
| -332.77 - -110.92 | -221.85 | 8 | 13.33% | 16.67% **** |
| -110.92 - 110.92 | -1.2790e-013 | 40 | 66.67% | 66.67% |
| 110.92 - 332.77 | 221.85 | 8 | 13.33% | 96.67% **** |
| 332.77 - 554.62 | 443.69 | 1 | 1.67% | 98.33% |
| >= 554.62 | 665.54 | 1 | 1.67% | 100.00% |

**Table 5. Heteroskedasticity Test**

Wald-test for heteroskedasticity -
$H_0$: there is a common error variance in the units
Asymp. t-statistic: Chi-square(2) = 2.18042e-029
 p-val = 1
Pooled error variance = 37232.6
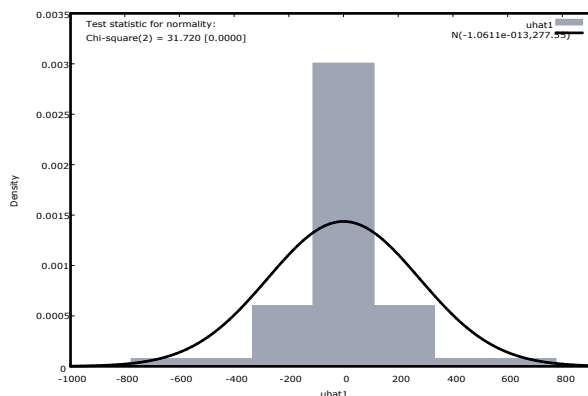unit  variance
1   37232.6 (T = 30)
2   37232.6 (T = 30)

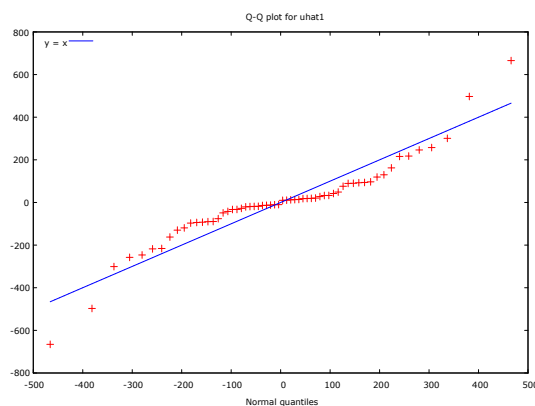**Figure 1. Distribution of Residuals Graph**

**Figure 2. Quantile-Quantile (Q-Q) Plot**

## 4.3. Discussion

Table 1 shows that investment in education has a positive relationship with economic growth in the two sub-Saharan African countries. The overall R-squared of the output in Table 2 proved to be a high level positive correlation between a combined investment in education, time dummy and economic growth with 0.99 and 0.98 R-squared and adjusted R-squared respectively. Furthermore, overall model P-value in Table 2 showed that the combined influence of investment in education and yearly dummy on economic growth is highly significant at a P-value of less than 0.0001. This finding in two sub-Saharan African countries corroborate the earlier positive findings from prior literature such as (Ogundari & Awokuse, 2018; Acharya & León-González, 2018; Tyndorf & Glass, 2017; Li, Loyalka, Rozelle & Wu, 2017; Barro, 2001; Benhabib & Spiegel, 1994). Given the inclusion of yearly dummies in this paper, this research method and findings differ from

earlier methods and results by adding a nuance through the time dummy. The importance of time dummy is to factor in the fact that investment in education may yield expected significant outcome on economic growth depending not only on how much was invested but also depending on the time and also the need to wait after investing to see the benefit accruing not instantly but in later years. It can be seen from Table 1 that yearly dummies started yielding significant influence on economic growth from the 12th year of investment up to the 30th year of investment.

Although Ogundari and Awokuse (2018) pointed out that a possible reason for low correlation of education with economic growth could be attributed to low quality of education; in addition to their sentiment, this paper speculates (subject to future research confirmation) that the low level relationship between investment in education and economic growth could be due to possible effect of corruption along the channels of grant allocation and actual implementation, hence this paper suggests that further research should introduce corruption into the model. The paper also agrees with Ogundari and Awokuse (2018) that education alone may not be a stand-alone single proxy for human capital – more proxy variables of human capital should be introduced by future research. It is noteworthy though to highlight that the introduction of time dummy to this research adds a nuance to existing body of literature on human capital and economic growth. Time is important on investment in education, when to invest and the patience to wait for the significance influence on growth is crucial.

Additional test in Table 3 to Table 5 presents the validity tests of heteroscedasticity, test of common intercept, significance of time dummies, autocorrelation, normality of residuals. All the validity tests proved valid except for normality of residuals. The heteroscedasticity test shows that the units have a common error variance; the Durbin-Watson test indicates absence of autocorrelation with a value of 2, the group of variables have a common intercept and the Wald test for significance of time dummies show that time dummies should be in the model given that the null hypothesis of time dummies is rejected at the P-value of 0.0 (in Table 2). Although, in the case of normality of residual, the outcome indicates non-normality of residual, experts highlight that the analysis could proceed (Williams, Grajales & Kurkiewicz, 2013). Furthermore, Oğuz Kırman, a software scientist highlight that fixed effect panel regression overcomes non-normality of residual and that it might be surprising when some panel regression has normal distribution (Quora, 2018a). In addition, Baltagi (2005) highlights that F-test is robust to normality test, also in Quora (2018b), John Frain explains in detail that non-normality of residual might not completely invalidate the results. Again, the analysis proceeded as the paper does not intend to prove any hypothesis, which might require a necessary condition of residual normality (in some cases). Furthermore, a visualization of the Q-Q plot in Figure 2 indicates that

the deviation of the residuals from normality is very minimal. This is also compensated by the heteroskedasticity test which shows that units have a common error variance. However, the paper notes the non-normality of residuals as a major limitation of this paper for future authors to correct by increasing the sample size. It is important that when data has been drawn from two samples, the assumption of common distribution should be checked by means of Quantile-Quantile (Q-Q) plot as in Figure 2. It is evident from Figure 2 chart that the two variables cluster together along the line which indicates that the variables are from a population with common distribution with minimal deviations (National Institute of Standards and Technology (NIST, 2013).

## 5. Conclusion

This paper set out to analyse whether human capital investment relates with economic growth in two sub-Saharan African countries (South Africa and Kenya). Prior literature reviewed holds divergent conclusions about this relationship in other countries previously studied but with majority in favour that human capital influences economic growth. The paper used secondary data from the World Bank economic and education indicators for 1987 to 2016 and applying a panel data approach produced 60 observations. After a fixed effect panel regression, which was conducted using the Gretl econometric package, results indicate a positive relationship between human capital investment and economic growth. This paper adds new approach to existing research by adding the yearly dummies into the model specification, which hence showed that a combined investment in human capital and yearly dummies proved to be significantly related to economic growth. It adds new knowledge to the literature, which is that time is of essence with regards to when investment in human capital could influence growth.

The policy implication from this research is important for economic growth of emerging and/or developing nations but importantly for African countries. Amongst others, the striking policy implication of this paper portrays investment in human capital (through investment in education) as a vital key for fueling the much needed economic growth of African countries. African countries should in addition to investing in universal primary education also prioritise more resources to secondary education because primary education alone would not produce the desirable skill for economic development, rather, policies for advancing secondary education would contribute to boosting economic growth and reduction in poverty since medium level skills are acquired from secondary education. In addition, improved input and output for tertiary education should receive government attention from African countries as this will provide advanced human capital skill, which will not only feed the industries and public sector but will also enhance entrepreneurship, create more jobs and lift greater population out of poverty.

Accordingly, governments in Africa need to invest more resources in education and commit to monitoring effective and efficient usage of such resources. The significance results from the time dummies included in this research attests to the importance of timely investment in education as this would improve economic growth in the near future. Improved policy that would fortify the colleges and universities in Africa would produce and retain quality human capital in Africa to spur economic growth. The paper suggets that future research should include time dummies and rate of corruption when analysing the relationship between investment in human capital and economic growth.

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