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Editorial

Journal of Econmics and Behavioral Studies (JEBS) provides distinct avenue for quality research in the ever-changing fields of economics & behavioral studies and related disciplines. Research work submitted for publication consideration should not merely limited to conceptualisation of economics and behavioral devlopments but comprise interdisciplinary and multi-facet approaches to economics and behavioral theories and practices as well as general transformations in the fileds. Scope of the JEBS includes: subjects of managerial economics, financial economics, development economics, finance, economics, financial psychology, strategic management, organizational behavior, human behavior, marketing, human resource management and behavioral finance. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal, and that all listed authors approve its submission to JEBS. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. Journal received research submission related to all aspects of major themes and tracks. All submitted papers were first assessed by the editorial team for relevance and originality of the work and blindly peer reviewed by the external reviewers depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance, and clarity of the purpose. The current issue of JEBS comprises of papers of scholars from South Africa, Nigeria, Hungary and Algeria. Brand naming behavior, socioeconomic analysis & technical efficiency among smallholder farmers, individual differences versus consumer readiness variables predictive power, investigating Okun's law through the dynamic model, re-examining the nexus between exchange and interest rates, formulation and validation of an enabling developmental environment scale, potential role of PPPs in developing a sustainable sme sector, business attributes and marketing communication strategies, strategic planning & performance of SMEs, finance function performance measurement, foreign direct investment dynamics, role of competitive intelligence in trade facilitation, managerial & leadership competence of business managers, effect of government support on the success of SMEs, inflation dynamics, effect of job satisfaction on the organisational commitment, monetary policy shocks & exchange rate fluctuations, perceptions of the national credit regulator, human capital, higher education enrolment & economic growth, fostering entrepreneurship education, relationship between oil price volatility & macroeconomic variables and FDI & FPI determinants were some of the major practices and concepts examined in these studies. Current issue will therefore be a unique offer where scholars will be able to appreciate the latest results in their field of expertise, and to acquire additional knowledge in other relevant fields.

Prof. Sisira R N Colombage, Ph. D.
Editor In Chief

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Brand Naming Behavior Defining SMMEs in eThekwini

Lindiwe N. Kunene*, Maxwell Phiri
University of KwaZulu-Natal, South Africa
Kunenel3@ukzn.ac.za*, phirim@ukzn.ac.za

Abstract: Branding is an integral part to the success of any and every business. Appropriate brand strategies contribute to brand equity of the organization leading to increased turnover and profits of positive turnover for organizations. Application of properly planned brand naming processes could save SMMEs and reduce the high failure rate experienced by this sector, in South Africa currently. Branding helps businesses to define who they are and guides their overall strategy. Branding strategies begin with the brand naming process. There are scientifically proven models that govern this process which have been used by successful businesses, globally. This study sought to find the current brand naming processes as implemented by SMMEs in the eThekwini Municipality area in Durban, South Africa. This was the first step in developing a model for brand naming for SMMEs in eThekwini. The study therefore used descriptive-exploratory ethos to conduct the research, guided by the epistemological, ontological and axiological assumptions. Demographic dimensions, ownership of the brand naming process, traits in the naming process and brand naming strategies considered were used to reach conclusions that define these entities in eThekwini. Research outcomes found that a lack of resources and knowledge were the main impediments distorting appropriate brand naming processes.

Keywords: *Brand Naming Processes, Marketing, Entrepreneurship*

1. Introduction

The branding process for Small, Medium, Micro Enterprises (SMMEs) is one that is faced with barriers, ranging from the expense of branding to legal regulations. Phiri (2009) warns that the 'autocratic' rules that define SMMEs in this country should be removed and redefined to avoid them being hindrances and instead, making them catalysts that promote and accelerate the growth of SMMEs. The marketing process which branding is a function of is at times regarded as cumbersome, resulting in stagnant development in the SMME sector. Research concluded in South Africa (SA) has found that SMMEs tend to apply reactive marketing strategies and fail to be innovative, hurting their sustainability (Makhitha, 2009). A good marketing strategy cannot be implemented without the existence of a brand position and strategy. SMMEs are aware of the need and the use of marketing; however, they do not apply these strategies, adding to the distortion of growth. This paper seeks to understand and explore the first phase of marketing, which is branding for SMMEs in eThekwini. The purpose is to examine brand naming processes used by these entities and ascertain if a correct process is used. The research, on which the paper is based, had the following aims to fulfill:

- To find out about Brand Naming strategies used by eThekwini SMMEs.
- To establish who the Brand Naming custodians are and their responsibilities.
- To find out the role of demographic dimensions in the Brand Naming process in SMMEs.

In eThekwini Municipality, like in most of SA, SMMEs are strategic in achieving the economic goals of the city achieve economic growth in the city, (Naidoo, 2008). According to the Global Economic Monitor (GEM), the failure rate for these organizations in the country is 90% (GEM, 2014). Government, both local and national have over the years developed skills training programs to assist SMMEs. Despite this, SMMEs are still closing down. This unfortunate phenomenon in cases where seed funding has been secured raises other questions about the failure of SMMEs. Keller (1998) and Aaker (1996) support the view of the development of branding; their work constantly supports the need for creation of a valued brand for trading businesses. Without branding, businesses competing in a 'free choice society' will not succeed. SA has been growing in a diverse cultural background and has potential for further growth in the years to come (Mthoba, 2004). South Africa is regarded as a developing one, having recently moved from an unequal system of apartheid to one which is trying to address the economic equality of all its' citizens, despite the racial disharmony which still exists, caused by race segregation laws known as apartheid. The system of apartheid saw skewed division of resources based on racial lines. This being the case, there has to be strategies and policies in place created and implemented by government to support and encourage growth, (Brand, Du Preez and Schutte, 2007),

without racial divisions, rectifying the injustices of the past. This has become eminent in recent years due to the economic crisis occurring globally and impacting world economies.

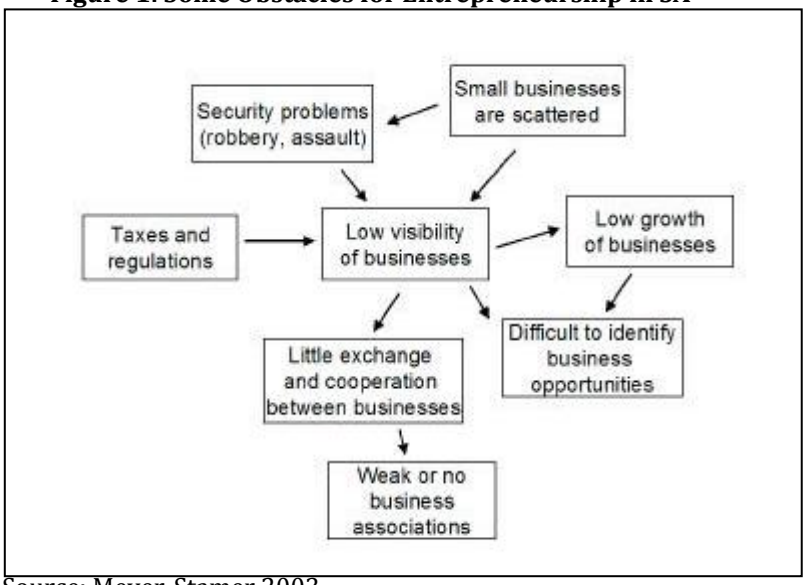
According to Naidoo (2007), 50% of the countries' economic growth is due to small medium and micro enterprise (SMME). It is therefore imperative that the role of SMMEs is fully supported and developed accordingly, for the overall benefit of the citizens of this country, especially when predictions had been set at 6% growth rate annually and halving of unemployment by 2014 (Mthoba, 2004), and this was not reached. The Global Entrepreneurial Monitor states that developing countries need to promote entrepreneurial enterprise in order to promote economic growth (Parkin, Powell & Mathews, 2008). The root of branding is in the name, without which there can be neither brand strategy nor a marketing plan and entrepreneurial enterprises would not survive. Canada and the United Kingdom are considered leaders in strategy and policy formulation in Small Business Development (Stevenson & Lundstrom, 2001). These countries realized before many others that there was a rapid growing culture of small business start-ups, as such, governments needed to be active in managing this asset and strategizing for it accordingly (Stevenson & Lundstrom, 2001). Since 1994, SA has actively been involved in support strategies and policy formalization for small businesses. This practice has led to various initiatives, some refined from the previous government, while some from the current government. These programs which are governed by the Department of Trade and Industry and recently the department of Small Business Development have been fundamental in providing support to SMMEs. These programs are designed to develop these entities and assist them in avoiding failure. However, most of these entities still fail despite these efforts.

Researchers in the field of SMMEs identify finance as one of the vital support structures that underlie the failure rate of SMMEs. This failure includes financial knowledge and practice by SMME owners/managers (Struwig, 2011).Failing to find adequate markets is another area that leads to failure, Visagie (1997) and Eku, (2007) blame poor marketing and branding for this. They suggest that once products are not packaged and branded adequately they stand little chance in competing nationally and internationally. Brand naming is therefore critical in achieving the latter. The brand naming process lacks academic discourse and is not synonymous with branding strategy, though related. However, this is changing as interest grows. The reason for interest can be accrued to the fact that the little research there is, emphasizes the importance of appropriate brand naming strategies and how it cannot be ignored as it has the propensity to significantly add value to organizations (Kohli & Suri, 2000). That being the case, the concept of branding is dependent on the brand naming process for it to be regarded as suitable and of value for an organization.

The strength of a brand is what makes a product, service or retailer successful. Thus the consequence of a successful brand provides consumers with what they require and demand in consumables, and it yields benefits required by consumers' (Keller, 2003). Researchers such as Abimbola (2001), Keller (2003) agree and advise that small businesses need to have strong brand management system to perform well in the context of their economies. Such action creates wealth for the business and its shareholders. 'A brand name is an asset; it adds value to the organization' (Kering & Sethuraman, 1998, p. 2). If brands are assets for their organizations they are of economic significance to them. It is for this reason that branding should not be regarded as a mere concept within marketing; however, it should be seen as a function that has a significant role in an organization and its ability to generate a profit.

Branding and SMMEs: Paucity in literature for brand naming processes in SMMEs is a problem this study seeks solve. Berthon, Ewing and Napoli, (2008) argue that with regards to SMMEs such research is limited. This limitation is further intensified by the fact that the study of brand naming strategies has limited research for all business forms, only the corporate business forms, are usually investigated with regards to this phenomenon. Recorded failure of SMMEs is found to be more prevalent in black owned enterprises (Dube, 2001). This is as a result, amongst other problems of poor education and economic structures for none-white races, a practice which succeeded through domination and control for centuries in South Africa (Wolpe, 1972). According to Meyer-Stemer (2003) without branding, adequate branding, visibility of an SMME becomes questionable, so does its existence. Below is a depiction in Figure 1, which shows that low-visibility, mostly achieved by a brand, leads to difficulty in achieving success for your business.

Figure 1: Some Obstacles for Entrepreneurship in SA



Source: Meyer-Stamer 2003

The most influential hindrance in the branding processes for SMMEs lies in the lack of abundant financial reserves, (Wong & Merrilees, 2005). Small firms have limited financial reserves, with limited human resources, as well as limited time. This makes it difficult for these entities to engage with branding as they should. This as Wong and Merrilees (2005, p 404) pointed out is perpetuated by the fact that in these entities' branding is informal, possibly even optional, involving a narrow range of promotional tools' in SMMEs and suggests that this results in failure.

2. Literature Review

When reviewing most literature on branding, one discovers that there is dearth in literature defining brand naming strategies for SMMEs. For instance, Kotler (2003) in his research only ever approached the concept for brands that already exist and are looking to extend their line or redefine them. Such thinking is similar to that by a world known author on branding, Kaperer (2004), whose advice on brand naming strategies is designed for extensions. One thing is for certain, both these authors place an emphasis on exclusivity and uniqueness in branding (Kotler, 2003; Kapferer, 2004), which can only be achieved through a choice of an adequate brand name. Creation of a brand requires a complicated decision making process as whatever name is finally chosen will over time, embody the product for that entity which it was created for (Kohli & LeBahn, 1995). Researchers such as Vanden Burg, Adler and Oliver (1987) have in the past and currently, been compiling and completing research to study what the meaning of the branding process is, linguistically, culturally and in the context of the business environment. Their research has pioneered and developed theories that further seek to understand the brand naming processes and/or strategies.

Roszokwski in (2013) postulates that, to have a brand name or rather to choose a brand name is a process embedded in the concept of memory. Ease of recall and the ability to easily encode a brand name and ability to remember are of the essence for the brand naming purposes. Guided by the need to achieve ease of recall, McNeal and Zaren (1981) and later Shipley, Hooley and Wallace (1988) agreed that to build a brand that carried ease of recall, and stuck to memory required a process to be designed and followed. Such a process would need certain vital stakeholder to be consulted in order for it to be completed and for it to carry the ease of recall and memory factors that had been raised by researchers into the brand naming process. Boyd in 1985 introduced alphanumeric theories as a significant factor in achieving memory and ease of recall (Boyd, 1985).In 1995, improving on already existing theories, Kohli and Lebahn (1995) then created a six stage process that considered linguistics and stakeholder involvement in the creation of a brand naming process. Regardless of who names the brand, the success of an organization is embedded on an adequate brand name. It is vital to note and advise all SMMEs that, where the brand name chosen has no inherent meaning, large

amounts of resources would be required to promote the brand (Turley & Moore, 1995). Large amounts of funds are not a favorable scenario, therefore Kohli and LeBahns's (1995) study on Effective Brand Naming Processes is one that can minimize incurring high costs when establishing a brand name.

Their theory is combined with work completed by Kollman and Suckow (2007) and later Roszkowski (2013) to create a robust study that has considered varied perspectives to assist SMMEs. Proposition put forward by Kohli and LeBahn's (1995) identified Branding objectives; sometimes referred to as brand naming objectives was explained as the establishment of a specific image and position. These objectives are used in the construction of the six step process of brand naming. They are:

- **Branding Criteria**; referred to the brand name being compatible with the brand image as well as memorability.
- **Generation of New Brand names;** creation of a 'long list of possible names' (Kohli & LaBahn, 1995, p 16)
- **Screening the name appropriateness;** from the process above, choosing the names that are more suitable.
- **Researching consumers' preferences;** through the application of various research methods in which the most preferred names should be selected
- **Conducting a trademark search;** submission of four or five chosen names to the patent and/or trademark office for registration. Submitting more than one guard against the possibility of the name you want already being unavailable.

One of the first and foremost drivers of brand naming as discussed by most authors including Kohli and LeBahn (1995) and Roszkowski (2013) is embedded on the notion that brand naming stems from the understanding and use of brand naming. When reviewing literature on branding strategies, Robertson (1992) as cited by Angus and Oppenheim (2004) divulge various traits that are important when brand naming, amongst these traits they place an emphasis on simplicity, meaningfulness and distinctiveness. These traits are also discussed by Kohli and LeBahn's (1995), they label them as: (1) Ease of Pronunciation, (2) Consistency with image, (3) Ease of Recognition, and (4) the relationship between the chosen brand and business activity, which are central to this study.

The question of who is going to brand is essential. To solve this, the question that should be posed is, whose task is it to allocate a brand name? Is this the task of the employees, founders, customers and/or suppliers? For most large corporations who have financial resources, they can afford to have a marketing department which has the autonomy to invest on consumer research and varied legal and other form of agencies in their quest to find the appropriate brand name. McNeal and Zaren, (1981) found that most of the Fortune 500 companies use the marketing departments in choosing a brand. In a study conducted by Shipley, Hooley and Wallace (1988) in the UK (United Kingdom) supported this thinking in their research as they found that brand naming was a task that should be performed by the marketing and the executive management team, where possible, in consultation with legal and other agencies as mentioned above.

In South Africa, there are a number of avenues from the legal perspective that are made available to organizations to register their business entities. All organizations have to follow the provisions by the companies act. This act uses the CIPC to assist with the registration process, CIPC stand for Companies and Intellectual Property Commission, (CIPC, 2016). Registering with the CIPC however does not guarantee legal protection of a brand name until such time as when the appropriate name is selected and a number is allotted to the organization, (Companies Act of 2008 as cited by the CIPC (2016)). Organizations are however still expected to register their copyright protected name after this process with CIPC.

3. Methodology

Sekaren and Bougie (2010) stipulate that exploratory methodology be applied when there is limited information in that particular field, and where there is dearth in describing the knowledge of the phenomenon being studied. This research is descriptive exploratory research; it borrows from the ethos of both exploratory research and descriptive research. What is researched needed to be understood, without interference (Hair, Anderson, Tatham & Black, 1998; Babbie & Mouton, 2006). Due to the importance of the

generalizability of the study. The study design is embedded on, (1) ontological assumptions, that stress that the reality of the research should be objective;(2) epistemological assumption, where the researcher is independent from that which is being researched and (3) an anxiological assumption, which 'stressed the unbiased nature of quantitative research applied' as cited by Creswell (2003, p 5).It is on this premise that quantitative methods of research were used to conduct this research where statistical inferences implemented eliminated the possibility of human preferences and perceptions that could influence the data captured and the analysis thereof (Cant, Gerber, Nel & Kotze, 2003).

Firstly, according to Morgan and Smircich (1980) as cited by (Matveev, 2002) quantitative research is based on the assumption that social reality has an objective ontological structure and that individuals are responding agents to this objective environment. This paradigm exists on the notion that the measure of 'being' is that which can in fact be measured scientifically (Matveev, 2002). Secondly, quantitative research was chosen as it allows for the analysis of data to take place without contact with the respondents. The sample was selected within the geographical area of eThekwini Municipality. This area includes the actual CBD (Central Business District) and the surrounding residential and industrial suburbs as well as locations/townships. The SMMEs were approached by field workers individually, to complete the questionnaires. SMMEs approached were sourced through availability and consent to participate. No distinction was made between formal and informal SMMEs as they both were active participants in the economy of Durban. The final population size of SMMEs in the area is unknown; the Durban Chamber of Commerce estimated the population size to be at around 3000, an estimation based on their registered membership. Due to this, non-probability sampling would have to be the chosen sampling technique. For convenience purposes and accessibility to be achieved.

Given the size of the estimated population, a sample was used to represent the population. Based on the population of 3000.A 341 sample size was therefore determined by Sekaren and Bougie (2010) sampling table, making up ten percent of the population. Data analysis allows for inferences to be deduced about the data with the purpose of describing the phenomenon (Frank & Althoen, 1994). According to Frank and Althoen (1994), it is important, in the collections phase that there are no preconceived ideas about the phenomenon being researched, influencing the statistics. Pearson's Correlation analysis in its application has an implied support of this notion as it allows for as many variables as possible, thus giving rise to the data guiding the research itself without the researcher influence, (Frank & Althoen, 1994). Cronbach's Alpha was used to test for reliability and a test re test method of validity testing.

4. Results and Discussion

As manifested by this study the following traits were found to be relevant in the brand naming process by SMMEs; Ease of Recognition, Ease of pronunciation, the relationship between the chosen brand and business activity and consistency with image. These are part of the first objective of the study which asked, what the most prevalent brand naming strategies for SMMEs in the eThekwini area were. The research found that the most important strategies in brand naming, scoring at a percentage of 80.5% by the respondents was; the relationship between chosen brand and the business activity. This trait was followed by Ease of recognition at 71.6% and Consistency with image distribution at 65.8%. The trait that appears last is the Ease of Pronunciation at 44.7%.

On the question of brand naming objectives and decisions. Six traits as per Kohli and LeBahn (1995) research were found to be important to SMMEs. For purposes of conceptualizing the brand naming phenomenon further, it was vital to use correlation to establish relationships that exist and define the brand naming process. In the studies previously conducted on this phenomenon by Kohli and LeBahn (1995) correlation was conducted to compare and contrast relationships amongst significant brand naming criteria. The correlation (r) between the existing name purchased from another company and the existing name of another company product was found to be -0.081. This coefficient showed that there was a weak relationship between the existing name purchased from another company and the existing name of another company product. The probability (p) of this correlation coefficient which is 0.539 is greater than 0.05 thus implying that there is no statistically significant relationship between the existing name purchased from another company and the existing name of another company product ($r=-0.081$, $p>0.05$).

Consistency with existing product line and consistency with company image has an r value of 0.597. This coefficient depicts that there is a strong and positive relationship between consistency with existing product line and consistency with company image. The probability of this correlation coefficient was 0.000, less than 0.05 thus implying that there is a statistically significant relationship between consistency with existing product line and consistency with company image (r=-0.597, p>0.05). This strong relationship proved the impact that the product offering and company image has on the final decision making process for SMME brand names. The correlation (r) between ease of recognition and overall liking was found to be 0.667. This coefficient depicted that there was a strong and positive relationship between ease of recognition and overall liking. The probability (p) of this correlation coefficient which was 0.000 is less than 0.05 thus implying that there is a statistically significant relationship between ease of recognition and overall liking (r=-0.667, p>0.05). SMMEs are found, in this research, to relate recognition and overall liking of brand names chosen. This relationship therefore has a significant impact in the decision process of the brand naming process.

The correlation (r) between relevance for product category and connotations was found to be 0.289. This coefficient showed that there is a strong and positive relationship between relevance for product category and connotations. The probability (p) of this correlation coefficient, which is 0.006, is less than 0.05 thus implying that there is a statistically significant relationship between relevance for product category and connotations (r=-0.289, p>0.05)Connotations that are related to the SMME and the type of product offering had a relationship and found to be relevant in the brand naming process. Correlation (r) between distinctive and profane or negative connotation was 0.301. The coefficient showed that there is a strong and positive relationship between distinctive or profane and negative connotations. The probability (p) of this correlation coefficient which is 0.006 was less than 0.05 thus implying that there is a statistically significant relationship between distinctive and profane or negative connotation (r=-0.301, p>0.05). SMMEs viewed that which is profane to have a relationship with being distinctive.

Consistency between existing product line and consistency with company image was 0.597. The coefficient depicted that there is a strong and positive relationship between consistency with existing product line and consistency with company image. The probability (p) of this correlation coefficient which is 0.000 is less than 0.05 thus implying that there is a statistically significant relationship between consistency with existing product line and consistency with company image (r=-0.597, p>0.05). The probability (p) of this correlation coefficient which is 0.000 was less than 0.05 thus implying that there is a statistically significant relationship between ease of recall and ease of pronunciation (r=-0.845, p>0.05). As discussed in the literature above, in the brand naming process, the ability to remember and easily pronounce the brand name is significant. The probability (p) of this correlation coefficient which was 0.000 is less than 0.05 thus implying that there was a statistically significant relationship between versatility for use with other products and carried well to other languages (r=-0.810, p>0.05). Versatility in the context of this study refers to the multi-faceted use of the name which has an important relationship with being transferable across many languages as is found in the South African context where there are eleven official languages.

The correlation (r) between outside trademark attorney and advertising agency was 0.197. This coefficient showed a weak relationship between outside trademark attorney and advertising agency. The probability (p) of this correlation coefficient which is 0.105 is greater than 0.05 thus implying that there is no statistically significant relationship between outside trademark attorney and advertising agency (r=-0.197, p>0.05).Between advertising agency and marketing research agencies, it was found that probability (p) of this correlation coefficient which was 0.074 which is greater than 0.05 thus implying that there is no statistically significant relationship between advertising agency and marketing research agencies (r=-0.078, p>0.05).The correlation (r) between specialized naming consulting firms and marketing/product/brand manager was 0.408. This coefficient showed that there was a strong and positive relationship between specialized naming consulting firms and marketing/product/brand manager. The probability (p) of this correlation coefficient which was 0.000 was less than 0.05, implying that there is a statistically significant relationship between specialized naming consulting firms and marketing/product/brand manager (r=-0.408, p>0.05).

The correlation (r) between senior marketing management and a select team of individuals from marketing was found to be 0.880. This coefficient showed that there is a strong and positive relationship between senior

marketing management and a select team of individuals from marketing. The probability (p) of this correlation coefficient which is 0.000 is less than 0.05 thus implying that there is a statistically significant relationship between senior marketing management and a select team of individuals from marketing (r=-0.880, p>0.05).The correlation (r) between product development team and company legal counsel is 0.735 in the table below. This coefficient shows that there is a strong and positive relationship between product development team and company legal counsel. The probability (p) of this correlation coefficient which is 0.000 is less than 0.05 thus implying that there is a statistically significant relationship between product development team and company legal counsel (r=-0.735, p>0.05).

The correlation (r) between marketing research development department and the chosen brand name decided on because of what the business does is 0.033. This coefficient shows that there is a weak relationship between marketing research development department and the chosen brand name decided on because of what the business does. The probability (p) of this correlation coefficient which is 0.764 is greater than 0.05 thus implying that there is no statistically significant relationship between marketing research development department and the chosen brand name decided on because of what the business does (r=-0.764, p>0.05).These study results made it possible to rank these in the order of importance according to SMME practitioners. In Table 1 is the representation of these relationships is in accordance to SMMEs preferences, for ease of use, a relationship trait title has been coined for each. This table thus provides a qualitative summary of the results

Table 1: Trait Relationships Significance in Brand Naming for SMMEs

Order of Importance	Relationship Trait Title	Trait relationship significant in branding
1	Recognizable and Likable	Ease of recognition & Overall liking
2	Language and Product Flexibility	Versatility for use with other products & Carriers well to other languages
3	Recallable and Easy to Enunciate	Ease of recall & Ease of pronunciation
4	Based on product line and Company Image	Consistency with existing product line & Consistency with company image
5	Different and Profane	Distinctive &Profane or negative connotation
6	Product category and connotations	Relevance for product category & Connotations

Source: Emerged from qualitative data, transformed from quantitative analysis

Quite a significant number of businesses did not respond to the question asking them to define their product offering. This could mean they were not aware of what their core product was, suggesting a lack of a fundamental skill in running a business which is defining, comprehending and articulate the core activities of one's business. It is quite interesting that according to this research, the most important reason for brand naming for these SMMEs seems to be the need to set oneself apart from competitors. Table 2, provides brand Naming Objectives. The largest valid percentages of the respondents, 27.3%, felt that being easily identifiable was the main purpose to engage within the brand naming process. 24% of the respondents were driven by the need to establish product differentiation. This was followed by 21.3% who saw brand naming as a way to convey intended position. 12.7% engaged with brand naming in order to establish a distinct segment. Whilst 8.4 % used it to establish a distinct image whilst 10.7 % viewed the purpose to engage with brand naming processes necessary to make trading easier. Given these results however, it is important to note that 78.9 of the respondents responded. At no point in answering all questions regarding brand naming objectives did all respondents participate, it was only when the objective of identification was raised, the results showed the highest participation rate of 41 respondents which is 21.6%.

Table2: Brand Naming Objectives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Convey intended position	32	16.8	21.3	21.3
	Establish product differentiation	36	18.9	24.0	45.3
	Establish a distinct segment	19	10.0	12.7	58.0
	Establish a distinct image	16	8.4	10.7	68.7
	Identification only	41	21.6	27.3	96.0
	Ease of trade	6	3.2	4.0	100.0
	Total	150	78.9	100.0	
Missing	System	40	21.1		
Total		190	100.0		

The implication revealed by the respondents behavior in dealing with brand naming objectives, could explain possibly a lack of knowledge about the concept of branding and their objectives. In Kohli and LeBahn (1995) process, the step that follows requires choosing a good pool of brand name alternatives; this did not seem to be the practice by SMMEs, differing from the concepts shared by Kohli and LeBahn (1995). When observing results from this study it is clear that this step is one that is not used nor considered. Only 13,2% of the SMME respondents admitted to relying on this method. Brainstorming was found to be used quite significantly for the brand naming process with 70.5% of respondents agreeing to use it for this purpose. For a strategy to exist, it is guided by objectives. Successful companies in their brand naming process use specific objectives. It is these objectives that are found to be fundamental in achieving success in the brand naming process, these are; Conveying intended position; establishing a product differentiation: Establishing a distinct image ; Identification and Ease of trade. Though the responses were low, SMMEs were only found to rate: Ease of trade, Identification and establishing a distinct image as important. Not realizing that all these are as important for a successful brand name to be established.

Brand naming custodian was other objective in study. In the literature above, Turley and Moore (1995) ask the question of who should carry the responsibility of branding naming. Theory identifies various sources for this function ranging from employees, trademark specialists, brand naming consultants, (Kohli & LeBahn, 1995) to name but a few. The one source of this action mentioned by all who have written on the field of brand naming is the identification of the marketing departments as the custodian of the brand naming function, McNeal and Zaren (1981). This practice varied, other authors lend this responsibility to executive management and the marketing department. The empirical study assesses all the various roles of responsibility, ranging from consumers to specialists in branding and employees, to name but a few. With all these various possibilities probed, owners were found to be of more significance. With regard to other possible role players of importance in brand naming, the respondents did not answer at all, which raises the question of awareness and adequate skills or lack thereof which the SMME industry is marred by, as Dube (2001) purports. 44.7% of the respondents did not provide information about the highest education level passed which manifests the possibility of a lack of it. This would explain and support Dube (2001) who is of the notion that skills development is paramount to the development of SMMEs in South Africa. This suggests that there could be a country wide understanding of this phenomenon, still open to further investigation.

Limitations of the study

- It is necessary and imperative that a study assessing and defining the brand naming behavior be conducted with a greater sample from all regions of the country for it to be recognized as universal to South Africa.
- Use of a multivariate analysis method could have defined the relationship between demographics and the various traits better, towards the understanding of the brand naming strategies used by SMMEs. Therefore the methodology of this study could be regarded as limiting.
- Language was found to be pivotal when strategizing for brand naming processes though this variable is beyond the scope of this paper. It is essential to note for further research. In a country with eleven official languages, the most important trait to consider was that of ease of recall, followed by easy to pronounce, then transferability to other languages. All of these show that language usage is a great

concern for SMMEs when brand naming. It seems to be the most important drive behind choice of brand.

5. Conclusion and Recommendations

The first research objective of the study which investigated brand naming strategies for SMMEs found that even though some of the vital traits and strategies were present, a majority of the vital one's were still not considered and possibly not known. The study reveals that Ease of trade, Business identity reasons, establishment of a distinct segment and image form part of the brand naming decision by SMMEs as they should. Embedded within the objectives was the existence of certain traits found to be important in this process, again for SMMEs there were concepts found to be lacking, specifically, positioning, which embodies the essence of branding and marketing. The second being product differentiation, a vital trait in brand strategy formulation therefore in the process of brand naming as well. The knowledge aspect is further supported by the fact that the results of this study, also reveal that most of these organizations cannot articulate what the core of their business is, which is a fundamental aspect in becoming efficient and effective in running a business and in identifying objectives.

A significant relationship was found creating variables that are important in the brand naming process by SMMEs. These were ranked into six traits as discussed in the results section, however, they lacked the variable that require resource investment which were, (1) Outside trademark attorney and (2) Marketing research agencies. The third objective of this study probed who the custodians of this process in SMMEs were? What was found was that SMME business owners made decisions without consultation on brand names. The use of other important stakeholders was not considered, i.e. the consumers, legal and other relevant experts in the field of branding and marketing. The question of resources is one that appears a number of times when reading the research results. This can firstly be seen when the question of who is responsible for the brand naming process. Even though SMMEs recognize the existence of important supplier organizations like agencies, trademark specialist, research agencies, etc, they are however not used. Given the turnover of most of these entities, the financial resource availability could be the reason for not using these entities in the brand naming process, as the owners are constantly attempting to bootstrap from the top of their head and not strategy. Again, the question of a lack of knowledge and skill is to blame, because if these organizations understood the financial power carried by a brand, they would in reality invest more on it and realize that brand naming and branding expenditure is in fact an investment for their organization.

Recommendations: Given the findings of this study, the following is advised and recommended:

- More branding and marketing programs which teach purpose and use of branding and their objectives need to be developed by both the private and public sector SMME training entities.
- There is a need for SMMEs to emulate the processes that are used by Large organizations this means investing resources in the brand naming process to hire the experts and expertise required by this process, i.e. use of attorneys, advertising agencies, purchase of certain assets, like existing brand names, amongst other possible brand names.

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Socioeconomic Analysis and Technical Efficiency among Smallholder Sorghum Farmers in Ga-Masemola Township of Limpopo Province, South Africa

Moswane Precious Botiabane[1], L. Zhou[2], I.B. Oluwatayo[1], Fakunle Olufemi Oyedokun[2], Akeem Adewale Oyelana[3]*
[1]Faculty of Science and Agriculture, University of Limpopo South Africa
[2]Risks and Vulnerability Assessment Center, University of Fort Hare, Alice, South Africa
[3]Faculty of Commerce and Management, University of Fort Hare, Alice, South Africa
201317831@ul.ac.za,Lzhou@ufh.ac.za, isaac.oluwatayo@ul.ac.za, Ofakunle@ufh.ac.za, *201100592@ufh.ac.za

Abstract: Sorghum farming group in South Africa is divided into the smallholder and business ranchers attributable to the distinctions in cultivar sizes, utility creation and production strategies. Sorghum is utilized primarily for sustenance and refreshments in Ga-Masemola (GM) town. Smallholder sorghum farmers in the town utilize some portion of their wage for recreation, goat and cows' compost are utilized as manures to enhance soil fruitfulness and increment sorghum yield, they rely upon precipitation water for water system and they have no entrance to expansion administrations. The study distinguish and depict the socioeconomic characteristics of smallholder sorghum farmers in Ga-Masemola town; it look at the causes of technical efficiency among smallholder sorghum ranchers in the town; and it recognize and portray difficulties confronted by smallholder sorghum farmers in the town. Essential information was gathered utilizing organized surveys and an example size of 48 smallholder sorghumfarmers in the town was chosen. Cobb Douglas model was utilized to analyse the information or data gotten.The socioeconomic characteristics of smallholder sorghumfarmers were:farming experience, age, sexual orientation, instructive level and family unit measure. The study indicates that the determinants of technical efficiency among smallholder sorghumfarmers in Ga-Masemola town that were observed to be huge are the measure of land dedicated and the amount of seeds utilized. Farmers are confronting difficulties, for example, sicknesses, low capital, pests, separation to the homestead, absence of water and atmosphere (i.e. climate) changes.The study suggested and recommended that smallholder sorghumfarmers in Ga-Masemola (GM) town require arable land to expand their production; they additionally require agricultureextension officers for training and spreading or disseminating information aboutinputs allocation. Besides, the smallholderfarmersshould be encouraged to utilize enhanced seeds varieties in order to expand their technical efficiency.

Keyword: *Commercial Farmers, Ga-Masemola Village, Smallholder, Sorghum Farmer*

1. Introduction

Sorghum farming group in South Africa can be grouped into the smallholder and business farming because of the distinctions underway, promoting and farm sizes. In 2007, the South African Sorghum Industry turned out with a research work that affirms sorghum as a basic to sustenance security for African continents in light of its qualities as a dry season safe yield among different grains and its nutritious qualities.The average yield of sorghum crop on smallholder farms is 0.8 tons for each hectare, this is the estimated value for all Southern African Development Community (SADC) nations. In Limpopo Province, sorghumfarmers grow and produced on 25,342 ha least, with Sekhukhune is by and large of 19,033 ha, Waterberg will deliver on 3,410 ha and Capricorn on 2 899 ha. Limpopo Province is known to create more than 20,000 tons of sorghum (Mmbengeni and Mokoka, 2002). Sorghum crop is fundamentally delivered for home utilization in Ga-Masemola town. It is utilized as a part of making sustenance and drinks consumption. Sorghum farmers in these towns utilize some portion of their salary on generation, once in a while waste from goats and cattle's are utilized as composts to enhance soil richness and increment the yield on sorghum plantation, rainfall water is the significant hotspot for water system and expansion services are not given.Lefophane et al. (2013), ascertained that technical efficiency is basic in emerging agriculture. These farmers are obliged by financial circumstances; they are attached to utilizing restricted assets and rely upon government for help to move from small-scale to business purposes.

Problem Statement: Because of the significance appended to residential utilization of sorghum in the nourishment and drinks production in Ga-Masemola Village, to think about determinants of technical efficiency among smallholder sorghum farmers is right way since this will give a helpful data about the details

include for ideal execution by these smallholder sorghum farmers.Smallholder sorghum farmers in the area more often than not hone subsistence farming and are confronting issues in shortage of assets and off base utilization of assets that are accessible for instance with the end goal for them to deliver, they require access to great quality sources of info. They have no entrance to augmentation administrations. Notwithstanding, even with the accessibility of augmentation officers who are in charge of spreading information to these farmers, thefarmers require information on the amount of the assets to use with the end goal for them to go on massive production of sorghum.They utilize goat and dairy cattle's compost as manure to enhance soil fertility and increment of sorghum yield and they additionally rely upon water from precipitation for water system purposes. A portion of the smallholderfarmersin the village need funding to purchase seeds, composts and so on.Since sorghum is utilized principally for nourishment and refreshment purposes in the village, if these smallholder sorghumfarmersare actually inefficient this may prompt diminished efficiency of sorghum and in the end prompt sustenance uncertainty, diminish work extent and will likewise debilitate farmers to keep producing sorghum crop. Hence, the study sought to examine the causes of technical efficiency of smallholder sorghum farmers in the study area.

Objectives of the study

- To examine the causes of specialized proficiency among smallholder sorghum farmersin Ga-Masemola (GM) village.
- Profile the financial attributes of smallholder sorghumfarmers in GM village.
- Assess the determinants of specialized effectiveness among smallholder sorghumfarmersin GM village.
- Identify the difficulties confronted by smallholder sorghum farmersin GM village.

Research questions

- What are the financial features of smallholder sorghumfarmersin GM village?
- What are the causes of specialized proficiency among smallholder sorghumfarmersin GM village?
- What are the difficulties confronted by smallholder sorghum farmers in GM villages?

2. Literature Review

Technical Efficiency and Its Determinants: Mokgalabone (2015) analysed the technicaland allocative effectiveness of small-scale maizefarmersin Tzaneen region. Cobb-Douglas models were utilized for the study. The Cobb-Douglas production functions results revealed that small-scale maizefarmersin Tzaneen district were in fact proficient “in the production of maize with the mean technical efficient value of 0.71% (Mokgalabone, 2015). The study additionally found thatfarmers were allocative inefficient with a mean allocative efficiency value of 0.39%. The discoveries fromlogistic regression model revealed that the level of training, background in cultivating, access to water system, buying of hybrid seeds, access to credit and extension visits were emphatically noteworthy towards the production of maize. From the investigation, the smallholder farmers in Tzaneen municipality were in fact proficient in the production of maize”.Stochastic frontier methodology was utilized to decide the technical efficiency among some chosen smallholder farmers in Kogi State (Adama, 2014). Consequences of the study uncovered that family and hired worker were generally utilized for cultivating exercises. It is additionally uncovered from the investigation that a substantial variety in the evaluated technical efficiencies ranges from 0.19 and 0.93, with 0.64 as a mean value, signifyinga lot of opportunitiesfor increment in the technicalefficiency.It was additionally uncovered that small-scale maize farmers in Ga-Mothiba are subjected to diminishing returns to scale implying that small-scalefarmers are in fact technicallyinefficient in the production of maize. On-farm trainingpolicy to smallholder maize farmers was along these lines recommended to government. In conclusion, farmers must be trained in the detail engaged with seed and compost application and the need to make use of hybrid and thereis need for extension service delivery.

In Kenya, Njeru (2010) studied factors that impacts technical efficiencies among chosen farmers in Uasin Gishu area, and stochastic wilderness production functions was utilized as a part of the investigation. The work uncovered that the magnitude of technical efficiency differed from one farmer to the other ranging from

48.9% to 95.1% with a mean value of 87.2%. This suggeststhatfarmers lost just about 13% of the conceivable yield to technical inefficiency aspects" (Njeru, 2010).The variables that prompted inefficiency were level of literacy, access to credit and responsibility for capital equipment. Propelled level of training which is 12 years or more or optional or more, altogether diminished inefficiency and furthermore access to credit facilities and having farm equipment. It was suggested that farmers should be instructed on the utilization of better practices, for example, the utilization of better-quality seeds and use of prescribed levels of compost i.e. fertiliser.The responsible factors such as, access to credit, nearness of dependents, and size of field for crop production, estimation of advantages and wage from domesticated animals' increment technical efficiency. While family measure, utilization of creature draft control, arrive size and area in low rain zones prompt inefficiency. Along these lines, it was concluded that sorghumfarmers are poorer with low incomeand assets.

Lefophane et al. (2013), estimated technical efficiency in input use by credit and non-credit useremergingfarmers in Maruleng Municipality of Limpopo Province of South Africa. The study utilized Cobb-Douglas Production work model. Technical efficiency levels for credit users was observed to be 9.843 and for non-credit clients was observed to be 2.892 which is too wide and it infers that being proficient is connected to credit utilize and consequently, credit is" a critical instrument to build technicalefficiency levels of ranchers. The conclusion that excited from the examination was that credit can help ranchers in gaining inputs required in the creation procedure and in this manner, it is a vital tool for enhancing farmers specialized effectiveness level.A similar report was presented by Ataboh et al. (2014) "on determinants of specialized proficiency among ricefarmers in Kogi State. Stochastic Production Frontier Analysis" was utilized as a part of the investigation. It was uncovered that homestead size, seed, and compost utilized were essential components required for an expanded rice profitability. The specialized productivity of ricefarmersfluctuated because of the nearness of specialized wastefulness with "the mean proficiency estimation of 0.54 suggesting that around 46% of rice yield is lost" because of farmer's wastefulness (Ataboh et al., 2014).The factors used such as, age, family unit size, and enhanced variety can cause an expansion in specialized effectiveness of rice farmers. The profitability of the elements could be enhanced by expanding, the homestead measure, amount of seed, fertiliser utilized and the level of labour. On the other hand, alternative wellsprings of agro-chemicals can be used byfarmers so as to have bumper production. Rice farmers can likewise utilize hybrids varieties of rice in order to build their specialized proficiency.

Mustapha and Salihu (2015) chipped away at the causes of specialized proficiency of maize and cowpea inter-cropping among women farmers in Gombe State. The investigation utilized unmistakable measurements and stochastic outskirts generation work demonstrates. Results from distinct measurements uncovered "that 61% of the respondents were between 40-59 years with a normal ranch size of 1.88 hectares. While the results of stochastic frontier production function analysis showed that estimated coefficients(cultivate measure, manure, family work, enlisted work and amount of seed utilized) of the free factors in the model were sure and critical at either 1% or 5% level aside from amount of agro-chemicals utilized. The study uncovered that Size of family unit, educational level, cultivating background, access to extensions benefits and off-cultivate salary were the significant determinants of specialized productivity in the study area". The mean technical efficiency "of thefarmerswas 0.84 signifying that women farmers are moderately effective in maize/cowpea" inter-cropping (Mustapha and Salihu, 2015). It is suggested that a serious endeavours at growing the extent of maize/cowpea inter-cropping be giving a possibility base on the technical efficiencyfor the production system.Otieno et al. (2012) dealt with determinants of technicalefficiency on beef cattle rearing which steers farming and production in Kenya. The tools utilized were stochastic meta-frontier technique to estimate technicalefficiency levels in hamburger cows' production in Kenya. Subsequently, a Tobit model was utilized to evaluate factors that influenceefficiency. Results indicate that the averageefficiency level is 0.69; proposing chip away at enhancing beef production in Kenya is the privilege.

It was discovered that controlled dairy cattle rearing strategy, access to advertise contract, accessibility of an expert farm manager, off-cultivate salary, group size andfarmers' age all contribute decidedly to effectiveness. Be that as it may, cultivate size, wage, and formal training did not impact proficiency of cows' production. In rundown the scientist exhortation that for an improved productivity, considering the significance of the domesticated animals undertaking to rural livelihood and its potential part in destitution, there will be reduction in the requirement for suitable advancement strategies.Chepng'etich et al. (2015) led an investigation on factors that influence technical efficiency of sorghum production, smallholder

sorghumfarmersin lower Eastern Kenya are the focus on respondents. Graphic insights and Tobit display were utilized as a part of the study. The result of the investigation revealed that technical efficiency was affected emphatically by formal training level of the family unit, quantities of years in sorghum farming,farmers' affiliations participation, Numbers of employed worker, production advice, and utilization of local compost. Family unit estimate affected technical efficiency. It was additionally prescribed that endeavours should concentrate on enhancing data streams on agronomic practices to expand specialized proficiency. Farmers ought to likewise be urged to shape and effectively take part in differentfarmers' affiliations, which upgrade learning and pooling of work assets, subsequently, enhancing specialized proficiency.

Fadzim et al. (2016) evaluated determinants of technical efficiency among smallholder cocoa farmers in Malaysia. The investigation utilized the Tobit estimator connected in a two-arrange examination methodology. Results showed that factors proportion, farmers' involvement, record keeping, level of information and farmer's status were factually huge at 1% level of importance. Meanwhile, factors age, training, separation and life partner association were not measurably critical. These outcomes demonstrated thatfarmers'involvement and financial factors, for example, level of learning, record keeping and farmer's status could influence efficiency. The aftermath analysis showed that record keeping, level of information and status of farmers (either low maintenance or full-time) influences specialized proficiency. This outcome suggested that approaches that would specifically influence these distinguished factors ought to be sought after. Koirala et al. (2013) researched determinants of rice profitability and technical efficiency in the Philippines. The investigation utilized stochastic outskirts production technique in the Cobb-Douglas useful shape. The outcomes indicated that fuel, manure, lease of land, planting season, and land territory were the elements that influence both production and technicalefficiency of rice production. It was discovered that the mean specialized productivity score is 0.54. It was additionally uncovered that land range, planting season, fuel cost, compost cost and land lease had positive huge association with the estimation of rice production in Philippines. In conclusion, fuel cost, compost cost, lease of land, time of planting, and land zone affected the two levels of profitability and technical efficiency levels of rice farmers in the Philippines".

Another study was also conducted by (Bahta et al., 2015) on "a meta-frontier analysis of determinants of technical efficiency in meat production", this research work was done in Botswana. The expository instruments utilized are stochastic meta-frontier model and a Tobit regression model to estimatetechnical efficiency and meta-technology ratio. Variables influencing efficiency of meat production in Botswana were additionally evaluated. The result is as per the following, the average technical efficiency "level was 0.496 for the entire example and 0.355, 0.463 and 0.571 for cattle beef farms who participate only in cattle, crops yield and little stock farming, respectively" (Bahta et al., 2015). Importantly, the study suggested that there is a need for suitable policies to be instituted regarding improving efficiency,taking into consideration the importance of livestock sector in poverty reduction. Especially, such policiesshould be targeted on provision of technology-related services such as controlled breeding methods.

3. Methodology

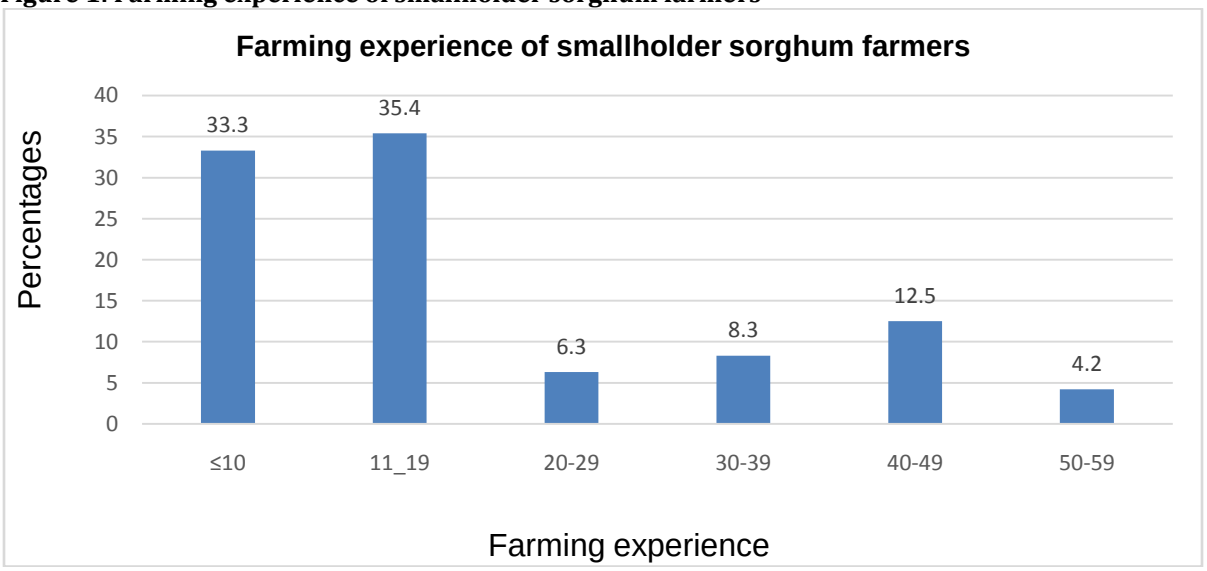
Study Area: This study was conducted in Ga-Masemola village, Makhuduthamaga Local Municipality (MLM) of Sekhukhune District (SD). SD workplaces are in Groblersdal and Makhuduthamaga is situated at Jane Furse. The "village is one of 146 settlements Makhuduthamaga region and is one of the poorest in Limpopo. Ga-Masemola town is arranged 65km towards the eastern side of Marble Hall, 82km south-west of Polokwane, which is the capital of Limpopo Province".

Research Instrument: Structured questionnaires were utilized to gather essential information from the respondents. Multi-stage and straightforward sampling strategies were utilized to test the respondents. The multi-organize examining was completed in stages, the principal arrange was the choice of the region from the SD and MLM were arbitrarily chosen, the second stage was the determination of the village in MLM and GM village was chosen and the last stage which is organize three was choosing respondents from the village.The study adopted random sampling technique to assess 48 smallholder sorghum farmers in the village. Graphic insights was utilized to depict the financial attributes, for example, age of the farmer, educational level, sexual orientation, family size and cultivating knowledge of smallholder sorghumfarmersin

the study zone. The illustration used to represent this, is pie chart, while frequency tables and bar diagrams are also explored.

4. Results and Discussion

Figure 1: Farming experience of smallholder sorghum farmers



Socio-economic characteristics of smallholder sorghum farmers: Figure 1 indicates that 33.3% of farmers had been in sorghum farming for 10 years and less. 35.4% practiced sorghum farming between 11 and 19 years. 6.3% have been in sorghum farming between 20 and 29 years. 8.3% had between 30 to 39 years of experience in sorghum farming. 12.5% of the respondents have been in sorghum farming between 40 and 49 years while 4.2% of these farmers practiced sorghum between 50 and 59 years. Most of the farmers interviewed have between 11 and 19 years of farming experience which implies that farmers are not actually familiar with the farming activities as yet and the study revealed that most of these farmers need more training in sorghum production.

Figure 2: Age of the smallholder sorghum farmers

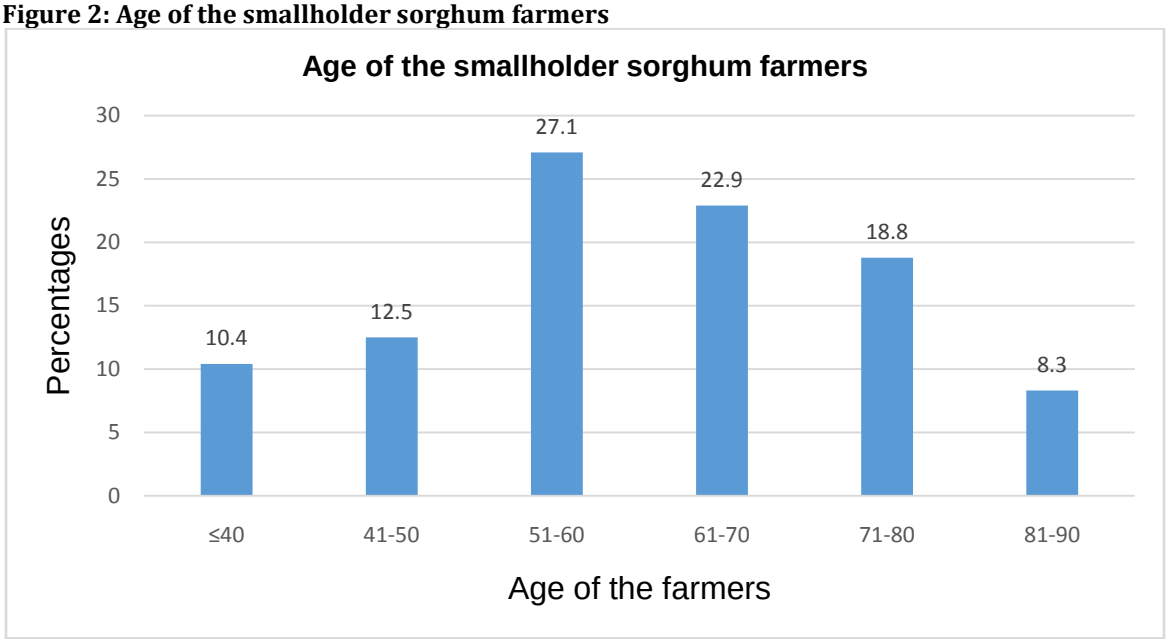


Figure 2, figure above indicates that 10.4% of the farmers interviewed were between the aged of 40 years and less. 12.5% were aged between 41 and 50 years. 27.1% were aged between 51 and 60 years. 22.9% accounted for age range between 61 and 70 years. 18.8% were aged between 71 and 80 years while 8.3% were aged between 81 and 90 years. Majority of the active sorghum farmers were aged between 51 and 60 years. This is an indication that the area still has a lot of middle aged farmers participating in the production of sorghum. However, youth and younger aged are not into the production of sorghum in the study area, the youth should be motivated into sorghum farming.

Figure 3: Gender of the smallholder sorghum farmers

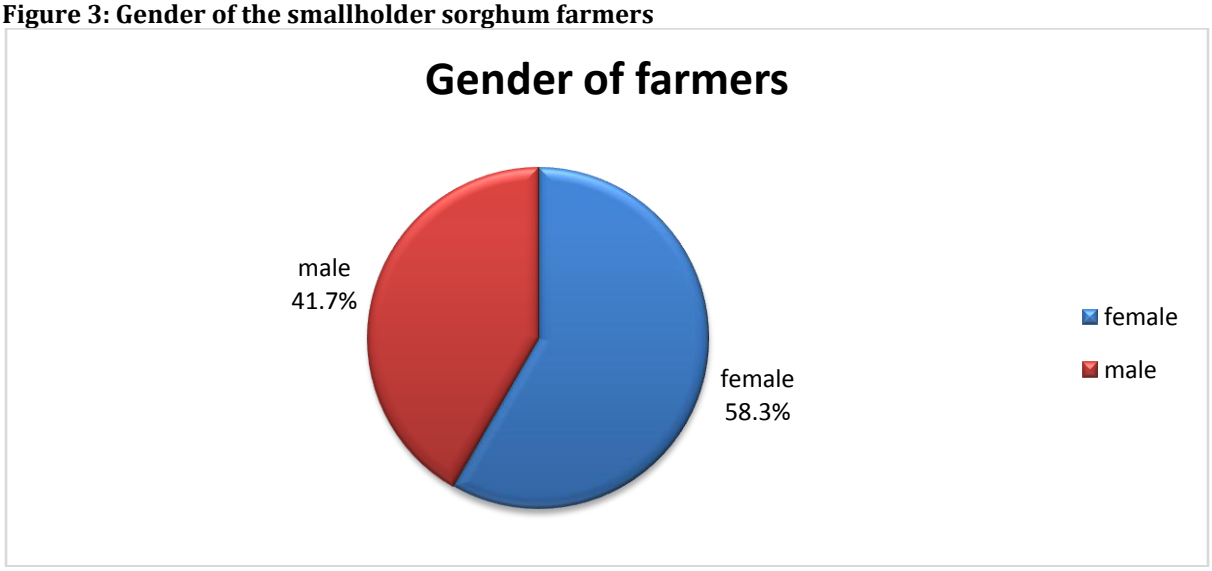


Figure 3 shows the proportion of age of smallholder sorghum farmers that were interviewed in the study area. The study revealed that 58.3% of the participants were females while 41.7% of the total respondents were males. The results indicate that the study area have more females farmers in the production of sorghum than their male counterparts. This result shows why females were remaining in rural areas to practice agriculture in order to look after their households in terms of food and tilling while males went to the urban areas for work in order to alleviate poverty. This reduces gender inequality in the village.

Figure 4: Farmers' household size

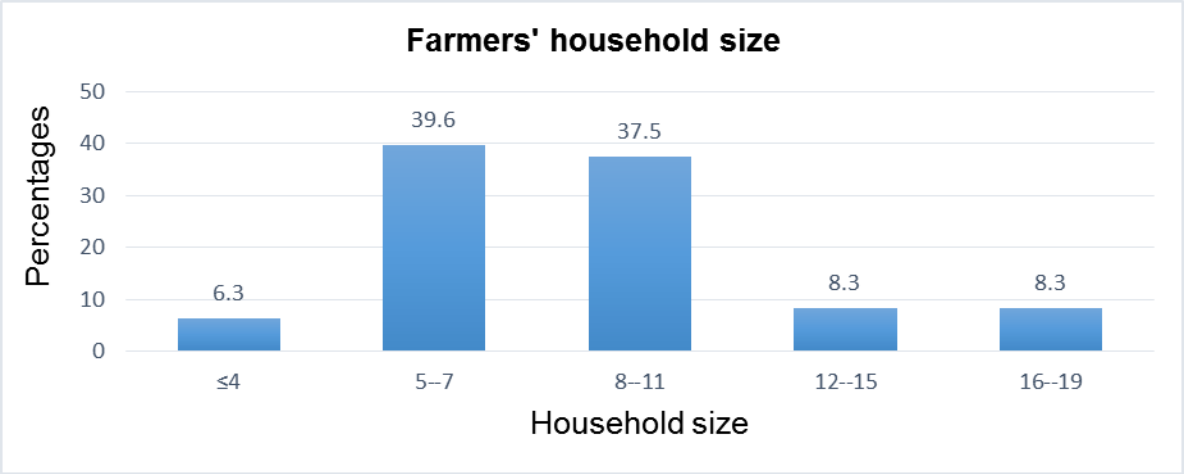


Figure 4, is all about the smallholder sorghum farmers and the size of their family in terms of number of people residing in their households. Household size has an influence on the volume of farming activities such that family labour can help improve production more than hired labourers. That is, if a household size is small

the farmer will need to hire people to help in some farm activities such as weeding, fertilising, ploughing etc. The study revealed that 6.3% of the households interviewed had 4 members and less. 39.6% households had between 5 and 7 members. 37.5% households had between 8 and 11 members. 8.3% households had between 12 and 15 members and 8.3% households had between 16 and 19 members.

Table 1: Cobb-Douglas results

Independent variables	Coefficients	Standard error	t-ratio	Significance level
Constant	4.369	0.605	7.221	0.000
Land size in ha	0.803	0.105	7.648	0.000
Supply of labour	0.003	0.058	0.052	0.954
Access to irrigation water	0.017	0.044	0.386	0.693
Access to fertiliser	0.067	0.046	1.457	0.159
Seeds used	0.542	0.176	3.080	0.004
Farming experience of the farmer	0.069	0.049	1.408	0.169
Age of the farmer	-0.237	0.197	-1.203	0.238
Gender of the farmer	-0.013	0.051	-0.255	0.800
Educational level of the farmer	0.001	0.020	0.046	0.989
Tractor use	0.002	0.057	0.035	0.967
Access to extension services	0.027	0.041	0.659	0.518
Credit access	0.031	0.051	0.608	0.539
Farmers' household size	0.032	0.079	0.405	0.691

Technical efficiency and its determinants among smallholder sorghum farmers: Table 1 shows the Cobb-Douglas model that was used in defining technical efficiency of the farmers. The linear regression results show that two variables were important out of thirteen variables in table 1 above. The size of land and quantity of seeds used are the variables that were found to be significant. All the coefficients of the model have positive signs but age and gender of the farmers have negative signs.

Size of the land: Size of the land has a positive coefficient of 0.803. This shows that 1% increase in the size of land would results in 80.3% increase in sorghum production. It was found significant at 1% significant level and a significant value of 0.000. The results reveal that the size of the land is the most important resource in the production of sorghum and it implies that as the size of the land increases sorghum production will increase. This concurs with the results of Mustapha and Salihu (2015) on determinants of technical efficiency of maize/cowpea intercropping among women farmers in Gombe State, Nigeria.

Quantity of seeds used: Quantity of seeds used has a positive coefficient of 0.542, meaning that 1% increase in quantity of seeds would results in 54.2% increase in sorghum production. Therefore, quantity of seeds produced is at 1% level significant and at a value of 0.004. The results concur with Ataboh et al. (2014) on determinants of technical efficiency among rice farmers in Kogi State, Nigeria. Application of more seeds may increase output.

Table 2: Elasticity of factor inputs

Independent variables	Elasticity
Size of land	0.803
Quantity of seeds used	0.542
Total (Returns to scale)	1.345

Table 2 depicts the elasticity of factor inputs. The return to scale was found by adding the value of betas (β); it indicates what would happen to output of sorghum if factor inputs were to increase simultaneously. The

elasticity of factor inputs is indicated in table 2 above. The results show that the return to scale of smallholder sorghum farmers in the study area is 1.345 which implies an increasing return to scale and thus, the output is increasing more than proportionally. An increasing return to scale indicates that farmers are technically efficient in the production of sorghum.

Table 3: Adjusted R square and standard error of estimates

Adjusted R square	Standard error of estimates
0.916	0.129

Table 3 indicates the adjusted R square of 0.916 which indicates that 91.6% is explained by the independent variables in the model and the remaining 8.4% is from outside the model. The standard error of estimates in the table above, measures the accuracy of the model which implies that there are 12.9% chances of errors in the model. Therefore, it implies that the model was good and the variables included were relevant.The value of adjusted R squared and standard error of estimates show that the model is robust/good because 91.6% of the variables explained technical efficiency of smallholder sorghum farmers in the study area while 12.9% are the probabilities of making wrong estimates.

Challenges faced by smallholder sorghum farmers in Ga-Masemola village: Incident of pests, inadequate rainfall (lack of water), climate change, lack of capital, diseases and distance to the farm are some of the challenges identified in this study area. If these challenges are resolved, there will be an increased production of sorghum which will enhance the technical efficiency of sorghum farming. The main challenge facing smallholder sorghum farmers in the village is lack of water and most farmers depend mainly on rainfall for irrigation purposes. Lack or access to capital is also a major challenge faced by these farmers. It makes farmers unable to purchase adequate amount of seeds, fertilisers, pesticides etc.

Table 4: Challenges faced by smallholder sorghum farmers in Ga-Masemola

Challenges faced by farmers	Frequency	Percentages
Diseases	4	8.3
Low capital	10	20.8
Pests	7	14.6
Distance to the farm	2	4.2
Lack of water	21	43.8
Climate changes	4	8.3
Total	48	100

Table 4, shows the array of challenges being faced by the sorghum farmers in the study area. 43.8% of the farmers complained of water for irrigation purposes. 20.8% of farmers have no capital to purchase some of the farming inputs. 14.6% of farmers interviewed are affected by pests. 8.3% of farmers are affected by crop diseases. 8.3% of farmers are affected by impact of climate change and while 4.2% indicated that distance to the farm is a challenge to them.

5. Conclusion

Inquiries on thesocio-economic characteristicsof smallholder sorghum farmers in Ga-Masemola village were inquired. The determinants of technical efficiency of smallholder sorghum farmers in Ga-Masemola village were additionally investigated. Finally, the difficulties confronted by smallholder sorghum farmers inGa-Masemolavillage were featured.The outcome of this study reveals that the socioeconomic characteristics of smallholder sorghum farmers inGa-Masemola village include:farmingexperience, age, sexual orientation, educational level and family unit measure. The determinants of technical efficiency in Ga-Masemola village include: the measure of land and the quantity of seeds utilized, these factors were observed to be noteworthy. The difficulties confronted byfarmersinclude: infections, low capital, pests, distance to the farm; absence of water and weather instability.

Recommendations

- Smallholder sorghum farmers in Ga-Masemola village should be giving an opportunity to acquire more arable land, with a specific end goal of increasing their production and their technical efficiency.
- A quality and enhancedextension services delivery systemmust be set up by government, and again, all the farming inputs like quality seeds shouldbe made accessible at affordableprices.
- The smallholder sorghum farmers should to be encouraged to utilize better and quality varieties of seeds with a specific end goal to enhance their technical efficiency.
- The smallholder sorghumfarmers require extension officers for training and dissemination of information about inputs allocation especially seeds. This may bring about an increase in sorghum output.
- Finally, the youth should to be encouraged to practice sorghum farming in light of the fact that they are young andstrong to perform the farm activities, they are also able to adapt to new and advanced technologies.

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Individual Differences Versus Consumer Readiness Variables Predictive Power Over Internet Banking Adoption in South Africa

Aguidissou O. C., Richard Shambare, Rugimbana R
Business School, Tshwane University of Technology, South Africa
Omerich@yahoo.fr, rshambare@gmail.com, RugimbanaR@tut.ac.za

Abstract: Self-service banking technology is gaining recognition globally in spite of its numerous challenges. Debit cards, ATMs and other Self Service Technologies (SSTs) are well received in South African market; however, customers seem cynical about Internet Banking (IB). IB consumer's adoption patterns frameworks are tested within this paper based on a framework providing for the South African market with the best explanatory power. Thus, investigating consumer readiness (CR) and individual differences (IDs) variables as common groupings usually cited in the literature consumer variables predictive efficacy, provide better understanding of the consumers towards SSTs in South Africa.CR comprises role clarity, ability and motivation (extrinsic and intrinsic), while IDs includes inertia, technology anxiety, need of interaction, previous experience and demographics. This study purposes to identify among IDs and CR variables, which one with greater predictive power on IB adoption in South Africa.Considering this gap within the body of knowledge, in relation with IB adoption behaviour among the South African consumer is therefore the present article primary objective. Consumer's individual differences (technology anxiety and education variables specifically) as exogenous variables, through a large sample size (n=1516), descriptive quantitative analysis, were found in context of South African market with greatest predictive power for IB adoption by comparison over consumer readiness. In South Africa particularly for marketers, these findings therefore are a set of relevant keys that can be useful in promoting IB adoption.

Keywords: *Internet banking, Consumer choice behaviour, Individual differences, Consumer readiness*

1. Introduction

The banking industry in South Africa has experienced meaningful reforms in the past recent decades. In the 1990s South Africa went through progressive financial service deregulation and this has largely shaped the country retail banking (Falkena, Bamber, Llewellin & Store, 2001; Moyo, Nandwa, Oduor & Simpasa, 2014:2-4). As result of the global deregulation trend, various self-imposed monopolies and restrictions were removed in South African banking industry. For instance financial institutions were now permitted to offer banking services, and by so doing increase the industry competitive pressure. Banking institutions were specialised in innovations products as electronic banking systems and channels of technologies–based products as strategies to maintain rapid distribution and diffusion (Falkena, Bamber, Llewellin & Store, 2001, 2001:390; Moyo, Nandwa, Oduor & Simpasa, 2014:2-4). A range of SST services were introduced between 1996 and 2000 (Manson, 2002) these include debit cards, ATMs among others. These became the main SST and were well received in South African market; however, customers were undecided about IB usage (Maduku, 2013:78). IB, within the retail banking in South African market still occupied the lowest rank as adopted SST (World Wide Worx, 2013) and for IB consumer patronage, subsequent encouraging efforts were used. Formulating effective marketing strategies policies' challenges remained within financial institutions while seeking to increase IB usage (Wu, 2005; Maduku, 2013:94; Agwu, 2015:100). Internet and Internet banking diffusion knowledge and patterns of adoption are limited. In spite of IB international increasingly recognition, South African decision makers still lack appropriated sound policy as far as the marketing is concerned. Academic research regarding IB adoption area in South Africa and remaining others developing countries in the world remained scanty (Ramavhona & Mokwena, 2016:2) and in most cases inconclusive as focusing only on one common grouping variables. Sound scientific guidance work is therefore needed for the shifting of consumer behaviour to IB adoption. Considering this gap within the body of knowledge, in relation with IB adoption behaviour among the South African consumer is therefore the present article primary objective as far as clarification among findings inconsistencies' is concerned. This paper, against this background seeks to test different IB consumer adoption patterns' conceptual frameworks intents to ascertain for the South African market, the framework with best explanatory power. Following section is on discussion regarding IB in South Africa. Then a presentation of IB adoption framework is made. The

methodology further with findings section is presented. Results and discussion regarding summary findings, managerial, limitation and recommendation on future research will close the section.

2. Literature Review

Internet banking in South Africa: The South Africa's return into the universal economy since the early 1990s, the deregulation's global trend, the universal's financial services conglomerates rising and the accelerated technological expansions all together contributed to the new shaping of the financial sector in South Africa (Falkena et al., 2001:80; Baliamourne, 2002). Today e-banking services are provided by the totality of South African banks like the 'big four' namely ABSA, FNB, Standard Bank and Nedbank (Ramavhona & Mokwena, 2016:2). With only 23 per cent, the South Africa's IB user rate is still notably low (World Wide Worx, 2013). IB is customers' banking services delivery using the Internet network (Yiu, Grant & Edgar, 2007:337; Ramavhona & Mokwena, 2016:2). Balances checking, third-party payment and inter account-transfers are various functions available while using IB, as it is for e-banking (Kyobutungi, 2014). Subsequently, online banking functions are performed within this process by the consumer (Onay & Ozsaz, 2013).Very few works has been done in South Africa in order to reinforce banking SSTs marketers' knowledge regarding consumer's attitudes to their adoption (or rejection). Thus, conducting further research on IB is therefore crucial to the advancement of IB in South Africa. Through this research, new contributions will be made in the area of consumer's perception of IB usage, adoption of IB and consumer behaviour. To achieve the stated objective, the study developed a framework for individual differences and consumer readiness, predictive power over internet banking adoption in South Africa.

Internet banking adoption framework: Meuter et al. (2005:63) identify the five individual characteristics that influence the usage of technologies, as: inertia, technology anxiety, needs for interaction, previous experience and demographics. Research findings demonstrate that these factors also influence technology innovation adoption (Kelly, Lawlor & Mulvey, 2010:1). These factors are accepted in this research framework model to test their predictive power on IB adoption in the South African context, as it is in Meuter et al. (2005:63), as they are not easily manipulated (age, sex) or easily managed (complexity and trialability) before the self-service technology (SST) is introduced. While the antecedent theories proved the relevance of perceived notions in the adoption process, these theories argue that adoption drivers look more complicated than just a notion of perceptions. Along this line of thought, factors such as individuals' propensity to accept new technologies, and their motivation and possession of skills to use specific technologies, are responsible for adoption (Parasuraman, 2000; Meuter et al., 2005; Seligman, 2006). This article focuses on IB as SST adoption case, which provides understanding on attitudes, consumer readiness or behaviours that are used. The "state in which consumers are prepared and likely to use an innovation for the first time" is defined as CR (Meuteret al., 2005:64). As evidence, CR is a key component of the present study framework. "There are certain innovation characteristics or individual differences that vary in direction and significance across different contexts" (Meuter et al., 2005:62). In order to explain links among variables, and inconsistencies' clarifications therefore using of mediating variables is suggested. As consumer's adoption first step, consumer readiness variable is in place to mediate between the behaviour of trial (of the innovation) and individual differences variables. This paper on model of Meuter et al. (2005) is therefore on individual differences and consumer readiness predictive power identification. The individual differences variables are first of all defined or characterized followed by consumer readiness.

Inertia: Inertia can be explained as a state where people are found reluctant to change (Kuppens, Allen & Sheeber, 2010:984).
Technology anxiety: Technology anxiety is described as a "modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner" (Fiehn, 2010:255).
Need for interaction: Need for personal interaction, may decrease the desire to try a new technology product or service, by so doing becoming a motivation inhibitor factor that lowers interest in learning a SSTs function mode (Meuter et al., 2005:66).
Previous experience: People with an e-mail account and experience in using Internet are more positively disposed to try Internet banking than those without any previous experience.
Demographic characteristics: Demography in general focuses on human population statistics, including size, age, gender, race, location, occupation, income, education and other characteristics (Wu, 2005).

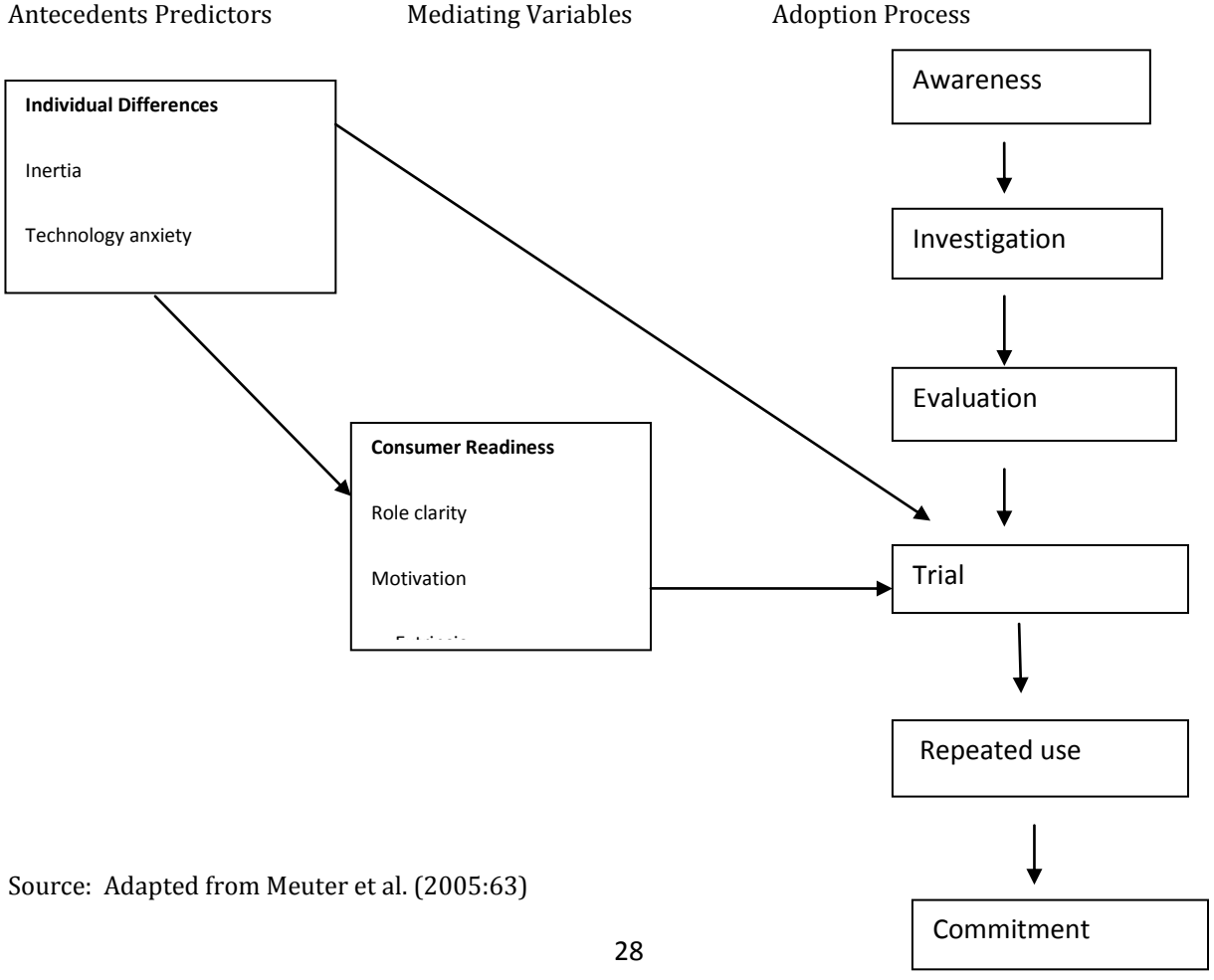
Age: People who adopt Internet banking are mostly younger one (Clemes, Gan & Du, 2012).
Education level: "Higher education may lead to confidence (ability) and the perception of the SST as more understandable (role clarity) and rewarding (motivation)" (Meuter et al., 2005:64).
Gender: Female respondents are more likely to adopt Internet banking than males in Nigeria (Gao & Owolabi, 2008:299).
Income: "Higher income may increase the chances of access to the required tools (ability) and the motivation (time savings, or other) to use SSTs.

Consumer readiness encompasses role clarity, motivation (as well as intrinsic than extrinsic) and ability. The readiness of a customer to use a product is an expression of his behaviour regarding it. Someone that is not knowledgeable, without motivation or lack skill on using IB may never become a technological banking innovations potential user. 'Readiness'' is delineated as the willingness, preparedness and ability state to engage in IB adoption. Consumer readiness variables are found in Meuter et al. (2005:76) case with more powerful predictability compare to others variables regarding SSTs consumer's adoption.*Role clarity r*efers to knowledge and understanding of customers regarding the nature of contribution needed to take place. In fact for customers, knowing what to do and to expect as performance greatly influences on doing things to do.

Motivation: Motivation has the "forerunner of any tangible achievement in life" (Adeboye, 2015). Linking identity to motivation, "identity-based motivation results in the readiness to take action, even when the action is not beneficial to the participant or is unlikely to have been chosen outside of the specific context" (Oyserman & Sorrenson, 2009:253)

Ability: Ability is about the magnitude to which consumer has the required skills and empowerment to run a particular duty or in case of new innovation using (Meuter et al., 2005:64).

Figure 1: Proposed Conceptual Model



Source: Adapted from Meuter et al. (2005:63)

Conclusively, individual differences and consumer readiness variables are the two set of variables mixed with the intent for results which are accurate and credible.

Research questions and hypotheses: The following research question was formulated:
In South Africa, what is the predictive power of exogenous and endogenous variables on Internet banking adoption among consumers?
Consequently the research hypotheses are formulated as follows and offered basis for data collection and data analysis:
H_1: Role clarity mediates the relationship between:
Individual differences variables and trial
H_2: Extrinsic motivation mediates the relationship between:
Individual differences variables and trial
H_3: Intrinsic motivation mediates the relationship between:
Individual differences variables and trial
H_4: Ability mediates the relationship between:
Individual differences variables and trial
H_5: The consumer readiness variables are better predictors of trial than:
Individual differences variables

3. Methodology

The methodology used in this paper is descriptive single cross-sectional design (Malhotra, 2010:108). Data collection was based on structured questionnaire. Data were analyzed using frequency table, bivariate and multivariate analysis. A descriptive single cross-sectional design according to Malhotra (2010:108) is the applied methodology for this study. From self-completion structured questionnaire respondents, data was collected. For data analysis, the analysis of statistics was made in line with the collected quantitative data.

Sample: The empirical inquiry quantitative method, employing the survey research design which is descriptive one, and was used for investigation related to the present study (Malhotra, 2010:108). Through self-completion structured questionnaires, data was collected from respondents with a 'drop and pick' technique collection method. The theory in this research is tested and existed one, and "explains the precise relationships between variables" (Perry, 2002:26). Therefore, in design, this research in nature is explanatory, causal one (Nel, 2013:78-79). With a large sample size 1516, surpassing 590 as minimum recommended (Pallant, 2010) and 385(Raosoft, 2016), study findings are sufficiently generalisable. For a selected sample in line with the Gauteng province population characteristics, a technique of stratified sampling was employed. Based on Healy and Perry (2000:120) view the constructs to be measured and the influencing choice behaviour factors are known as 'real-life' phenomena which were identified and tested in past research (Berndt, Saunders & Petzer, 2010; Black, Lockett, Winklhofer & Ennew 2001; Laukkanen, Sinkkonen, Kivijarvi & Laukkanen, 2007; Parasuraman, 2000; Rugimbana, 1998; Shambare, 2012). Quantitative methods approach was employed in the vast majority of IB studies as long as measuring adoption is concerned. But in case of some studies, only qualitative approach had been utilized (Szmigin & Bourne, 1999; Black et al., 2001; Mallat, 2007; Agwu, 2014). This gives reason of quantitative techniques used in this study. The population for this study consists first of all of all adult persons in the Gauteng Province of South Africa, of roughly 7 000 000 (StatsSA, 2014). With such population, sample size of between 200 and 1000 respondents would probably be considered by most researchers (Sathye, 1999). Sample size calculator the minimum expected as sample size is 385 (Raosoft, 2016). A large sample of 1516 questionnaires respondents students fully completed, was used during the present study for a total of 2150 distributed for the investigation with 634 unused for duplication and irrelevant data. Using a homogenous sample was preferable (i.e., students, known as homogeneous sample) and using homogenous samples, is desirable for theory testing (Calder et al., 1981:200).

Questionnaire adaptation: Questionnaire was used as the instrument for measuring diverse aspects in relation to respondents' demographic characteristics, banking profiles and the related parameters.

Table 1: Data collection instrument format

Section	Section summary	Scale development	Rationale
A	Respondents' banking profile: Information in the banking profile area. This encompasses the types of bank accounts utilised and also how often these were utilised.	Brown, Cajee, Davies and Stroebel (2003); Rugimbana (1998)	To determine respondents' banking patterns
	Antecedent predictors' scales: Measure independent and mediating variables.	Meuter et al. (2005); Parasuraman (2000);	Measuring TR and CR
	Respondents' demographic characteristics: Demographics	Developed for this research from the literature review	To describe demographic characteristics of the sample

Source: Researcher's own construct

The primary objective of this study is to test the predictive power of antecedent predictor variables (individual differences) and mediating predictor variables namely consumer readiness variables, in order to predict consumer choice behavior. Three relevant elements are underlined in area of the proposed conceptual framework in relation with IB choice: Operationalised by trial, Individual differences, consumer readiness and adoption represent those parameters. A structured questionnaires and a Likert scale (1 = Strongly Disagree; 5 = Strongly Agree) were used. The first two are continuous variables and by using a 5 point Likert scale anchored at 1 = Strongly Disagree and 5 = Strongly Agree, were measured. Adoption is a nominal discrete value as measured by trial. In total, the respondents' banking profile, measurement scales and demographic sections are the questionnaire three parts, eight pages long (Table 1). For 2 150 questionnaires respondents collected, 1 516 responses were utilized for the present research conducted, as survey total sample size with 54,20 % as female and 45,80% as male; with 93.70 % as undergraduate, 69,90% of these students age is between 21-30 years with 93.70% as undergraduate. Among participants 78, 70% are with monthly income not more than 5000 (ZAR) and 62, 10% as full time students. Participant demographic characteristic is illustrated in Table 2 below. Various statistical analyses performed by using SPSS v. 23 (Field, 2009;Ramavhona & Mokwena, 2016:4).

Data analysis: Various statistical analyses were conducted based on the result of the collected quantitative data. SPSS v. 23 in order to run analyses as followed were used (Field, 2009).
Descriptive statistics – for samples' demography and their banking profiles description (Daniel & Terrel, 1995:42).
Chi-square tests: to identify associations between variables (Field, 2009:269).
Reliability analysis: Cronbach's alpha is used for assessing measurement scales' internal consistency (reliability) (Emory & Cooper, 1991:187).
Factor analysis: For variables reducing into latent variables' smaller groups, including validity's tests (Field, 2009:629; Malhotra & Birks, 2007:125).
Multiple regression and logistic regression: for the model proposed and hypotheses testing (Hair, Black, Babin, Anderson & Tatham, 1998:90)

4. Results

Out of 2 150 questionnaires distributed to the respondents, 1 516 (70.51%) collected and the responses were used for the present study. The male respondent participant rate of 45.8% was smaller than their female counterparts which is 54.20% as described on Table 2. Significantly, the proportion of 69.9% is representative of the age group 21 to 30 years. 21.80% and 8.30% represent respectively respondent age group for less than 20 years and more than 30 years according to present investigation.Table 2, depicted also that the biggest percentage (78.7%) of participants are undergraduate with an income of not more than R5 000 per month, while the remaining of 6.30% are postgraduate. As presented by Table 2, only 7.10% of respondent earn more than R15 000 per month, while 11.30% monthly earning, is not more than R10 000.

The fewest 2.90% respondent monthly earning is between R10 001 and R15 000. Full time student with 62.10% constitutes the highest rate of this present research participant, while the lowest rate of 2.70% refers to self-employed student participant. The remaining, 6.50%, 5.30%, 12.90% and 10.50%are respectively full-time employed students, part-time employed students, part-time students and unemployed or retired as shown in Table 2. This provides the key demographic characteristics of the study sample.

Table 2: Demographic profile

Demographic characteristic		South Africa (%)
Gender	Male	45.80
	Female	54.20
Age	< 20 years	21.80
	21 - 30 years	69.90
	31+ years	8.30
Study level	Undergraduate	93.70
	Postgraduate	6.30
Monthly income	<R5 000	78.70
	R5 001 - R10 000	11.30
	R10 001 - R15 000	2.90
	R15 001 +	7.10
Source of income	Employed full-time	6.50
	Employed part-time	5.30
	Self employed	2.70
	Full-time student	62.10
	Part-time student	12.90
	Unemployed/retired	10.50

Source: Own construct

Respondents' banking profile: Table 3.1a and table 3.1b summarize banking profile.

Table 3.1a: Bank institutions use

Bank	Count	Percentage (%)*
Capitec	558	30.05
Standard Bank	382	20.57
FNB	332	17.88
ABSA	315	16.96
Nedbank	190	10.23
Do not have a bank account	35	1.89
Post Bank	19	1.02
Other banks	7	0.38
African Bank	6	0.32
Bidvest	5	0.26
Mercantile	4	0.22
Bank of Athens	4	0.22

Source: Own construct *% based on total number of respondents

Table 3.1b: Extent of channel use (1=never; 6=daily)

Banking channel	Mean	Std Dev.	users %
Bank branch	2.82	1.76	53.30
EFTPoS	2.77	1.82	50.20
Cell phone banking	2.77	1.82	50.20
Bank App	1.78	1.39	23.30
Telephone	1.78	1.38	23.20
ATM	1.58	1.27	16.10

Source: Own construct

Scale Measurement: Cronbach's alpha was used for the measuring of the reliability of the multi-item scales questionnaire (Mazzocchi, 2011; Bryman & Cramer, 2001:71). Reliability is about accuracy, consistency and precision measurements of multiple variables (Hair et al., 2010). As a commonly used measure in quantitative research, internal consistency is used to ascertain in a set of questions, how positively items are inter-correlated. The minimum alpha setting practice standard threshold for consideration according to Field (2009:677) is 0.7. An illustration of Cronbach' alpha (α) sub-scales and inter-correlation aspect in relation with the present research's items is painted in Table 4 and Table 5 below.

Table 4: Cronbach's alpha (α) for the subscales

Multi-item scale	Internet banking
Inertia	.679
Technology anxiety	.769
Need for Interaction	.613
Previous Experience	.094
Role Clarity	.764
Ability	.700
Extrinsic Motivation	.830
Intrinsic Motivation	.882

(Study sample) <.4 cut off

Table 5: Descriptive Statistics and Correlations

	MEAN	SD	1	2	3	4	5	6	7	8	9	10	11	12
IN	3.01	.820	1											
TLA	2.69	.874	351**	1										
NDI	3.26	.803	.234**	.250**	1									
PE	3.04	.786	.154**	.150**	.183**	1								
RC	3.14	.523	.095**	.096**	.204**	.187**	1							
AB	3.23	.626	.051	.033	.202**	.201**	.382**	1						
EM	3.65	.822	−.019	−.019**	.186**	.177**	.267**	.407**	1					
IM	3.62	.815	.011	−.056*	.193**	.196**	.252**	.377**	.684**	1				
Gender	1.54	.056*	−.009	−.055*	−.064*	−.023	.054*	.039	.054*	.039	1			
Age	1.89	.611	−.040	−.039	−.036	−.017	.035	.034	−.029	.015	−.079**	1		
Income	1.46	1.123	−.054	−.061*	−.078**	−.001	.036	.014	−.017	−.012	−.115**	−.255**	1	
Education	4.09	1.350	−.069**	−.026	−.002	.037	.077**	.074**	.008	.008	−.041	.315**	.238**	1

Notes: N=1516; IN=Inertia; TLA=Technology Anxiety; NDI=Need for Interaction; PE=Previous Experience; RC=Role Clarity; AB=Ability; EM=Extrinsic Motivation; IM=Intrinsic Motivation.
*p<.05
**p<0.1(two tailed)

Construct validity: Factor analysis is a statistical multivariate method often used with three characteristics keys functions, (Stewart, 1981). The first key function consists on reducing to smaller size variables, the number in case information analysis amount is maximised. The second one is by searching in case of data being too large, qualitative and quantitative data distinction. The last key function is about hypotheses testing relative to distinction numbers or undergoing data set. Specifically, Oblimin rotation with principal

components analysis (PCA) was used not only for determining the items factors loading, but also for the inter correlation of factors themselves (Hair et al., 2010). Proceeding with PCA involved the use of Kaiser-Meyer-Olkin (KMO) for the measure of sampling adequacy (MSA) and the Sphericity Bartlett's test (Shiu, Hair, Bush & Ortinau, 2009). The KMO index range is from 0 to 1. Value 0.90 + is marvellous, while value 0.60+ is mediocre and below .50, unacceptable (Field; 2009:647). For this study, KMO index range is higher than 0.7, which is acceptable. Secondly, for proceeding with factor analysis as scientifically recommended, the statistical probability, proof of the existence of correlation matrix with significant correlations among variables, is generated by Bartlett's Test of Sphericity index (> 0.6), which is viewed a minimum tolerance. Lastly, in all cases the Bartlett's Test yielded p-values ($p < 0.05$), which are significant and high. Overall, more than 61.400% of the variance is explained by total of 7 items components which in combination resulted with over Kaiser's criterion 1 as Eigen values. Among items, correlations were large enough (Field, 2009:672) based on PCA indication with Barlett's test of sphericity $X^2(1516) = 15749.761$, $p < 0.001$. The index range for KMO for this analysis of 0.891 is more than 0.80, very good value with degree of freedom (df) =496.For both scales (IDs and CR) loading the factor structures, are in conformity to the theory content (Previous Table 5 and Table 6 below)

Table 6: Variables KMO / Barlett's test of sphericity values

Multi-item KMO / Barlett's test of sphericity (p-values)	**Internet banking**
Role Clarity	.658 (.020)
Ability	.711 (.515)
Extrinsic Motivation	.718 (.000)
Intrinsic Motivation	.878 (.000)
Inertia	.637 (.004)
Technology anxiety	.747 (.000)
Need for Interaction	.563 (.800)
Previous Experience	.485 (.001)

Source: Own construct; Cut off point < 0.5 (Field, 2009:660)

Table 7: PCA loadings of independent variable constructs

Independent variable		**Banking channel Internet banking**
Individual difference ($X^2 = .972$; p = .0324)	Factors retained % variance	1 52.014%
CR ($X^2 = 10.205$; p= .001)	Factors retained % variance	1 55.054%

Source: Own construct

Test of model and hypotheses: Between CR variables and the independents one, in relation with IB trial test, there is no effect of mediation. For instance, according to Table 5, variable ability mediating effect on trial (dependent variable) is not at all significant [coefficient = -21.169; (p = .998)]. This fact means that, by the factor ability none of the independent variable is found mediated through ability factor. In addition, among independent variables, not all items were found mediated by the remaining three mediating variables, role clarity, extrinsic motivation and intrinsic motivation respectively with coefficient and p value, [B = -1.661; p = .000], [B = -1.551; p = .000] and [B = -1.259; p =. 000]. Individual variables for instance anxiety, income and education are mediated by role clarity, while intrinsic motivation mediated age. None of the remaining individual variables was found mediated through any of the others factors. Overall, not all independent variables antecedent predictors with direct effect on trial, were found at least mediated by one mediating factor. As deduction for IB product there is no mediation of CR in relation with the independent variables (individual differences).

Table 8: Results of tests of mediation: IB

Individual Differences Variables					
Role clarity as a mediator between individual differences and adoption	clarity: -1.661(.000)	Inertia	-.429 (.004)	.499 (.002)	No direct effect on trial
		Technology Anxiety	.565 (.000)	.531 (.000)	**Partial mediation**
		Need for Interaction	-.049 (.800)	.124 (.562)	No direct effect on trial
		Age	-.701 (.000)	-.772 (.000)	No mediation, failed in 4
		Income	-.628 (.001)	-.536 (.007)	**Complete mediation**
		Gender	.087 (.405)	.153 (.184)	No direct effect on trial
		Education	-.483 (.000)	-.413 (.000)	**Partial mediation**
Ability as a mediator between individual differences and adoption	Ability: -21.169(.998)	Inertia	-.429 (.004)	.426 (.000)	No mediation, failed in Step 1
		Technology Anxiety	.565 (.000)	.497 (.001)	No mediation, failed in Step 1
		Need for Interaction	-.049 (.800)	.454 (.058)	No mediation, failed in Step 1
		Age	-.701 (.000)	-.809 (.000)	No mediation, failed in Step 1
		Income	-.628 (.001)	-.874 (.000)	No mediation, failed in Step 1
		Gender	.087 (.405)	.124 (.299)	No mediation, failed in Step 1
		Education	-.483 (.000)	-.416 (.001)	No mediation, failed in Step 1

Individual Differences Variables					
Extrinsic motivation as a mediator between individual differences and adoption	Extrinsic motivation: -1.551 (.000)	Inertia	-.429 (.004)	.543 (.001)	No mediation, failed in Step 4
		Technology Anxiety	.565 (.000)	.596 (.000)	No mediation, failed in Step 4
		Need for Interaction	-.049 (.800)	.189 (.372)	No direct effect on trial
		Age	-.701 (.000)	-.782 (.000)	No mediation, failed in Step 4
		Income	-.628 (.001)	-.723 (.000)	No direct effect on trial
		Gender	.087 (.405)	.040 (.725)	No mediation, failed in Step 4
		Education	-.483 (.000)	-.543 (.000)	No mediation, failed in Step 4
Intrinsic motivation as a mediator between individual differences and adoption	Intrinsic motivation: -1.259(.000)	Inertia	-.429 (.004)	.465 (.003)	No direct effect on trial
		Technology	.565	.669	No mediation, failed

Anxiety	(.000)	(.000)	in step 4
Need for Interaction	-.049 (.800)	.259 (.218)	No direct effect on trial
Age	-.701 (.000)	-.678 (.001)	**Partial mediation**
Income	-.628 (.001)	-.637 (.002)	No mediation, failed in step 4
Gender	.087 (.405)	.044 (.702)	No mediation, failed in Step 3
Education	-.483 (.000)	-.504 (.000)	No mediation, failed in step 4

Table 9: Hypotheses testing results

Hypotheses	**Supported**	**Rejected**
H1: Role clarity mediates the relationship between: Individual difference variables		rejected
H2: Extrinsic motivation mediates the relationship between: Individual difference variables		rejected
H3: Intrinsic motivation mediates the relationship between: Individual difference variables and trial		rejected
H4: Ability mediates the relationship between Individual difference variables		rejected
H5: The consumer readiness variables are better predictors of trial than: Individual difference variables		rejected

Table 10: Classification accuracy (IB present study)

	South Africa(2016)	
Independent variable	**Individual differences Wald (p-value)**	**Consumer readiness Wald (p-value)**
Inertia	.242 (.087)	
Tech. Anxiety	6.425** (.011)	
Need for Inter.	.972 (.324)	
Previous Expe.	-	
Education	4.744** (.029)	
Gender	1.268 (.260)	
Income	2.977 (.084)	
Age	1.692 (.193)	
Role clarity		17.532* (.000)
Ability		0 (.998)
Ext-motivation		1.341 (.247)
Int-motivation		.381 (.070)
Classification accuracy	61.7%	57.7%

*p< .01; **p< .05
Source: Own construct

Meuter et al. (2005:63) identify the five individual characteristics that influence the usage of technologies, as: inertia, technology anxiety, needs for interaction, previous experience and demographics. Research findings

demonstrate that these factors also influence technology innovation adoption (Kelly, Lawlor & Mulvey, 2010:1). Individual differences variables, (especially technology anxiety variable) are found with greater predictive power in comparison to consumer readiness variables regarding IB adoption in South Africa (Table 10 on classification accuracy). This result is opposite to existing one conducted by Meuter et al. (2005) regarding USA SSTs market which underlined CRwith greatest predictive power over innovation characteristics and IDs. Technology anxiety as previously described is a "modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner" (Fiehn, 2010:255). While, role clarity refers to knowledge and understanding of customers regarding the nature of contribution needed to take place (Meuter et al., 2005). In fact customers with adaptation disease to cope with computer technology such IB, doesn't have knowledge of what to do and to expect as performance from using IB and therefore fall into computer-related fears' delusions, which is qualified as ever-present threats from information technology (Mason, Stevenson and freedman, 2014).

Discussion: By contradiction with Meuter et al. (2005) findings, this paper in South Africa, individual personality (exogenous variables) provides better explanatory power in describing adoption". Individual characteristics outperform consumer readiness predictors for classification accuracycompared to CR. Technology anxiety and education as individual differences variables, compared to role clarity; predict better IB adoption in South Africa. In other words, this paper corroborates many studies such as TRI Parasuranam (2000), Meuter et al. (2005) and also by Kellyet al. (2010), Dhurup, Surujal and Redda (2014), is not usable in South Africa country alone, but recommendable to the use for larger applicability to the body of knowledge.Encouraging and useful for both researchers and bank managers are the present survey findings, which also demonstrated that South Africa's nation-specific conditions are efficiently explainable through research work studies. Evidently, there is need of extending this work to others SSTs as far as this framework is concerned. Many empirical research's variables with adoption behaviour as determinant (Hoppe, Newman & Mugera, 2001:1; Akinci, Aksoy & Atilgan, 2004:212; Cai, Yang & Cude, 2008:151; Maduku, 2013:76; Ramavhona & Mokwena, 2016:2) based on one common grouping only and used for IB in South African context mostly. But due to findings inconsistencies' some phenomena could not be explained (Meuter et al., 2005:62). This stands as present paper's motive, for phenomena's better explanation, two sets of variables are to consider simultaneously. "To date, the question of why individual differences influence adoption behaviour has been left largely unexplored" (Meuter et al., 2005:62). Though exciting, unexplored fields are left within the present paper which is still needed to be explored. For such reason, future's research needs are real and still pending.

University student's sample was used for conducted research, homogeneous as sample (Calder, Phillips & Tybout.1981:200). However a larger rank of consumers could have been included; this through the large sample size (n=1 516) scales' validation therefore is viewed as limitation.The applied theory model, exclusively referred to individual differences, knowing that other theories such as TAM, TRA and TPB could also have been considered. Finally, only Gauteng Province is considered for the investigation, which is a limitation as the whole country could have been covered.In order to compare others research investigations results with this paper's one, future studies are indicated for covering other provinces. By so doing, reliable parameters affecting South Africa's IB consumer choice making and choice behaviour can be available for both bank marketers and the body of knowledge. Other SSTs as cell phone banking and ATM adoption predictors can also be interested, using Meuter et al. (2005) model, for useful tools provision to bank decision-makers and for filling also within the domain, the related research gap.

5. Conclusion

In South Africa, the attempt in responding to the above mentioned objective, proves first of all that all two mentioned variables, predict significantly adoption of IB. Also as second aspect from study result, the CR variable mediates between explanatory variables (individual differences) and trial. Finally, the objectively comparison of both variables' predictive power, shows that individual differences (personal individuality, exogenous variables) in South Africa were found relatively to consumer of IB regarding decision making and choice behaviour with better predicting power.

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Investigating Okun's Law in Nigeria through the Dynamic Model

Patrick Olufemi ADEYEYE[1*], Anthonia T.ODELEYE[2], Olufemi Adewale ALUKO[3]
[1]University of KwaZulu-Natal, Westville, Durban, South Africa
[2]Department of Economics, University of Lagos, Nigeria
[3]Department of Finance, University of Ilorin, Kwara State, Nigeria
adeyeyepo@gmail.com*, antileye@yahoo.com, olufemiadewale6@gmail.com

Abstract: Unemployment is a persistent challenge for countries, especially the developing ones. Nigeria as a developing country faces a herculean task reducing the increasing spate of joblessness amongst her citizens. Okun's law explains the relationship between unemployment and economic growth in an economy. This study therefore investigates Okun's law in Nigeria between 1985 and 2015 through the dynamic model. The generalized method of moments estimation result reveals that that present and past output growth are negatively related to unemployment rate. However, only past output growth has a significant effect on unemployment rate. It also shows that past unemployment rate is significantly and positively associated with present unemployment rate. The Toda-Yamamoto Granger non-causality test finds that there is no causality between unemployment and economic growth. This study presents evidence to partially support Okun's law of inverse relationship between unemployment and output growth and suggests that promoting economic growth can be a policy tool for reducing unemployment rate in Nigeria.

Keywords: *Okun's law, unemployment, economic growth, dynamic model*

1. Introduction

A nation, regardless of its level of economic development, faces a daunting task in achieving full employment (i.e. effective maximisation of labour resources). The International Labour Organisation (ILO) reports the unemployment rate for virtually all countries. Hence, it is wise to state that the issue of unemployment is a phenomenon experienced in both advanced and emerging economies. Unemployment is the inability of an individual to engage in a legally acceptable activity that allows him/her to exchange mental and physical efforts for financial gain or compensation. The rate of unemployment in a country is an index for strength of its labour market and the level of utilisation of its labour resources or human capital. There is disparity in the unemployment rate among countries due to the varying level of economic growth among them. This portends that the growth of an economy has the tendency to either increase or decrease the level of unemployment. A theoretical explanation for the bearing of economic growth on unemployment emerged from the seminal work of an American economist named Arthur Okun in 1962. The discovery of Okun (1962) on the US showed that there is a negative association between unemployment rate and economic growth. In other words, Okun found that unemployment and economic growth move in opposite direction (i.e. the higher the growth in the economy, the lesser the rate of unemployment and vice versa). This finding became what is popularly referred to as "Okun's law". Okun's law assumes that economic shocks affect output asymmetrically before influencing unemployment (Lee, Hu, Li & Tsong, 2013). It posits that the behaviour of unemployment in the economy acts in the Keynesian manner to the point that it suggests that failure to utilise productive resources reduces the rate of economic growth in the future (Loría & Salas, 2014).

Okun's law is a statistical relationship between unemployment and output in an economy and not a structural attribute of an economy because the relationship is subject to changes in an ever-dynamic economy (Knotek, 2007). It suggests that unemployment and output are inversely related and there is a bidirectional causal relationship between them. The responsiveness of unemployment to output has been regarded in literature as "Okun's coefficient". Okun (1962) found a coefficient of -0.3 between unemployment and output, thus indicating that unemployment decreases by 3% when output increases by 1% in US. Moosa (1999) estimated that Okun's coefficient is -0.38 in the US economy regardless of whether the model is static or dynamic and irrespective of the lag length in the dynamic model. Prachowny (1993) found that the contribution of 1% decrease in unemployment is about 2% to 3% increase in output in US. Ball, Leigh and Loungani (2013) found that the effect of 1% increase in output differs largely across countries. The Okun's coefficient may vary across countries due to economic conditions (Lal, Muhammad, Jalil & Hussain, 2010).

With the increasing difficulty of graduates in Nigeria seeking employment in the face of increase in output growth, it remains an empirical question if Okun's law exist in the country. If the outcome of this study confirms the existence of the law in Nigeria, it means pursuing improvement in economic productivity can be a strategy to reduce the increasing population of the unemployed. The impetus for this study stems from the opinion of Levin and Wright (2001) which states that unemployment level and output may not be negatively related. Arewa and Nwakanma (2012), Babalola, Saka and Adenuga (2013), Abraham (2014) and Akeju & Olanipekun (2014) have confirmed this opinion in Nigeria. However, existing studies on Nigeria have employed model estimation approaches such as ordinary least squares (OLS) method and error-correction modelling approach which cannot overcome problems of endogeneity, simultaneity bias and omitted variables bias that are commonly present in a regression model. These problems do not allow consistent parameter estimates to be produced. Therefore, this study investigates the Okun's law through the dynamic model by using an instrumental variable (IV) regression method which uses instruments to overcome the aforementioned problems. The study answers the empirical question of whether promoting economic growth can be a panacea to the high unemployment rate in Nigeria. The remaining part of this research is structured as follows into literature review, methodology, empirical findings and discussion and conclusion.

2. Literature Review

Okun (1962) built three versions of models to establish the interaction between unemployment and output. These include: the difference model, the gap model and the dynamic model. The difference model shows the effect of movements in output on change in unemployment rate. It reflects the relationship between unemployment and economic growth. The model is specified as:

$$U_t - U_{t-1} = \sigma + \beta(Y_t - Y_{t-1}) + \mu_t \qquad \cdots(1)$$

U_t is unemployment rate at current period; U_{t-1} is unemployment rate at previous period; Y_t is output at current period; Y_{t-1} is output at previous period; $U_t - U_{t-1}$ is change in unemployment rate; $Y_t - Y_{t-1}$ is change in output; β is Okun's coefficient or estimate of change in output; σ is intercept; μ is error term.

Equation (1) in a simpler form becomes:

$$\Delta U = \sigma + \beta \Delta Y + \mu_t \qquad \cdots(2)$$

ΔU is change in unemployment; ΔY is change in output.

The gap model shows how the difference between potential output and actual output affects current unemployment rate. Okun (1962) used the gap model to explain the output the economy can produce when there is full employment and no inflationary pressure. The model assumes that the economy attains full employment when unemployment is 4% (Arshad, 2011). The gap model is specified as:

$$U_t = \sigma + \beta(Y_t^* - Y_{t-1}) + \mu_t \qquad \cdots(3)$$

U_t is unemployment rate at current period; Y_t^* is potential output; Y_t is actual output; $Y_t^* - Y_t$ is output gap.

The dynamic model assumes that current rate of unemployment is determined by current output, previous output and previous changes in unemployment. Knotek (2007) opines that the model is distinctive because it does not reveal only the relationship between changes in unemployment and output growth but also how past unemployment level affects present unemployment level. The model is specified as:

$$U_t = \sigma + \beta_1 Y_t + \beta_2 Y_{t-1} + \alpha U_{t-1} + \mu_t \qquad \cdots(4)$$

U_t is unemployment rate at current period; Y_t is output at current period; Y_{t-1} is output at previous period; Ut_{-1} is unemployment rate at previous period; β_1 and β_2 are Okun's coefficients.

Okun's law was propounded in 1962 from a study which discovered an inverse relationship between unemployment level and economic growth of the US between 1947Q2 and 1961Q1 and later studies such as Weber (1995); Knotek (2007); Kitov (2011); Ball, Leigh and Loungani (2013); Ekner (2013) and Ball, Jalles and Loungani (2014) provide similar evidence for the US economy. However, Daly and Hobijn (2010) and Gordon (2011) showed that Okun's law is not a norm in US. This implies that Okun's law has generated controversy in the US economy. Similarly, findings not related to US have produced mixed results. Sadiku, Ibraimi and Sadiku (2015), utilising quarterly data from 2000 to 2010, observed the relationship between economic growth and unemployment rate in Macedonia. The findings suggest that Okun's law is not tenable.

Geldenhuys and Marinkov (2007) found that unemployment is inversely related to output in the South African economy over the 1970 to 2005 period and there was evidence of asymmetry in the Okun's relationship. But, Moroke, Leballo and Mello (2014) explored the relationship between unemployment and economic growth of South Africa from 1990Q1 to 2013Q4. The study showed that Okun's coefficient did not conform to the expected sign; thus, affirming that Okun's law is irrelevant in South Africa. Akram, Hussain and Raza (2014), applying ordinary least square method, found that Okun's law does not exist in Pakistan. Noor, Nor and Ghani (2007) evaluated how growth interacts with unemployment in Malaysia from 1970 to 2010. The regression results indicated that the responsiveness of unemployment to growth behaviour is in line with Okun's law. Dritsaki and Dritsaki (2009) estimated Okun's coefficient between 1961 and 2002 for 4 Mediterranean countries of the EU consisting of Italy, Spain, Portugal and Greece between 1961 and 2002 and found the coefficient to be –0.024, –0.017, –0.016 and –0.007 respectively. Kitov (2011) estimated Okun's law for 6 developed countries comprising United States, Spain, United Kingdom, Australia, Canada and France. Using real GDP per capita in place of overall GDP, Okun's law exhibits an astounding predictive power in all the countries. The study showed that the high unemployment rates in these countries would be impossible to reduce if their growth rate does not exceed 2% per annum.

Arshad (2011) observed that Okun's law is evident in Sweden between 1993Q1 to 2009Q2. Elshamy (2013) evaluated the relationship between unemployment rate and output in Egypt between 1970 and 2010. It discovered that Okun's coefficient is negative and statistically significant in both the short and long run. The study of Central Bank of Malta (2013) found that GDP growth above 1.5% - 2.0% reduces the rate of unemployment. However, the influence of GDP growth on unemployment is weak when compared with other European Union (EU) countries. For Spain, Loría and Salas (2014) estimated a quadratic version of the first-difference of Okun's law model for the period between 1995Q1 and 2012Q2. The study disagreed that Okun's law is not stable over time and observed that 7.38% growth rate reduces changes in unemployment. Kargi (2014), in a study of 23 Organisation for Economic and Cooperation Development (OECD) countries, found that unemployment and growth do not move in the same direction. Similarly, Dixon, Lim and van Ours (2016) found that increase in economic growth would reduce unemployment rate as well as have a distributional effect of reducing unemployment among youths in 20 OECD countries. Ball, Jalles and Loungani (2014) found that real GDP growth forecasts and changes in unemployment are inversely related in 9 developed countries. Christopolous (2004) investigated the Okun's law in Greece on regional basis and found that the law is evident in 6 out of the 13 regions reviewed. Similarly, Binet and Francois (2013) found Okun's law to be valid in 14 out of 22 regions in France.

For Nigeria, Sodipe and Ogunrinola (2011) examined the link between employment and Nigerian economic growth with the ordinary least squares (OLS) method. The empirical results suggest that the relatively low influence of GDP growth to promote employment is responsible for the high level of unemployment and that Okun's law does not hold. Arewa and Nwakanma (2012) adopted vector autoregressive (VAR) approach to evaluate the relationship between output and unemployment in Nigeria from 1981 to 2011. The study found that Okun's law does not fit to the Nigerian economy. Babalola, Saka and Adenuga (2013) tested the authenticity of Okun's law in Nigeria from 1980 to 2010. Employing causality test and error-correction model, the findings indicated that causality flow in a unidirectional manner from unemployment to real output growth and the coefficient of Okun is not negative. The study suggests that unemployment rate does not respond to output growth in a manner consistent with Okun's law. Abraham (2014) examined the effect of output on unemployment rate in Nigeria between 1985 and 2013. Using autoregressive distributed lag (ARDL) bounds-test; it was revealed that output variations have no significant impact on unemployment. The study adduced that Okun's law is not applicable to Nigeria. Also, Akeju and Olanipekun (2014) employing the error-correction modelling approach, did not validate Okun's law in Nigeria.

3. Methodology

This study examined the responsiveness of unemployment to changes in output in an attempt to provide evidence on the validity of Okun's law in Nigeria from 1985 to 2015. It modelled unemployment rate (UR) as a function of output growth. The measurement for output growth is the Gross Domestic Product (GDP) growth. Unemployment rate and GDP growth were sourced from the National Bureau of Statistics and World Development Indicators (WDI) database respectively. The econometric expression of the model is:

$$UR_t = \sigma + \beta GDPgrowth_t + \varepsilon_t \ldots (5)$$

Equation (5) was transformed into a dynamic model. The dynamic model posits that present output growth and previous output growth can influence present rate of unemployment. Also, the model captures the impact of previous rate of unemployment on present rate of unemployment. The dynamic model for this study is expressed as:

$$UR_t = \sigma + \beta_1 GDPgrowth_t + \beta_2 GDPgrowth_{t-1} + \alpha UR_{t-1} + \varepsilon_t \ldots (6)$$

UR_t is present year unemployment rate; $GDP\ growth_t$ and $GDPgrowth_{t-1}$ are contemporaneous output growth and one-year period lagged output growth respectively; UR_{t-1} is one-year period lagged unemployment rate.

The dynamic model was estimated with an instrumental variables (IV) regression based on the generalized method of moments (GMM) estimator. GDP growth was instrumented and capital (gross capital formation), labour (labour force), one-year period lagged output growth and one-year period lagged unemployment rate were used as IVs.

Okun's argument is that there is a bidirectional causal relationship between unemployment and economic growth (Babalola, Saka & Adenuga, 2013; Loría & Salas, 2014). Therefore, this study also determined the direction of causality between unemployment rate and economic growth. Babalola, Saka and Adenuga (2013) and Ntebogang and Leballo (2014) also examined the causality between unemployment and economic growth in Nigeria and South Africa respectively to provide evidence to validate Okun's Law. The causality between unemployment rate and economic growth was determined using the Toda and Yamamoto (1995) Granger non-causality test performed within a VAR system. A bivariate VAR model tends to suffer from omitted variable bias. Therefore, capital and labour were incorporated to control for their effect on economic growth. The Toda and Yamamoto Granger non-causality requires that the maximum order of integration should be known in order to add extra lag(s) to the VAR model. The variables are specified in the Toda-Yamamoto VAR model in natural logarithm form except for GDP growth. The Toda and Yamamoto VAR model is given as:

$$\begin{aligned} lnUR_t = {} & \alpha_0 + \sum_{i=1}^{k} \alpha_{1i} lnUR_{t-i} + \sum_{j=k+1}^{k+d_{max}} \alpha_{2j} lnUR_{t-j} + \sum_{i=1}^{k} \alpha_{3i} GDPgrowth_{t-i} + \sum_{j=k+1}^{k+d_{max}} \alpha_{4j} GDPgrowth_{t-j} \\ & + \sum_{i=1}^{k} \alpha_{5i} lnCapital_{t-i} + \sum_{j=k+1}^{k+d_{max}} \alpha_{6j} lnCapital_{t-j} + \sum_{i=1}^{k} \alpha_{7i} lnLabour_{t-i} \\ & + \sum_{j=k+1}^{k+d_{max}} \alpha_{8j} lnLabour_{t-j} + \varepsilon_{1t} \ldots . (7) \end{aligned}$$

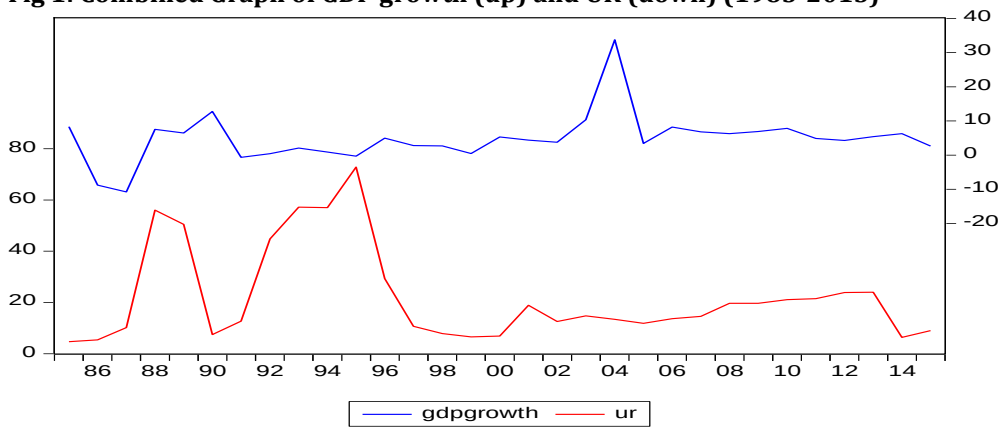
$$\begin{aligned} GDPgrowth_t = {} & \beta_0 + \sum_{i=1}^{k} \beta_{1i} GDPgrowth_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{2j} GDPgrowth + \sum_{i=1}^{k} \beta_{3i} lnUR_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{4j} lnUR_{t-j} \\ & + \sum_{i=1}^{k} \beta_{5i} lnCapital_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{6j} lnCapital + \sum_{i=1}^{k} \beta_{7i} lnLabour_{t-i} + \sum_{j=k+1}^{k+d_{max}} \beta_{8j} lnLabour_{t-j} \\ & + \varepsilon_{2t} \ldots . (8) \end{aligned}$$

$$\begin{aligned} lnCapital_t = {} & \delta_0 + \sum_{i=1}^{k} \delta_{1i} lnCapital_{t-i} + \sum_{j=k+1}^{k+d_{max}} \delta_{2j} lnCapital_{t-j} + \sum_{i=1}^{k} \delta_{3i} lnUR_{t-i} + \sum_{j=k+1}^{k+d_{max}} \delta_{4j} lnUR_{t-j} \\ & + \sum_{i=1}^{k} \delta_{5i} GDPgrowth_{t-i} + \sum_{j=k+1}^{k+d_{max}} \delta_{6j} GDPgrowth_{t-j} + \sum_{i=1}^{k} \delta_{7i} lnLabour_{t-i} \\ & + \sum_{j=k+1}^{k+d_{max}} \delta_{8j} lnLabour_{t-j} + \varepsilon_{3t} \ldots . (9) \end{aligned}$$

$$lnLabour_t = \rho_0 + \sum_{i=1}^{k} \rho_{1i} lnLabour_{t-i} + \sum_{j=k+1}^{k+d_{max}} \rho_{2j} lnLabour_{t-j} + \sum_{i=1}^{k} \rho_{3i} lnUR_{t-i} + \sum_{j=k+1}^{k+d_{max}} \rho_{4j} lnUR_{t-j} + \sum_{i=1}^{k} \rho_{5i} GDPgrowth_{t-i} + \sum_{j=k+1}^{k+d_{max}} \rho_{6j} GDPgrowth + \sum_{i=1}^{k} \rho_{7i} lnCapital_{t-i} + \sum_{j=k+1}^{k+d_{max}} \rho_{8j} lnCapital_{t-j} + \varepsilon_{4t} \ldots . (10)$$

4. Empirical Findings and Discussion

Fig 1: Combined Graph of GDP growth (up) and UR (down) (1985-2015)



Source: Authors' computation

Fig. 1 depicts a combined graph of GDP growth and UR in Nigeria between 1985 and 2015. It shows that the relationship between GDP growth and UR is unstable.

Table 1: GMM Estimator Result

Variable	Coefficient	HAC Standard Error	*z*-statistic	*p*-value
Constant	15.25203	2.097252	7.27	0.000*
GDP growth	-0.3426859	0.2850239	-1.20	0.229
$GDPgrowth_{t-1}$	-1.278928	0.3757	-3.40	0.001*
UR_{t-1}	0.5936043	0.428025	13.87	0.000*
Model Diagnostics				
Wald x^2(p-value)	205.79(0.0000)*			
Hansen J-statistic(p-value)	1.22446(0.2685)‡			

Note: * indicates statistically significant at 1% significance level and ‡ implies rejection of null hypothesis.
Source: Authors' computation

Generalized Method of Moments (GMM) Estimation: The GMM utilises IVs which allows the regression model to overcome the problems of endogeneity, simultaneity bias and omitted variables bias. IVs are variables that satisfy the orthogonality condition (i.e. they are uncorrelated to the error term in a regression model). The use of IVs produces consistent regression estimates. Table 1 reports the result of the GMM estimator. Table 1 indicates that contemporaneous effect of output growth on unemployment rate is negative but not significant while one-year period lagged output growth is negatively and significantly related to unemployment rate. It also shows that one-year period lagged unemployment rate is positively and significantly related to present year unemployment rate, thus confirming the appropriateness of the dynamic model. The *F*-statistic is statistically significant at 5% significance level, thus indicating the IVs are not weak.

The *J*-statistic accepts the null hypothesis that the over identifying restrictions are valid, thus confirming that the IVs are orthogonal to the error term.

Unit Root Test: The Dickey-Fuller (DF)-GLS unit root test was performed in order to determine the maximum order of integration (d_{max}) among the variables. The null hypothesis for the test is that the time-series data has unit root. To reject the null hypothesis, the test statistic must have a greater value than the test critical value when both values are considered in absolute term. Table 2presents the DF-GLS unit root test result on UR and GDP growth.

Table 2: DF-GLS Unit Root Test

	Test statistic	Optimal lag	Maximum lag	Order of Integration
lnUR	-2.418907**†	0	4	0
GDP growth	-4.354689*†	0	4	0
lnCapital	-2.942694*‡	2	4	1
lnLabout	-2.339068**‡	0	4	1

Note: * and ** denote rejection of null hypothesis at 1% and 5% critical value respectively and † and ‡indicate that series is stationary at level and first difference respectively. Also, only intercept included in unit root test equation and optimal lag is automatically selected based on Schwarz Information Criterion.

Unemployment rate and GDP growth were established to be stationary series while capital and labour were stationary after first differencing. This implies that the series are integrated in the order of different order. This means that the Toda-Yamamoto Granger non-causality test would be appropriate because of the presence of different order series. The d_{max} among the series is one.

Toda-Yamamoto Granger Non-Causality Test: The causality test shows the predictive ability of a driving variable (*X*) on a response variable (*Y*). It reflects whether past patterns in *X* occurs in *Y* after a time lag. A VAR model was estimated with a lag length of 2 selected based on Akaike information criterion (AIC). After estimation, the VAR model was diagnosed with the VAR serial correlation LM test. The test rejects the null hypothesis of no serial correlation at lag order 2and this indicates that autocorrelation is not present in the VAR model. The VAR model was also found to be stable because the AR roots graph shows that no root lies outside the unit circle. The Toda-Yamamoto Granger non-causality test was done by including an extra lag of 1 in the VAR(2) model. Table 3reports the results of the VAR Granger non-causality test.

Table 3: VAR Granger Non-Causality Test Results

Null Hypothesis	Modified Wald x^2	*p*-value
lnUR does not Granger cause GDP growth	1.511109	0.4698
GDP growth does not Granger cause lnUR	0.177463	0.9151
lnUR does not Granger cause lnCapital	7.771337	0.0205**
lnCapital does not Granger cause lnUR	4.628592	0.0988***
lnUR does not Granger cause lnLabour	2.640361	0.267
lnLabour does not Granger cause lnUR	0.962519	0.6180
GDP growth does not Granger cause lnCapital	3.064589	0.2160
lnCapital does not Granger cause GDP growth	3.245634	0.1975
GDP growth does not Granger cause lnLabour	1.429253	0.4894
lnLabour does not Granger cause GDP growth	0.578917	0.7487
lnCapital does not Granger cause lnLabour	0.286013	0.8667
lnLabour does not Granger cause lnCapital	9.806484	0.0074*

Note: *, ** and *** indicate rejection of null hypothesis at 1%, 5% and 10% significance level respectively.
Source: Authors' computation

Table 3 shows that GDP growth and unemployment rate do not Granger cause each other. This indicates that there is absence of causality between unemployment and economic growth. This finding contradicts Babalola, Saka and Adenuga (2013) which found that there is a unidirectional causality moving from unemployment rate to economic growth in Nigeria.

5. Conclusion

Unemployment is a persistent challenge for countries, especially the developing ones. Nigeria as a developing country faces a herculean task to reduce the increasing spate of joblessness amongst her citizens. Okun's law suggests that promoting economic growth is a potent strategy to reduce unemployment rate. This study investigated Okun's law in Nigeria through the dynamic model. It was discovered that present and past output growth are negatively related to unemployment rate. However, only past output growth has a significant effect on unemployment rate. This implies that unemployment rate reduces when the economy experience growth in its output in the previous year. Also, this study revealed that past unemployment rate has a positive and significant relation with present unemployment rate. This indicates that unemployment rate depends on its own past realisations and it increases due to unemployment rate in the past period. Lastly, it was found that there is no causality between unemployment and economic growth and this implies that Okun's argument of bidirectional causality between unemployment and economic growth is invalid for Nigeria. However, this study presents evidence to partially support Okun's law of inverse relationship between unemployment and output growth in Nigeria. This suggests that promoting economic growth is a policy tool for reducing unemployment rate in Nigeria.

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Re-Examining the Nexus between Exchange and Interest Rates in Nigeria

David Mautin Oke[1], Koye Gerry Bokana[1], Olatunji Abdul Shobande[2]
[1]College of Law and Management Studies, University of KwaZulu-Natal, South Africa
[2]Faculty of Social Sciences, University of Lagos, Nigeria
okdam76@yahoo.com, OkeD@ukzn.ac.za

Abstract: Nigeria has experienced somersault of foreign exchange policies by the Central Bank. One policy concern in recent times is to have an appropriate target of the exchange and interest rates. Therefore, this paper seeks to provide a foundation for the targeting of an appropriate exchange and interest rates for the country. Using the Johansen Cointegration and Vector Error Correction Mechanism approaches, it specifically examines the relationships among Nigeria's weak exchange rate, its local rate of interest and world interest rate. Contrary to many studies, a control measure involving inclusion of inflation, money supply and national output in the model is done. The analysis showed an equilibrium association between exchange rate and interest rate-cum-other variables and steady rectification of deviance from long-run stability over a sequence of incomplete short-run modifications. Increase in domestic and world interest rate, inflation, money supply and GDPat equilibrium would strengthen the exchange rate. Besides, further findings showed some bi-directional causal associations among the variables. By long-run implication, the targeting of an appropriate exchange rate in Nigeria requires a tightened monetary policy that is not inflation and growth biased. However, increase in world interest rate, money supply and inflation rate must be moderate in order not to worsen the exchange rate as suggested by the short-run result.

Keywords: *Interest rate, Exchange rate, Money supply, Inflation, GDP, Nigeria*

1. Introduction

In the midst of another recession in Nigeria which began in 2016 after 25 years is a worsen exchange rate and a low return on investment, that is, interest rate, given the high level of inflation. Historically, Nigeria's exchange rate began to crash in1986 when the Structural Adjustment Program (SAP) was introduced. Thirty one years after, the exchange rate did not improve. It has rather gone bad with a US dollar exchanged at about NGN500 in the parallel market as at fourth quarter of 2016 and NGN380 in the second quarter of 2017. There are indications that if the governments of the country are not serious in handling the economic matters of the country, the recession may persist for more than three years and exchange rate might to continue to depreciate with low interest rate. Although there are also forecasts that the country would grow by 2.2 percent in 2017 since the oil market has gradually recovered and there is relative peace in the Niger Delta. The recession was largely due to the crash in the international oil market in 2015 and heavy drop in oil production in the country. The unfortunate scenario is that Nigerian economy remains fragile with its growth being largely financed by oil revenue (see Babatunde, 2015, Olagbaju & Akinbobola, 2016).There remains theoretical concerns as well as constraints in the choice of exchange rate regime in both developed and developing countries. This is because the choice of exchange rate regime as well as theoretical model of exchange rate ought to consider the link with financial discipline, inflation and economic development. It implies that commitment to an exchange rate policy should be compatible with the main macroeconomic equilibrate; otherwise it will not be sustainable (see Dordunoo & Njinkeu, 1996; Bohl, Michaelis & Siklos, 2016).

Exchange rate policy has a long history in Nigeria. Between 1959 and 1967, Nigeria implemented fixed parity exclusively using the British pound and this was abrogated in 1972. The aftereffects of the devaluation of pound in 1967 and the onset of a powerful US dollar led to the insertion of US dollar in the exchange rate parity. In 1973, the US dollar was devaluated and Nigeria returned to fixed parity with the pound. As a way of reducing the counter bounce effect of devaluation of the individual currency parity, both British pound and US dollar were considered. In 1978, the central bank reverted to import weighted basket of currency method which was considered due to the tie of seven currencies: US dollar, British pounds, Japanese Yen, French Franc, German Mark, Swiss franc and Dutch guilder. In sum, between 1980 and 2016, the fixed and flexible exchange rate systems were used interchangeably. This paper seeks to investigate the nexus between exchange rate and interest rate in Nigeria. Specifically, it tests the long run relationship among exchange rate,

world interest-cum- domestic-interest rate, output level, inflation, and money supply. The relevance of this study is that it would provide a recent and additional empiric on the issue of exchange rate crisis in Nigeria, thereby giving a timely foundation for targeting both the exchange and interest rates. This is pertinent because the Central Bank of Nigeria in recent times seems not to have an enduring solution to the exchange rate crises. The study is therefore a timely one. The remaining part of this paper is broken into five segments. Segment 2 provides a synopsis of the literature review. Following is the theoretical framework and methodological approaches in part 3. Results of the study are presented and discussed in part 4 while section 5 contains the conclusion including policy suggestions.

2. Literature Review

There are at least three theoretical approaches to explaining the existing connection between exchange rate and interest rate. The first is the Purchasing Power Parity hypothesis that suggested that exchange rate among countries of the world should be relative to the expected inflation (Yahya, Bany-Ariffin & Abdul Hadi, 2011, and Yaaba, Bawa & Idrisa, 2012). The second is the Covered and Uncovered Interest rate parity theory (CIRP and UIRP). The CIRP model earlier suggested equal rate of return between domestic and foreign financial investment. On the other hand, the uncovered interest rate parity model presents a conflicting line of argument suggesting that there is no reason for equating the world interest rate since the level of productivity differs. The hypothesis argues that a rise in the domestic or local rate of return over the world rate of return has been seen as appreciation of currency of the domestic economy over the foreign economy which may enhance balance of payments and competitive advantage. The third theoretical literature is the monetary policy approach to modeling the exchange rate in terms of relative price with the demand and supply paradigm (Vagiatzoglou, Christodolous, Pazarkis & Donglas, 2006).

Exchange and interest rates nexus are issues in monetary policy. Several studies have examined the impact of monetary policies on exchange rate. For instance, according to Mundell (1973a, 1973b), monetary policy and exchange rate are the paramount reasons behind uncertainty and fluctuation in small economies. The study by Chete (1995) attempted to evaluate Nigerian experience with exchange rate depreciation. His study involved the process of generating elasticities. The author claimed that trade flow and reserve models are responsible for the fluctuation in exchange rate in Nigeria during the period reviewed. Similarly, Ndung's (1999) paper decomposed the real exchange rate into cyclical and permanent components. The author's causality test between several measures of monetary policy and real exchange rate shows that there are re-bounced effects of the reaction of monetary policy on exchange rate fluctuation in the short run through the money market. Another study on exchange rates and interest rates nexus that is popular in the literature is the work of Sanchez (2005). The work, on small open economies, integrates the role of exchange rate pass-through into domestic prices as well as separates between cases of contractionary and expansionary depreciations. On the condition of an adverse risk premium shock, it was found out that the connection between exchange rates and interest rates is direct or positive for contractionary depreciations and indirect or negative for expansionary ones.

This study is consistent with the studies by Eichengreen (2005), Calvo & Reinhart (2001 and 2002), and Calvo (2001) who attempted to investigate the association between interest rate and exchange rate targeting. This group of scholars insisted that credibility difficulties, non-stationarities, liability dollarization and a high exchange rate pass-through are crucial issues for validating this relationship. For instance, Calvo & Reinhart (2002) and Eichengreen (2005) found out that existence of exchange rate rigidities that inform watching of reactions of interest rate to offset fluctuations in foreign exchange markets is a major concern for developing economies. Also some studies have argued that negative impact of fragile real exchange rate has severe implication on aggregate demand (see Mohanty & Klau (2005), Cavoli & Rajan (2005) and Eichengreen (2005)). The findings of these studies are consistent with the opinion of Calvo (2001) that fragile exchange rates may result to pervasive bankruptcies, which we know often cause output loss.

A study by Chow & Kim (2004) suggest that Indonesia, Korea, Philippines and Thailand do not adopt interest rate policy more vigorously to even out exchange rates in a post-financial crisis era hence their domestic currencies show more sensitivity to competitors' exchange rates in post-crisis period. Besides, their findings confirmed that stability of interest rate has not emanated from high plasticity of exchange rate in the

countries. In Namibia, Wilson & Sheefeni (2014) examined whether there is association between exchange rate and interest rate. They employed a multi-variate cointegration approach using quarterly data over the period, 1993 to 2012. A no cointegration relationship was established. The study by Simone & Razzak (1999) projected that a rise in interest rate discrepancy leads to exchange rate appreciation. In addendum, Ezirim, Edith & Muoghalu (2012) examined the mutual association between the manner, which exchange and interest rates behave in Nigeria. Employing autoregressive distributed lag approach; exchange rate and inflation spiral were associated in the short and long run. The study therefore showed that in targeting either inflation or exchange rate, mutual policies on both variables are ideal.

Also more studies that have examined whether there are connections between real interest rates and the real exchange rate, such as Mark (2009), Alquist & Chinn (2008), and Engel & West (2006), have supported the existence of empirical connection. However, the studies by Clarida and Waldman (2008), Andersen, Tim, Francis &Clara (2007) and Faust, Rogers, Wang & Wright (2007) have shown that there is a strong connection between response of real exchange rate to news that change the expected real interest differential. In literature, many studies have been carried out to investigate the relationship between interest rate and exchange rate but there seems to be no consensus regarding the generalization of the relationships as well as which studies are mostly acceptable. Most of the works on this relationship have submitted a call for enquiry to validate the existing findings.

3. Methodology

Among the objectives of monetary policy are to ensure exchange rate stability and regulate the fluctuation in price level. Therefore, the theoretical foundation of this study is based on the interest rate parity hypothesis that suggests a positive connection between interest rate and exchange rate. The implication of this is that for a country to achieve a stable exchange rate, its interest should be close to foreign interest rate. The hypothesis maintains that any country that wants to depreciate its exchange rate by a value has to reduce its interest rate by the right amount (see Blanchard, 2009). The justification for the consideration of this hypothesis is based on its monetary framework, which is anchored on the premises that interest rate targeting has to be concerned with the exchange rate, and vice-versa. Following the argument of the importance of interest rate in monetary policy transmission on the exchange rate in developed and developing countries, this study's model follows closely the work of Eichengreen (2005), Calvo &Reinhart (2001 and 2002), and Calvo (2001).

Functionally and mathematically, it is stated thus:

$$EXCH_t = \propto + \varphi_1(DINT_t) + \varphi_2(MOS_t) + \varphi_3(DOUTP_t) + \varphi_4(INF_t) + \varphi_5(WINT_t) + \mu_t \quad (1)$$

To control for the connection between interest rate and exchange rate, some exogenous factors (which are control variables) and stochastic term are incorporated in the model in equation (1). By definition, EXCH = Exchange rate and DINT = Domestic interest rate (minimum rediscount rate/ monetary policy rate). DOUTP = Domestic output level, Money supply (MOS), Inflation rate (INF), and World interest rate (WINT) = Control variables, $\propto$= Constant, $\varphi_{1.....}\varphi_5$ = Slopes, μ = Stochastic term and t = Time.

A Vector Error Correction (VEC) model is employed for short-run changes of equation (1). This is a constrained Vector Autoregression (VAR), that is, co-integration constraints are structured into the specification, so that it is structured for use with series that are not stationary but are co-integrated.

Assuming a system of two variables with no lagged differences terms but has one co-integrating equation such as:

$$y_{1t} = \varphi_1 y_{2t} + \mu_t \quad (2)$$

$$y_{2t} = \varphi_2 y_{1t} + \mu_t \quad (3)$$

and the VEC specifications are

$$\Delta y_{1t} = \gamma_1(y_{2t-1} - \varphi_1 y_{1t-1)} + v_{1t} \quad (4)$$

$$\Delta y_{2t} = \gamma_{2(}y_{2t-1} - \varphi_1 y_{1t-1)} + v_{2t} \quad (5)$$

In the VEC equations, v_{1t}andv_{2t} are the error correction terms. At equilibrium, these terms are zero. Nonetheless, assuming in previous period, there are digressions of y_1 and y_2 from the long run equilibrium, $v_{1t}$and $v_{2t}$are nonzero; each variable adjust to incompletely restore the equilibrium association. Adjustment speeds are measured by$\gamma_1$and $\gamma_2$coefficients. A nonzero y_{1t} at $y_{2t}$are obtained, but the co-integrating equation will have intercept of zero. Notwithstanding a common lagged difference, there is no lagged difference on the right hand side (Attanasio, Blundell & Preston, 2000).

Assuming thatΔy_{1t} and Δy_{2t}as endogenous variables have co-integrating equations with an intercept but no trend, the form of the VEC specifications are:

$\Delta y_{1t=} \gamma_1(y_{2t-1} - \mu - \varphi_1 y_{1t-1)} + v_{1t}$ (6)

$\Delta y_{2t=} \gamma_2(y_{2t-1} - \mu - \varphi_1 y_{1t-1)} + v_{2t}$ (7)

Additional, assuming the series have linear trend and the co-integrating equations have a constant, the VEC specification has the form:

$\Delta y_{1t} = \delta_1 + \partial_1(y_{2t-1} - \mu - \varphi_1 y_{1t-1}) + v_{1t}$ (8)

$\Delta y_{2t} = \delta_2 + \partial_2(y_{2t-1} - \mu - \varphi_1 y_{1t-1}) + v_{2t}$ (9)

All the data were collected from Volume 26 of the 2015 edition of the Statistical Bulletin of the Central Bank of Nigeria and 2015 edition of the World Development Indicator. The period of study covers from 1980: Q1 to 2015:Q4. The variables are all in growth rates.

4. Results

The descriptive result in Table 1 presents the descriptive analysis of the time series properties of the model's variables. The table shows that the average quarterly growth values of exchange rate, money supply, inflation rate, domestic interest rate, domestic output level and world interest rate over the reference period stood at 4.3%, 10.0%, 6.9%, 5.3%, 8.8% and 10.0%, respectively. The standard deviation of exchange rate, money supply, inflation rate, domestic interest rate, domestic output level and world interest rate from their respective long term mean values in every quarter stood at 2.1%, 3.9%, 1.5%, 2.7%, 2.2%, and 2.0%. Contrary to expectation, world interest rate deviates more from its mean than other variables.

Table 1: Pre-test A: Descriptive Statistics

	EXCH	DINT	MOS	DOUTP	INF	WINT
Mean	4.345931	5.266961	9.998805	8.819187	6.863963	9.998131
Median	5.010436	6.642430	8.774406	8.765423	4.801804	3.032644
Maximum	7.442822	5.115461	6.891931	6.854027	7.372543	7.637370
Minimum	0.421137	5.361608	6.635649	2.386326	3.171294	6.437167
Std. Dev.	2.053652	2.740983	3.860207	2.167731	1.461730	2.015497
Skewness	0.113326	3.308035	5.659981	6.172530	0.238926	0.003623
Kurtosis	1.705369	3.055744	5.664367	3.055615	4.399502	2.433351
Jarque-Bera	5.758138	6.275497	15.04139	10.369767	7.289826	12.070480
Probability	0.046187	0.045481	0.000542	0.015466	0.026124	0.00529
Observations	144	144	144	144	144	144

Source: Computed by the Authors

The correlation matrix in Table 2 clearly shows that there is no problem of multicollinearity among the explanatory variables. Therefore, econometric problems associated with multicollinearity are not issues of concern.

Table 2: Pre-test B: Correlation Matrix

	EXCH	DINT	MOS	DOUTP	INF	WINT
EXCH	1	0.50803	0.65254	0.89136	0.450102	0.6373
DINT		1	0.21851	0.12089	0.26790	0.37516
MOS			1	0.24935	0.40861	0.39777
DOUTP				1	0.25685	0.43871
INF					1	0.24006
WINT						1

Source: Computed by the Authors

As shown in Tables 3 and 4, the Ng-Perron Modified Unit Root test and the Dickey Fuller Generalized Least Squares results indicate that the variables are first difference stationary. The Schwartz-Bayesian Information Criterion (SBIC) and Akaike Information Criterion (AIC) and are regularly employed to select the optimum lag

length in distributed-lag models that are of single-variable. This study includes the Hannan-Quinm Information Criteria (HQ) among others. The optimal lag length by each criterion as revealed in Table 5 is indicated by an asterisk. Universally, lag 1 was agreed to by all the criteria. Further, the Trace statistics and Maximum Eigenvalues in Table 6 of the Johansen's co-integration approach shows the long run associations among the variables. The table value of 5% significance level is employed. The null hypothesis of no co-integration is rejected. Precisely, there are two co-integrating equations in the model. This is contrary to the findings of Wilson and Sheefeni (2014).

Table 3: Pre-Test C: Ng Perron Modified Unit Root Test Results

VARIABLE	Mza	MZt	MSB	MPT
ΔEXCH	-35.9951**	-5.02952	0.52212	0.73996
1%	(-13.8000)	(23.5800)	(0.17400)	(1.78000)
5%	(-8.1000)	(-1.98000)	(0.23300)	(3.17000)
ΔDINT	-58.3992**	-6.75022	0.06407	0.67560
1%	(-13.8000)	(23.5800)	(0.17400)	(1.78000)
5%	(-8.1000)	(-1.98000)	(0.23300)	(3.17000)
ΔMOS	-85.8266**	-4.71294	0.05563	6.45151
1%	(-13.8000)	(23.5800)	(0.17400)	(1.78000)
5%	(-8.1000)	(-1.98000)	(0.23300)	(3.17000)
ΔDOUTP	-64.9183**	-5.20820	0.61399	0.71756
1%	(-13.8000)	(23.5800)	(0.17400)	(1.78000)
5%	(-8.1000)	(-1.98000)	(0.23300)	(3.17000)
ΔINF	-26.2037**	-5.12957	0.51406	4.20048
1%	(-13.8000)	(23.5800)	(0.17400)	(1.78000)
5%	(-8.1000)	(-1.98000)	(0.23300)	(3.17000)
ΔWINT	-41.9970**	-6.95711	0.22367	4.09150
1%	(-13.8000)	(23.5800)	(0.17400)	(1.78000)
5%	(-8.1000)	(-1.98000)	(0.23300)	(3.17000)

Note: Δ symbolizes that the variables are in their first difference. The asymptotic critical values of Ng-Perron Modified unit root tests are in their respective levels of significance. **(*) denotes the rejection of the null hypothesis at 1% (5%) significance level.
Source: Computed by the Authors using E-views

Table 4: Pre-Test D: Dickey Fuller - GLS Unit Root Test Results

Variable	T-Statistics	1%	5%	Order of Integration
ΔEXCH	-36.17766**	-2.594946	-1.945024	I(1)
ΔDINT	-5.216038**	-2.594946	-1.945024	I(1)
ΔMOS	-6.773441**	-2.594946	-1.945024	I(1)
ΔDOUTP	-9.82620**	-2.594946	-1.945024	I(1)
ΔINF	-9.12950**	-2.594946	-1.945024	I(1)
ΔWINT	-5.944243**	-2.594946	-1.945024	I(1)

Note: Δ symbolizes that the variables are in their first difference. The asymptotic critical values of Dickey Fuller GLS unit root tests are in their respective levels of significance. ** (*) denotes the rejection of the null hypothesis at 1% (5%) significance level.
Source: Computed by the Authors using E-views

Table 5: Diagnostic Test: Lag Selection Information Criterion

Lag	Log Likehood	LR (statistics)	Final Prediction Error (FPE)	Akaike Information Criteria (AIC)	Schwartz Information Criteria (SC)	Hannan-Quinm Information Criteria (HQ)
0	-689.5754	NA	2.828195	18.06689	18.24953	18.13994
1	-416.5627	496.3866*	0.006015*	11.91072*	13.18916*	12.42208*
2	-394.2009	37.17296	0.008715	12.26496	14.63920	13.21463
3	-364.0941	45.35566	0.010601	12.41803	15.88808	13.80602

Note: * Indicates the lag order selected by each criterion. Each value of LR statistics is at 5%
Source: Computed by the Authors

Based on the findings in table 7, an increase in domestic and global interest rates, money supply, inflation and domestic output, in the long run, makes the exchange rate to be strong because these variables reduced the exchange rate. Therefore, the effects of all the explanatory variables at equilibrium are a-theoretic except the national output. Contrary findings to our result on exchange rate and interest rate nexus are those of Eichengreen (2005), Calvo & Reinhart (2001 and 2002), and Calvo (2001). We expect an expansionary monetary policy that reduces the interest rates, raises the money supply moderately without fueling inflation but able to significantly increase the national output or GDP to reduce the exchange rate. However, our findings have supported a contractionary or tightened monetary policy that is not inflation and economic growth biased in the long run. This is because tightened monetary policy increases interest rates, reduces money supply and inflation as well as GDP. The study by Simone and Razzak (1999) found a similar result with ours on the connection between interest rate and exchange rate. Our finding on the association between exchange rate and national output is similar with those of Mohanty & Klau (2005), Cavoli & Rajan (2005) and Eichengreen (2005).

Table 6: Johansen Maximum Likelihood Cointegration Test Results

	Trace Test k=1				Maximum Eigenvalues Test k=1			
	H_0	H_A	(λ trace)	Critical values	H_0	H_A	(λ max)	Critical values
Equation				5%				5%
None *	$r \leq 0$	$r > 0$	153.2955	95.75366	r = 0	r = 1	57.54554	40.07757
At most 1*	$r \leq 0$	$r > 0$	128.1264	69.81889	r = 0	r = 1	32.65968	31.56566
At most 2	$r \leq 0$	$r > 0$	57.85613	65.89521	r = 0	r = 1	30.59564	31.0889
At most 3	$r \leq 0$	$r > 0$	29.79707	39.59652	r = 0	r = 1	25.96812	27.68512
At most 4	$r \leq 0$	$r > 0$	15.98987	20.98945	r = 0	r = 1	19.54966	18.57412

Note (*) denotes the rejection of the null hypothesis at (5%) significance level.
Source: Computed by the Authors using E-views

Table 7: Normalised Cointegrating Coefficients (Standard Error in Parentheses): The Long Run Model

EXCH	DINT	MOS	DOUPT	INF	WINT
1.000000	0.58612**	0.33554**	0.06658**	0.98932**	0.65645*
	(0.02858)	(0.0.5485)	(0.01666)	(0.38988)	(0.25787)

** (*) denotes the rejection of the null hypothesis at 1% (5%) significance level. As usual, the cointegrating coefficients of the normalized regression are reported in an alternating manner. That is, we take positive values of the coefficients as negative values and vice versa.
Source: Computed by the Authors using E-views

In econometric investigations, a cointegrated set of time series variables must have an error-correction representation, which illustrates the short-run correction mechanism. Haven established that all the variables in the model are I (1) and cointegration exists, a VECM with equations is, therefore, estimated. Its results in Table 8 show correctly signed and significant coefficients of the error-correction term of the cointegrating vectors at 1% level. This suggests that the digression from long-run equilibrium is corrected gradually

through a series of incomplete short-run adjustments. The results also show that in the short –run, increase in money supply, GDP, inflation, and world interest rate in exception of domestic interest rate will worsen the exchange rate.

Table 8: Vector Error Correction for Short-Run Model

Error Correction	Δ (EXCH)	Δ (DINT)	Δ (MOS)	Δ (DOUPT)	Δ (INF)	Δ (WINT)
ECM(-1)	-0.955422	-0.545556	- 0.985941	- 0.789565	-0.189645	-0.354451
	(0.25897)	(0.15985)	(0.25498)	(0.25455)	(0.02451)	(0.15451)
	[-3.68931]	[-3.41292]	[-3.86673]	[-3.10187]	[-7.73745]	[-2.2943]
Δ (EXCH(-1))	0.256585	-0.155485	0.569925	0.787152	0.565544	0.595214
	(0.02545)	(0.05545)	(0.08755)	(0.21855)	(0.14454)	(0.14545)
	[10.08192]	[-2.804057]	[6.509708]	[3.601702]	[3.912716]	[4.092224]
Δ (DINT(-1))	4.456531	-0.546212	3.653232	0.355660	2.544881	-0.894521
	(2.06555)	(0.25465)	(1.25654)	(0.06999)	(1.05264)	(0.25644)
	[2.10575]	[-2.14495]	[2.90737]	[5.081583]	[2.41761]	[-3.48822]
Δ (MOS(-1))	-0.452565	-0.898921	-0.488781	0.545411	0.598211	-0.545471
	(0.05657)	(0.04989)	(0.02454)	(0.04571)	(0.05898)	(0.05455)
	[-8.0000]	[-18.01805]	[-19.91773]	[11.93198]	[10.14260]	[-9.99946]
Δ (DOUPT(-1))	-0.788981	0.529892	-0.989522	-0.455648	-0.30556	0.244389
	(0.05659)	(0.04747)	(0.20566)	(0.54565)	(0.05412)	(0.08562)
	[-13.94205]	[11.16267]	[-4.81144]	[-2.83385]	[-5.64597]	[2.85434]
Δ (INF(-1))	0.308993	0.042755	0.149178	-0.991005	-0.369230	0.088359
	(0.12006)	(0.01733)	(0.01794)	(0.32534)	(0.17384)	(0.02328)
	[2.57365]	[2.467109]	[8.31538]	[-3.046059]	[-2.12392]	[3.79536]
Δ (WINT(-1))	-0.656354	-0.088150	-0.656211	-0.75652	0.222290	-0.756624
	(0.05565)	(0.01768)	(0.54663)	(0.05742)	(0.07735)	(0.26987)
	[-11.79432]	[-4.98586]	[-2.04986]	[-13.17520]	[2.87382]	[-2.803661]
CONSTANT	-0.587124	0.587232	-0.96682	0.238764	-0.653346	0.586571
	(0.11478)	(0.05458)	(0.05748)	(0.03766)	(0.20143)	(0.05689)
	[-5.11521]	[10.75910]	[-16.82011]	[6.33679]	[-3.24358]	[10.310617]
R-squared	0.826568	0.778752	0.768922	0.795281	0.806958	0.728086
Adj. R-squared	0.792154	0.766555	0.756891	0.791190	0.767654	0.715712
F-Statistic	29.58798	27.85871	26.96855	19.11382	21.42914	18.59572

Source: Computed by the Authors

Table 9 shows the result of the residual diagnostic tests for serial correlation, heteroscedasticity and joint normality test.

Table 9: Post-Examination of the Short-Run Model

Normality (P-Value)		Autocorrelation (P-Value)	Heteroscedascity(P-Value)
Skewness	0.014978 (0.02579)	LM Stat. = 2.5989 (0.09776)	Chi-Square= 1.59755 (0.11655)
Kurtosis	2.82647 (0.03697)		
Jarque-Bera	2.56478 (0.43763)		

Source: Computed by the Authors

The coefficient and p-value of the Jarque-Bera shows that the null hypothesis cannot be rejected. Therefore, the residual is normally distributed with zero mean and constant variance. Furthermore, the hypotheses of these two plagues "that there is no serial correlation" and "that there is no heteroscedasticity" failed to be

rejected. This means that the study is free from econometric problems of autocorrelation and heteroscedasticity,

Table 10: Pairwise Granger Causality Tests

Null Hypothesis:	Observation	F-Statistic	Prob.
DINT does not Granger Cause EXCH	143	10.6558	0.0401
EXCH does not Granger Cause DINT	143	15.5452	0.0391
MOS does not Granger Cause EXCH	143	19.5455	0.0295
EXCH does not Granger Cause MOS	143	20.9891	0.0254
DOUTP does not Granger Cause EXCH	143	8.12526	0.0423
EXCH does not Granger Cause DOUPT	143	9.65961	0.0419
INF does not Granger Cause EXCH	143	25.65965	0.0215
EXCH does not Granger Cause INF	143	30.65961	0.0108
WINT does not Granger Cause EXCHR	143	6.45656	0.0458
EXCH does not Granger Cause WINT	143	14.54655	0.0399
DINT does not Granger Cause MOS	143	15.59959	0.0383
DINT does not Granger Cause DOUPT	143	17.96126	0.0314
MOS does not Granger Cause DOUPT	143	17.13256	0.0345
INF does not Granger Cause DINT	143	21.23968	0.0223
INF does not Granger Cause WINT	143	20.87661	0.0259
WINT does not Granger Cause DINT	143	9.765612	0.0404

Source: Computed by the Authors

Table 10 shows the results of the Granger causality test among the variables. The null hypothesis is that there is no causality among the variables. The F-Statistic and the corresponding *p*-value as presented in the second and third columns of the table show that exchange rate, domestic and foreign or world interest rate, domestic output, money supply and inflation are all bi-directional. These results are consistent with those of Ndung (1999), Sanchez (2005), Engel and West (2006), Mark (2009), Alquist and Chinn (2008) as well as the submission of Blanchard (2009) and Ezirim et al. (2012) on the relationship between exchange rate and inflation in Nigeria.

5. Conclusion

In this paper, we estimated on Nigeria, the relationship between domestic and world interest rates and exchange rate with money supply, national output and inflation serving as controlled variables. The model employed is widely anchored on the interest rate parity hypothesis. The rationale is to provide further foundation for targeting the exchange and interest rates in Nigeria. The result established a long run relationship between interest rate and exchange rate, which suggests that the monetary authority should further make concerted effort to manage the monetary policy rate more effectively to avoid further exchange rate crisis in the economy. Since the study establishes that an increase in money supply at equilibrium would fortify the exchange rate, it follows that an increase in money supply in a reasonable manner that spur growth without fueling inflation excessively would be required to support the exchange rate in the long-run. Most importantly, a tightened monetary policy would help to curtail excessive inflation whenever it occurs and this would raise the value of the Naira. The positive relationship noticed between inflation and exchange rate in the short-run exposes the destabilizing tendencies of inflationary pressure in short-run. However, a moderate increase in inflation is required in the long-run. It suffices to note that exchange rate performance in Nigeria has mutual linkages with domestic and world interest rates as well as money supply, inflation and national output in the long-run. Therefore, targeting both exchange and interest rates in Nigeria as well stabilizing the country's exchange rate in the long-run requires a mutually inclusive policy in this regards. This study has pointed out the need for Nigeria to rapidly diversify its economy and become innovative so that its national output can improve the exchange rate.

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Formulation and validation of an Enabling Developmental Environment Scale (EDES) for Local Economic Development (LED)

Daniel Francois Meyer, Elsabé Keyser
Faculty of Economics and Management Sciences, NWU, South Africa
danie.meyer@nwu.ac.za, elsabe.keyser@nwu.ac.za

Abstract: Local government is one of the main role players in local economic development (LED) and need to assist in the creation of an enabling developmental environment for local businesses to prosper. Partnerships are required between local government, businesses and communities for regions to develop, yet in many cases government at this level fails to create this developmental enabling environment. This research has as its focus on the formulation and validation of an Enabling Developmental Environment Scale (EDES). This scale will allow local government to be evaluated, assessed and compared regarding the creation of such a developmental environment. The pilot study involved152 participants from the Vaal Triangle region, South Africa. Reliability and construct validity of the instrument weretested by using the Cronbach's Alpha Coefficient and Varimax Factor Analysis. It is evident from the results that thescale is a valid and reliable tool for researchers to evaluate and assess the level of an enabling environment as created by local government in a specific region.

Keywords: *Enabling environment, Local economic development, Enabling Developmental Environment Scale*

1. Introduction

One of the core functions of local government is to ensure that an enabling and developmental environment exists within a local region for business to prosper and for the region to achieve economic development (Mountford, 2009). One of the main functions of local government in South Africa since the first democratic elections in 1994 is Local Economic Development (LED) in partnership with other stakeholders including businesses and communities (Cohen, 2010). LED together with the function of creation of an enabling environment, was formally included in the Constitution in 1996 (South Africa, 1996). Since then, Section 152 of the Constitution, transformed the roles and functions of local governments to be more developmental and added the functions of social and economic development. The Education and Training Unit (ETU) (2012) states that a developmental local government speaks of a local government that maximizes social and economic growth, providing infrastructural services and creating liveable residential areas offering community facilities. After the democratic elections in 1994, and since 1996, local government in South Africa has struggled to implement this function of social and economic development for local communities that have the right to an enabling environment for such development, including the business community (Meyer, 2014). According to Nel and Rogerson (2005), South Africa's post-apartheid development policy concentrates on developmental government with a focus on community development and the disadvantaged poor section of the population. Local government has been encouraged to intervene and play a leading role in job creation and the reduction of poverty. The main constraints in delivering results, however, are poor analysis and understanding of local economies, unsustainable community development projects, as well as the lack of capacity and resources.

The Constitution is supported by the Public Administration Management Act of 2014 (South Africa, 2014), which instructs all levels of government to formulate and implement legislation, policy initiatives and other actions to achieve social and economic development. Also in support of the Constitution, the White Paper on Local Government (South Africa, 1998) lists a number of specific objectives for local government in LED. The White Paper preserved into statutory obligations of the Local Government known as the Municipal Systems Act 32 of 2000. Municipalities in South Africa must be development oriented, reliant on strategic and integrative planning to indicate a long-term vision of municipalities (Humby, 2015, p. 205). These actions include the coordination of social and economic development, resource redistribution, effective basic service delivery, minimization regulations, formulation and implementation of favourable local procurement policies, partnerships development and the creation of economically and socially resilient communities (South Africa, 1998). The role of local government, therefore, has been extended from just the provision of basic services to include LED initiatives and the coordination of the local economy. Since the function of local government

regarding social and economic development is still not well implemented owing to a lack of measurement tools to assess performance, the purpose of this article is to test and validate a scale for the creation of an enabling environment as implemented by local government. The factors were developed into a scale which could be used to determine the level of success and to compare regions in the creation of an enabling environment. The scale is also validated as part of this paper.

2. Literature Review

Local businesses need to form partnerships with local government; in this process, the latter should attempt to create and sustain an enabling environment for businesses to prosper, which could benefit local communities (Travers, 2012). Christy, Mabaya, Wilson & Mhlanga (2009) define an enabling developmental environment as a collection of related policies strategies, organisations and services that create a positive business environment where business activities are able to start, develop and prosper. An effective enabling environment has the potential to boost the competitiveness of a specific region or area (Konig, Da Silva, & Mhlanga, 2013). According to Van Den Dool (2005), the private sector or local businesses comprise the "motor' for Local Economic Development (LED), but local government should create an enabling environment for businesses and local community organisations to be successful. According to Leigh and Blakely (2013), such an environment could be createdby means of processes to limit 'red tape', by providing infrastructure capacity, skills training, information provision and to ensure safety and security. The government could also assist in supporting existing businesses, attracting new businesses and finding export markets.

Leigh and Blakely (2013) state that LED has as its ultimate goal the economic development of a demarcated local area; it is a process by which local government and local communities manage existing resources and ensure parterships with the private sector to create new jobs and stimulate local economic activities. Van Zyl (1994) explains the process of the economic development of a region as the overall improvement of the quality of life of alllocal residents, the alleviation of poverty and a change in the structure of the community regarding economics and social aspects. He explains that this should result in improved levels of productivity and income and also lead to the modernisation of the local economy. Helmsing and Egziabher (2005), as well as Swinburn (2006), make the point that LED is a process which facilitates cooperation between local government, local communities and local business, leading to better utilisation of local resources. This process should result in an increase in economic activities. Pretorius and Schurink (2007) state that LED may assist local government to improve its governance, due to the fact that improved governance could lead to enhanced institutional capacity, management and administration. They state that it is the ability to co-ordinate and assist with implementation of policies, projects and action plans. Governance also includes public involvement, institutional development, transparency in the decision-making process and accountability. Good governance underpins LED, and the main link between the two concepts is that they provide a local business enabling environment (Trousdale, 2005).

The process of LED may lead to success, if well implemented. According to Trousdale (2005), factors may include effective leadership; the creation of a developmental and enablingenvironment that supports economic development; the involvement of the community and especiallyyouths in development initaitives; jobcreation initiatives for poverty reduction;skills development within all sectors of the local economy and lastly, the improvementinqualityof life.Partnerships between local role players are essential for LED success. The objectives of such partnerships are to improve the flow and exchange of information, to enhance the local enabling environment, promote local business opportunities and facilitate joint activities between partners (Srinivas, 2015). Existing groups in a specific region such as business chambers play an essential role in sustainable partnerships. Local government has the following roles to play in the partnership development process; the development of policy and strategies; provision of infrastructure and incentives as well as research, training and business support (Srinivas, 2015). According to Leigh and Blakely (2013) and supported by VNG International (2007), local government and local businesses perform the following main economic development roles and functions:

Facilitator: This function involves the delivery of processes and facilities and attraction of investment through effective policy formulation regarding the creation of an enabling economic environment.

Co-ordinator: The LED process forms a key programme for co-ordination with local communities. Business networks through business partners and chambers need to be established.
Enabler: Furnish expert advice, assistance and support, information, training, business planning.
Stimulator: The stimulation of local businesses to expand and attract new business investment in the region. The relevant tools to achieve this could include business incubation, the offering of development incentives, provision of grants and tourism development.
Developer: Provision of basic infrastructure to encourage private sector development such as electricity, water, roads, and sewers.

The national strategic planning document, the National Development Plan (NDP), states that the role of government is to coordinate the economic development by removing barriers, such as service capacity problems, lack of infrastructure development and skills training. Development occurs in the local sphere, and one of the aims of the NDP is to improve the capacity of local government (The Presidency, 2012). According to the Department of Cooperative Governance (2014), local government needs to play a major role in local development through leadership, policy guidelines, the creation of an enabling environment and development of small business. For local government, some challenges in establishing an enabling environment include the skewed spatial development, high levels of inequality, unstable financial systems and a lack of qualified and experienced staff (South Africa, 1998; South Africa, 2014). In research previously undertaken, Meyer (2014) identified different factors for local government to create an enabling developmental environment, such as:

Partnership formation: Local government must ensure strong and high-quality public participation (Mathekga & Buccus, 2008). The development of comparative advantages could be enhanced using partnerships between the public and private sector (Koven & Lyons, 2003; Davis, 2004; Human, Lochner & Botes, 2008). Better relations are associated with faster growth and ease of regulations (UNIDO, 2008).

Local government structures, capacity, policies and initiatives: Effective integrative policies and also institutional capacity are a prerequisite for good governance, which includes a compact and streamlined institution (Trousdale, 2005; Hindson & Meyer-Stamer, 2007; Human et al., 2008; CIDA, 2009; WEF, 2011). In order to achieve integrated economic development and to reduce poverty, good governance and political stability are required (Abdula, 2008; Konig et al., 2013).

Local leadership: Local economic development requires stable policies and leadership. Local leadership from government, business, and local communities areneeded, and these stakeholders should collaborate as local champions that drive economic development (Swinburn et al., 2006; Todaro & Smith, 2011).

Poverty alleviation and social development initiatives: Economic development is not simply about economic development per se, but social-welfare components are also of importance with the aim of improving the quality of life. In this regard, the focus should be placed on social aspects, such the provision of basic needs and community facilities. These needs include water, shelter, nutrition, healthcare, sanitation, education, skills, the ability to find work, a sense of belonging and well-being as well as access to land (Sachs, 2005; NRI, 2006; Todaro & Smith, 2011; The Presidency 2012).

Local economic development initiatives (LED): The goals of LED are to create jobs and to improve the quality of life of local communities. Employment will ensure an improved quality of life and an increase in per capita income. The development of entrepreneurship and small business are an important part of any LED strategy. Exports and value-added production are also vitally important (Davis, 2004; Leigh & Blakely, 2013).

Environmental and spatial development actions: Clean, quality physical environments attract economic development where sound environmental management is practised (Muslow, 2001; Koven & Lyons, 2003; CIDA, 2009; The Presidency, 2012). Spatial planning is based on the strategic planning process and gives direction in local economic planning (Meyer, 2013).

Infrastructure development: A stumbling block to economic development is any lack of basic infrastructure as well as inadequate capacity in maintaining it (Leigh & Blakely, 2013; CIDA, 2009). Investment in new 'hard'

and 'soft' infrastructure is a requirement for an enabling developmental environment (DPLG, 2001; Amis, 2002; Trousdale, 2005). The provision of effective infrastructure includes well designed and maintained roads, water, sewers, ports, storage and energy generation (Davis, 2004; Koniget al., 2013).

Human resource development: An unskilled labour force with limited entrepreneurial intent is a barrier to economic development. (CIDA, 2009). The current strict labour regulations in South Africa exert an adverse impact on job creation and development (UNIDO, 2008).

Entrepreneurship development: Entrepreneurship development is an important aspect of improving economic growth and is considered imperative for solving challenges relatedto unemployment, poverty and other social issues (Meyer & Mostert, 2016). Strong entrepreneurial intent and the development thereof is a requirement for a competitive economy (UNIDO, 2008). Aspects such as high marginal tax rates and legislative regulation pose barriers to entrepreneurs and small business development (Meyer-Stamer, 2003).

Transport and access opportunities: South Africa, with its history of separate race-based development, has caused the majority of its population to be isolated from economic activities so that access to economic opportunities is vital (Sibisi, 2009).

Agricultural development: Agriculture is a major sector regarding job creation, alleviation of poverty, food security and a positive trade balance (Aliber, 2003).

Safety and security: A secure environment is essential for economic development. High levels of crime and poor safety and security are usually associated with low levels of economic development (Goulas & Zervoyianni, 2012).

3. Methodology

The main focus of this article is the testing of the reliability and validity of the research instrument. The validity of the instrument signifies that the measurement tool measures what it claims to, while its reliability indicates how consistent the result will be if it is used again in similar situations (Cresswell, 2013).The construct validity of a questionnaire was tested by using factor analysis. Construct validity refers to how well the items in the questionnaire signify the underlying theoretical structure. One of the techniques to test for constructs or domains within the development of a measurement is factor analysis (Rattray & Jones, 2007).

Early Development Stage of the Enabling Developmental Environment Scale: As mentioned by Rattray and Jones (2007) questionnaire development and the research design need to follow a logical, systematic and structured approach. When a questionnaire is not sufficiently developed, it may lead to difficulty in interpreting the result. Furthermore, it is important to ensure that sufficient pilot work is carried out during the devising of any new questionnaire or measurement instrument. In this research, the questionnaire items were initially developed according to the research objectives and findings from the relevant literature regarding an enabling environment. The questionnaire consisted of two parts. Part one of the questionnaire composed of 11 biographical questions. Part Two of the questionnaire initially consisted of 13 items, but through discussion with researchers and professionals in the area, it was reduced to 12 items. The 12 item scale was rated on a five-point Likert Scale. The participants were required to indicate 0= very poor to 5=very good. Within the LED research field, the Likert-type scales or frequency scales are commonly used in research as these questions are fixed choice responses.

The Sample and testing: The Sample and testing: Formal and informal business owners were invited to participate in this study within the Vaal Triangle area, South Africa. The sample size was determined by following the guidelines developed by Field (2013), to choose 10 to 15 participants per item (total of 120-144 participants) to allow for evaluation of content validity through factor analysis of items. The sample size in this article was guided by Nunnally (1978) to include at least 10 participants per item (i.e., > 120 participants) to ensure construct validity through factor analysis of the items. A total of 152 participants (formal sector owners = 93 and informal sector owners = 57) returned the questionnaire. All 152 cases were included in the factor analysis as there were no missing values for single items.

Statistical method: Data were analysed by using IBM SPSS version 23 with descriptive statistics for single variables. During the first phase of the data analysis, the construct validity of the Enabling Developmental Environment Scale (EDES) was assessed. Before performing principal factor extraction, principal component extraction was carried out to determine the estimated number of factors, the presence of outliers and the factorability of the matrices. The Eigen values and screen plots were studied to determine the number of factors involved. A principal axis factor analysis with a direct oblimin rotation was conducted to extract the factors (Tabachnick & Fidell, 2001). With the second phase of the data analysis, the reliability of the 12 items was carried out byutilising Alpha reliability. According to Nunnally (1967), the Cronbach's Alpha coefficient values need to be above 0.60 to be acceptable. Furthermore, the said coefficient also provides information regarding which of the items of the instrument are related to each other and whether any items need to change or be removed from the scale (Pallant, 2007).

Ethical considerations: Each questionnaire included a covering letter, which clearly stated that participation in this study was voluntary. The purpose of the research was also explained. Confidentiality and anonymity were guaranteed. The participants' informed consent was given by completing and returning the questionnaire to the trained fieldworkers.

4. Results

***Descriptive statistics**:* Table 1 is a summary of the descriptive statistics obtained from the surveys. The majority of participants included in this study were from the formal business sector; that is 61.2%, while 37.2% came from the informal sector. A total of 42.8% of the businesses were classified as large firms while 30.9% were classified as small and micro-sized businesses. The business environment seemed stable, with a total of 34.9% of these businesses having existed for longer than ten years.

Table 1: Characteristics of participants

Item	Category	Frequency	Percentage
Business type	Formal	93	61.2
	Informal	57	37.2
	Missing value	2	1.3
	Total	152	100
Business size	Large (more than 200 employees)	65	42.8
	Medium (more than 50 but less than 200 employees)	38	25.0
	Small (more than ten but less than 50 employees)	22	14.5
	Very Small/Micro (less than ten employees)	25	16.4
	Missing values	2	1.3
	Total	152	100
Time in existence	0-6 months	1	0.7
	Six months but less than 12 months	3	2.0
	One year but less than two years	7	4.6
	Two years but less than three years	28	18.4
	Three years but less than five years	23	15.1
	Five years but less than ten years	36	23.7
	Longer than ten years	53	34.9
	Missing values	1	0.7
	Total:	152	100

Construct validity: Table 2 is a summary of the results of the survey of the 152 businesses and their perceptions regarding the current enabling environment. A 5 point Likert scale was used with a score of 1 indicating very limited compliance regarding the specific factor, while a score of 5 indicated excellent compliance regarding the specific factor. The overall average score allocated by all business for all 12 factors included in the scale was 1.3. This result indicates low overall compliance in the creation and establishment of an enabling environment for business to prosper. The factors that scored the lowest were leadership (0.9)

and safety and security (0.9). The factors that scored the highest, indicating highest levels of compliance were economic development initiatives (1.7), structures and policies (1.5), infrastructure (1.5) and entrepreneurship development (1.5). In an overall assessment of the results, it is evident that local government in the study region is not providing an adequate level of an enabling environment for business development. None of the factors had an indication of acceptableprovision and all 12 factors needs to be address for businesses to be successful in the region. Strong and effective leadership and the lack of safety and security are the two areas where most attention is needed, although all factors need improvement.

Table 2: Descriptive statistics – means, Standard Deviation, Range, Skewness, Kurtosis, kurtosis

	N	Mean		Std. Deviation	Skewness	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Partnership formation	148	1.277	1.0931	0.443	0.199	-0.857	0.396
Structures and policies	149	1.477	1.3131	0.605	0.199	-0.685	0.395
Leadership	150	0.987	0.8898	1.301	0.198	2.345	0.394
Poverty alleviation and social development	150	1.280	1.3567	2.861	0.198	16.689	0.394
Economic development initiatives	150	1.747	1.4891	0.308	0.198	-1.231	0.394
Environmental and spatial plans	150	1.240	1.1854	1.042	0.198	0.577	0.394
infrastructure plans	150	1.533	1.4640	2.125	0.198	10.492	0.394
HR development	150	1.213	1.3189	3.210	0.198	19.670	0.394
Entrepreneurship development	150	1.547	1.3639	0.448	0.198	-1.029	0.394
Improvement of access and transport	150	1.193	1.1034	0.885	0.198	0.385	0.394
Agriculture development	150	1.107	1.2961	3.530	0.198	22.386	0.394
Safety and security	150	0.987	0.8822	1.334	0.198	3.064	0.394

Figure 1: Screen plot of the EDES

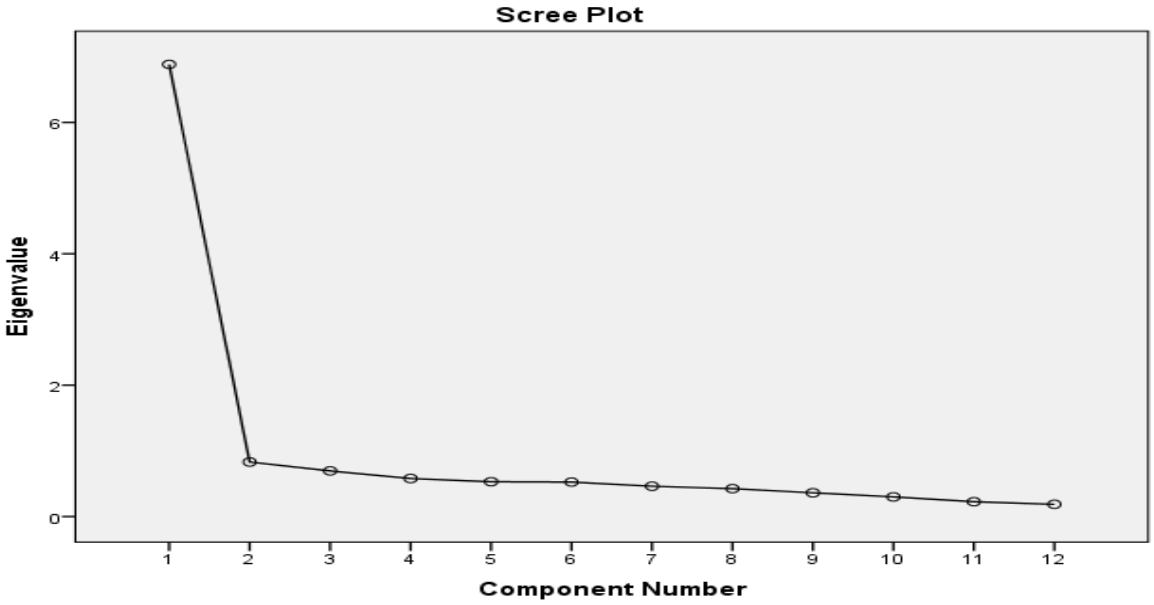

Table 3: Factor Loadings, Communalities (h^2) and Percentage Variance for Principal Axis Factor Analysis on Enabling Environment Scale Items

Item	Description	F_1	h^2
1.	Partnership formation	0.825	0.680
2.	Structures and policies	0.777	0.603
3.	Leadership	0.775	0.601
4.	Poverty alleviation and social development	0.651	0.423
5.	Economic development initiatives	0.865	0.748
6.	Environmental and spatial plans	0.751	0.564
7.	Infrastructure plans	0.753	0.567
8.	HR development	0.733	0.538
9.	Entrepreneurship development	0.818	0.669
10.	Improvement of access and transport	0.796	0.633
11.	Agriculture development	0.620	0.384
12.	Safety and security	0.688	0.473
Percentage variance		57.359	

Extraction Method: Principal Component Analysis.
a. 1 components extracted

Reliability of measurement instrument: The reliability analysis demonstrated that the instrument was substantially reliable. The 12 items indicated that the Cronbach Alpha Coefficient was 0.928; Table 3lists the internal consistency of the scale per item.

Table 4: Test of internal consistency of scale and items were performed using the Cronbach Alpha coefficient

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item–Total Correlation	Cronbach's Alpha if Item Deleted
Partnership formation	14.216	99.504	0.776	0.919
Structures and policies	14.014	97.075	0.725	0.921
Leadership	14.507	103.639	0.722	0.922
Poverty alleviation and social development	14.209	99.677	0.589	0.927
Economic development initiatives	13.736	91.610	0.829	0.916
Environmental and spatial plans	14.250	99.549	0.699	0.922
Infrastructure plans	14.020	98.727	0.699	0.922
Human resource development	14.345	102.132	0.676	0.923
Entrepreneurship development	13.939	95.064	0.773	0.919
Improvement of access and transport	14.297	99.857	0.744	0.920
Agriculture development	14.385	101.408	0.552	0.928
Safety and security	14.507	105.408	0.626	0.925

Furthermore, the results of running the procedure as explained for this scale validation indicate that if items were deleted in SPSS for all the items, this did not alter the overall reliability estimate significantly as these entire alpha scores remained above 0.90. Item-total correlations were performed to assess the internal consistency. To ensure that bias was reduced a corrected item-total correlation was calculated. The latter varied between 0.552 and 0.829.

Discussion: This study indicates that researchers need to follow a logical, systematic and structured approach to developing a questionnaire as suggested by Rattray and Jones (2007). Therefore, it is important that each step in developinga questionnaireneed to be systematically planned. As indicated above, the researchers have first defined the construct and then determined the content by doing an extensive literature review. After the said extensive review, the researchers started with the generation of each item. In this research, it was decided to utilise closed-ended questions with a 5-point Likert Scale. After the items had been developed, the researchers used a group of specialist and professionals in the area to evaluate the items.

They suggested that the original 13-item scale is reduced to 12 items. To pilot test the instrument, the current sample size of 10 respondents per item as recommended by Nunnally (1978) was followed. Reliability analysis and validity analysis of the EDES demonstrated adequate internal consistency and validity of the scale; therefore the level of reliability and validity is acceptable. The EDES could serve as a standard regarding the measurement of the enabling environment levels of economic development. Based on the results of the EDES, it could be regarded as a suitable instrument for measuring levels of the enabling environment for economic development.

The study encountered a few limitations. The newly developed scale relied upon a self-reported measurement, and it should be acknowledged that self-reported questionnaires have constraints. As explained by Razavi (2001, p. 17), "Traditional criticisms of self-report methodologies, especially response biases, must, therefore, be taken into account in the construction of questionnaires, and the analysis and interpretation of data derived from them, but with express reference to the purpose of the study and the nature of the construct of interests." A cross-sectional design was followed; however, if this questionnaire were used in a longitudinal study, it could create a better understanding of the enabling development in LED. More work is needed to determine the validity and reliability of the scale in different regions in South Africa and other developing regions in the world. It is also suggested that larger sample sizes need to be used to provide increased confidence that the study findings could be applied consistently across similar groups.

5. Conclusion and Recommendations

Regarding the findings regarding the Enabling Developmental Environment Scale (EDES) obtained from this study, the use of the scale was proved to be valid and reliable. It is recommended that future studies should include larger samples and utilise a more powerful sampling method that could be used to enable generalisation to similar groups. Techniques such as structural equation modelling and equivalence analysis could also be employed for future studies. In conclusion, it is important to note that the scale could be used to assess regions and local areas and could also be utilised to compare different regions. It is also possible, through the use of the scale, to monitor progress and to formulate strategies to improve the enabling environment.

List of Abbreviations: CIDA **-** Canadian International Development Agency**;** DPLG **-** Department of Provincial and Local Government; EDES **-** Enabling Developmental Environment Scale; ETU – Education and Training Unit; LED – Local Economic Development; NDP - National Development Plan; NRI – Natural Resources Institute; REED – Rural Economic and Enterprise Development; SALGA – South Africa Local Government Association; UNIDO -United Nations Industrial Development Organization; WEF - World Economic Forum

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The Potential Role of PPPs in Developing a Sustainable SME Sector in Developing Countries: A South African Experience[1]

Patrick Mabuza
National Energy Regulator of South Africa, Pretoria, South Africa
Patrick.mabuza@nersa.org.za

Abstract: The introduction of Public-private Partnerships (PPPs) in infrastructure provision has changed the way in which governments around the world now view infrastructure provision. However, the introduction of PPPs to deliver infrastructure has not benefited the broader public. Although SMEs are important for employment creation, inequality and poverty reduction, the participation of SMEs (small and medium enterprises) in PPP projects is very low in developing countries. This is because PPP models in developing countries are developed based on those used in developed economies, and such models ignore the socio-economic realities facing developing countries. The objective of this study is therefore to demonstrate that PPP projects in developing countries present an opportunity for growing the SME sector and create the needed jobs and contribute to poverty alleviation. The study has found that PPP projects have the potential to develop a sustainable SME sector, as it has found that SMEs do participate in PPP projects; however, their participation is curtailed by a number of challenges such as: lack of access to finance, limited human resources, low technological capabilities, and lack of access to markets. It also found that linking SMEs to PPP projects may address some of these challenges to a certain extent, especially if SMEs provide services to PPP projects during both the implementation and the operational phases of PPP projects. It also found that PPPs have not yet been identified by the South African government as one of the initiatives that can facilitate SME development. Most focus on PPP projects is only on ensuring that they include ownership by previously disadvantaged South Africans. The study recommends that a policy be developed that will incentivise PPP firms to use SMEs in their projects and penalise those PPP firms that fail to comply with the policy imperatives. It went on and found that the different South African government institutional initiatives or frameworks to support SMEs seem to be adequate; however, what is needed is a cohesive approach that links all these initiatives together and ensures that they support one another.

Keywords: *Small medium enterprises, public-private partnerships (PPPs), unbundling, PPP models, subcontracting*

1. Introduction

The introduction of PPPs in infrastructure provision has changed the way in which governments around the world now view infrastructure provision. However, the introduction of PPPs to deliver the needed infrastructure has benefited only a few firms. Most of these firms are the big construction companies that possess technological know-how and those that have the financial ability to execute large infrastructure projects. Although SMEs are important for employment creation, inequality and poverty reduction, the participation of SMEs (small and medium enterprises) in these PPP projects is very low in many countries. This is because PPP models in developing countries are developed based on those used in developed economies, and such models ignore the socio-economic realities facing developing countries, like unemployment, income inequality and poverty. Therefore, this study argues, PPP projects in developing countries present an opportunity for growing the SME sector. Although the lack of public infrastructure to provide public services is seen as a problem by many governments, it presents an opportunity for the development of a sustainable SME sector for developing countries. The bigger the infrastructure backlog, the bigger the opportunity for countries to develop a viable SME sector that has the potential to create jobs and alleviate poverty, while at the same time addressing the challenge of inequality.

The study challenges the viewpoint of seeing infrastructure backlogs as a problem that only provides opportunities to big private sector companies and argues that infrastructure backlogs can be used by

[1] ***Disclaimer:*** *The views and opinions expressed in this article are those of the author and do not necessarily reflect the official policy or position of the National Energy Regulator.*

governments to reduce the triple challenges of unemployment, poverty and inequality by linking SMEs to PPP projects. The traditional PPP model that is being applied by many developing countries does not fully encourage the participation of SMEs in PPP projects, as most of the projects executed through this model are bundled into big projects that SMEs cannot execute, due to lack of technological know-how and weak balance sheets. The objective of this chapter is therefore to demonstrate how PPPs, especially during construction and operational phases, can be used to develop a sustainable SME sector and address the triple problem of unemployment, poverty and inequality. The study is organized as follows: the second section discusses infrastructure and SME development, the third section discusses the study methodology, while the fourth section gives the analysis of the study survey and the last section concludes and gives recommendations.

2. Literature Review

Infrastructure backlog an opportunity for SME development: SMEs differ from large organisations in many ways. SMEs differ from big enterprises in resource limitations, in their informal strategies and flexible structure. As a result, SMEs have a higher failure rate compared to large firms. This causes a slow growth of SMEs, especially in developing countries (Hussain et al., 2012). The lack of key resources, such as human capital, finance and technology, affects their growth. The question that one can ask is: can PPPs address these challenges? The answer is: not all SME challenges can be addressed through PPPs; however, PPPs can improve the sustainability of SMEs through subcontracting them to provide certain goods and services. In that way the challenge of access to markets for SME's goods and services would have been mitigated to a certain extent, as SMEs would have a guaranteed market for their products and a sustainable income as long as the PPP project continues to operate. This means that more PPP projects in a country can result in more opportunities for SMEs. This can happen only if the PPP market is supported by a well-functioning legal, regulatory and institutional system that supports the growth of the PPP market, thus opening more opportunities for SMEs to sell their goods and services to the growing PPP market. This also requires a policy that would force PPP project firms to use SMEs as suppliers of their goods and services.

The question that one would ask is "*why use SMEs to create jobs, reduce income inequalities and poverty through PPP projects instead of using big firms?*" The answer to this question is that SMEs create new jobs through small investments opportunities that may not be attractive to large companies, thus maximising local economic opportunities; SMEs use local raw materials that would otherwise be neglected; they offer people with little income and little education opportunities to develop and contribute meaningfully to the economy; they provide a route through which previously disadvantaged persons can own and control a larger percentage of the economy; and more SMEs means more of the wealth generated by them stays within the country to be used further to generate even more opportunities, compared to large firms which normally repatriate their profits to their country of origin (Mutsigwa, 2009; Fatoki and Odeyemi , 2010). Compared to larger firms, SMEs tend to use less capital per worker, as most SME activities are more labour-intensive compared to big firms. A study in countries such as Ghana, Colombia and Malaysia found that small firms have significantly higher value added to fixed assets ratio (Hussain, 2000).

With regards to SME opportunities in the South African PPP market, it is projected that South Africa's infrastructure may not meet future demand for infrastructure needs (NEPAD Business Foundation, 2012). South Africa's infrastructure deficit was estimated at R1,5 trillion in 2012 (NEPAD Business Foundation, 2012). In the 2012 budget speech, the Finance Minister, Pravin Gordhan, announced that R850 billion would be allocated to infrastructure investment over the next two years. The projected cost of the South African government's infrastructure programme over the next 30 years is estimated to be R4,3 trillion (Paton, 2013). This backlog cannot be automatically converted into opportunities for SMEs and the country as a whole without government's intervention. The high rate of unemployment in the country of approximately 24,3% in 2014 has increased to 27.1% in quarter 3 of 2016 and to 27.7% in the first quarter of 2017(Republic of South Africa. Statistics South Africa, 2014a and 2016).The high level of poverty, which is estimated to be about 45,5% of the population living on less than R620 per month in 2011, and high inequality levels as expressed by a Gini-coefficient of 0,65 in 2011, present a big challenge for the country (Republic of South Africa. Statistics South Africa, 2014b). However, the infrastructure backlog presents an opportunity for the country to effectively address these triple challenges of unemployment, poverty and inequality. What the government needs to do is to find a way of changing its infrastructure backlog problems into opportunities for job creation

and poverty alleviation and develop a policy that will encourage or force companies involved in PPP projects to use SMEs as their suppliers of intermediate goods and services. A clear plan of how this should be done also needs to be developed.

SMEs and economic development: Before discussing the role of SMEs in economic development, it is imperative to first define SMEs as the term is defined differently from one jurisdiction to another.

Defining SMEs: There is still no universally accepted definition of SMEs. Even though SMEs constitute the central pillar of all economies, there is still no single definition in the literature on SMEs for which global consensus is assured. Although the South African National Small Business Act of 1996, amended in 2003 and 2004, gives an official definition for SMEs in South Africa, different agencies and research institutions do not use this definition consistently and that makes it difficult to benchmark different studies and data on SMEs (Republic of South Africa. National Credit Regulator, 2011). The most common definition of SMEs is based on the number of employees that a firm may have or the turnover that the company generates in a year. According to the National Small Business Act of 1996, as amended in 2004 (Republic of South Africa. Department of Trade and Industry, 2004), an SME is defined as:

"*... a separate and distinct business entity, including co-operative enterprises and nongovernmental organisations, managed by one owner or which, including its branches or subsidiaries, if any, is predominantly carried on in any sector or sub-sector of the economy mentioned in Column 1 of the schedule*..."

The National Small Business Act of 1996, as amended in 2004, also distinguishes between survivalist, micro, very small, small, and medium enterprises; hence the use of the word SMMEs. However, the term SMMEs and SMEs are used interchangeably in South Africa. Even for the purpose of this study, the two terms are used interchangeably. The broad definition of SME in SA is summarised in Table 1.

Table 1: Broad definition of SMMEs in the SA National Small Business Act

Enterprise	Number of employees	Annual turnover (Rands)	Gross assets, excluding fixed property
Medium	Fewer than 100 to 200 depending on industry	Between R4 million and R50 million depending on industry	Between R2 million andR18 million depending on industry
Small	Fewer than 50	Between R2 million and R25 million depending on industry	Between R2 million and R4 million depending on industry
Very small	Fewer than 10 to 20 depending on industry	Between R200 000 and R500 000 depending on industry	Between R150 000 and R500 000 depending on industry
Micro	Fewer than 5	Less than R150 000	Less than R100 000

Source: Falkena, Abedian, Blottnitz, Coovadia, Davel & Madungandaba (2000).

The role of SMEs in economic development: SMEs face challenges that make them vulnerable and prevent them from attaining growth, especially when they have to participate in PPP projects. These problems range from lack of human resources development and technological capability, to access to markets and finance. If left alone, SMEs would always find it difficult to penetrate local PPP markets. SMEs are vital for the development of an economy of any country, especially in the developing world. SME contribution to economic development is through job creation and poverty reduction (Hussain et al., 2012). They provide the potential for women and other traditionally disadvantaged groups to gain access to work under better conditions, to be productive, sustainable and have access to quality employment opportunities (Al-Dairi, McQuaid & Adams, 2012). Sometimes it is not feasible for large firms to produce the goods and services they need as inputs in their production process. The fact that SMEs manufacture these products makes them vital for any economy, as they function as suppliers of intermediate inputs to local firms. It is worth noting that SMEs are faced with the need to overcome significant challenges such as access to finance, skill development and access to markets; however their strategic importance cannot be overemphasised. According to Al-Mubaraki and Aruna (2013), the following are some of the roles that SMEs play in an economy: (a) they are responsible for growing employment at a faster rate than large organisations; (b) they increase the competitive intensity of the market and reduce the monopolistic positions of large organisations; and (c) they encourage the

deployment of entrepreneurial skills and innovation. SMEs are therefore effective job creators and are sources of income for a big proportion of a country's population. They provide on-the-job training opportunities and important basic services for disadvantaged people (UNIDO, 2007). SMEs are a primary vehicle through which new entrepreneurs provide economies with a continuous supply of innovative ideas and skills.

According to Hussain et al. (2012), the main reason why governments worldwide support SMEs is because SMEs are believed to be making substantial contributions to aggregate economic growth. The contribution of SMEs to economic growth and development is significant. For example, a study by the Economic Survey of Pakistan from 2007–2009 found that in Pakistan, SMEs account for more than 95% of the total number of businesses, and 80% of employment outside agriculture. In Bangladesh, SMEs are estimated to contribute about 50% of industrial GDP and provide employment to about 82% of the total industrial sector employment. In Nepal, 98% of industrial establishments are SMEs, while in India they contribute 30% of GDP (Hussain et al., 2012). In Chile, SMEs contribute about 20% of GDP and about 60% of employment. In Malaysia they contribute about 31% to GDP and 58% to employment (Timm, 2012). In Turkey, SMEs account for 95,5% of businesses operating in the manufacturing sector and provide 66,1% of employment. In Ghana, SMEs represent about 92% of businesses and contribute about 70% to GDP (Abor and Quartey, 2010). In Malawi, they contribute about 38% to employment. In China, SMEs are responsible for about 60% of output and 75% of employment (Akugri, Bagah & Wulifan, 2015). In Africa and Asia (excluding China), SMEs are estimated to be responsible for about 90% of both rural and urban enterprises (Akugri et al., 2015).

To demonstrate that SMEs are imperative for economic growth and development, a regression analysis by Banerjee (2014) which used World Bank's Business Environment Survey (WBES) data collected between 1999 and 2000 in advanced economies, found that employment growth is around 9% greater for SMEs compared to large firms, even after controlling for firm age. The study also found that the employment growth for young firms less than five years old was estimated to be around 18% higher than that of older firms. Although this last point refers to firm age, in many cases young firms are more likely to be SMEs. Another study that analysed the employment potential of SMEs using Pakistan's census of manufacturing industries data for the fiscal year 2005/2006, was conducted by Batool and Zulfiqar (2011). The study found that the elasticity of substitution between labour and capital was 1,1137, showing that capital and labour are strong and very good substitutes in the production process of the SME sector in Pakistan. This means that, if the price of capital increases while the price of labour remains constant, the quantity of labour will be substituted for capital, and employment may be generated by SMEs in Pakistan. Criscuolo, Gal and Menon (2014) further supported the above findings about employment creation by small firms. Analysing data from 18 countries with developed economies covering the period 2001–2110, they found that young and small firms created far more jobs compared to big and old firms for all 18 countries included in the study. The above findings further confirm the employment generation potential of SMEs.

According to available statistics, in South Africa, SMEs contribute between 27% and 34% of GDP and about 55% of all employment (Timm, 2012; Joubert, Schoeman, & Blignaut,1999). Table 2 shows the contribution of SMEs in the South African economy. The table shows that the number of SME establishments is high (99,3%); however, their contribution to GDP is low. The reason for their small contribution to GDP may be attributed to the fact that most SMEs operate at the survivalist and micro-level, thus their contribution to GDP is small. Linking SMEs to PPPs may improve their contribution to GDP and to gross capital formation as this has the potential of moving SMEs from micro-level to at least medium-sized enterprises, and that can change SMEs' investment behaviour to reflect their contribution to GDP.

Table 2: Contribution of SMEs in the South African economy[2](2004)

Contribution to	Percentages
GDP	34
Employment	54
Number of firms	99

Falkena, Hawkins, Llewellyn, Luus & Masilela (2004)

[2]Statistics on South African SMEs are very old as currently there is no organisation that collects SMEs' data at national level.

A study by Abor and Quartey (2010) estimated that about 91% of formal business entities in South Africa are SMEs and these SMEs contribute about 52 to 57% of GDP and about 61% to employment. As mentioned earlier, data on SMEs in South Africa is not consistent from one author to another and that makes it difficult to know the exact SME figures in the country.

A First National Bank study on total entrepreneurship activity (TEA) in SA[3], showed that South Africa's TEA in 2008 stood at 7,8% compared to Brazil 12%, India 11,5%, Colombia 24,5%, and Mexico 13,1% (First National Bank, 2010). This is an indication that a lot still needs to be done in South Africa to promote entrepreneurship. As already stated, one way of promoting entrepreneurship is linking small businesses to PPP projects to provide them with sustainable business opportunities. SMEs can provide services such as cleaning services, facility management, laundry, IT, maintenance, catering and other services, depending on the nature of the PPP project. In terms of fostering successful new businesses, South Africa is far behind a number of countries like Ghana, Brazil, Zambia and Chile and ranks 35 out of 54 countries that participated in a Global Entrepreneurship Monitor survey of 2010 (Morgan, 2012). Table 3 shows selected countries' ability to foster successful new businesses.

Table 3: Ability to foster successful new businesses (2010 figures %)

	South Africa	Ghana	Zambia	Brazil	Chile
Start up	5	11	17	6	11
New businesses	4	25	17	12	6
Established businesses	2	25	13	15	6

Source: Morgan (2010)

Given the fact that South Africa has implemented a number of PPP projects in the past decade and that many more PPP projects are still in the pipeline, South Africa needs to take advantage of these PPP projects and use them to develop its SME sector in order to address its triple challenges of unemployment, poverty and inequality. SME development through PPP projects will not happen without support from the public sector, and that is why linking SME development to PPP projects is vital and needs to be made a government policy. In the absence of a government policy that will compel PPP project firms to use SMEs in providing them with intermediate goods and services, it will be difficult to achieve a reasonable number of SMEs' participating meaningfully in PPP projects.

Challenges facing SMEs: Due to their size, SMEs face problems that make them vulnerable to macroeconomic changes and prevent them from attaining growth, as many business opportunities accrue to big firms, because they enjoy economies of scale and scope. International literature identifies lack of access to finance, human resources, access to markets and access to technology as the main constraints that hinder SME development in many developing countries (OECD, 2006; Ayyagari, Demiurge-kunt Vojislav, 2008; Subrahmanya, 2012).

Lack of finance: Adequate financing is required to help SMEs set up and expand their operations, develop new products and invest in new staff or production facilities (OECD, 2006). An empirical work by Fjose, Grunfeldand Green (2010)shows that about 48% of SMEs in sub-Saharan Africa identify access to finance as one of the major constraints to their expansion. This finding is also supported by other studies such as those conducted by the South African National Credit Regulator (2011);Falkena et al. (2004) and AL-Mubaraki and Aruna, (2013).Access to financial institutions is important for SMEs. A survey undertaken on financial constraints of the sector in Fiji found that a bank loan was important for SMEs. This was confirmed by the number of SMEs that would have loved to take a bank loan for business expansion. Of those SMEs interviewed and were without a bank loan, 77% indicated that they would borrow from a bank, if they could, in order to expand their operations. However, an adverse perception regarding loan requirements, cost structures and lack of collateral appeared to keep them away from the banks (Sharma and Gounder, 2012; African

[3] Measured by a Total Entrepreneurship Activity (TEA) index, which looks at the percentage of the active population (people between 25 and 64 years), who are entrepreneurs in a given country.

Development Bank, 2012;Ayyagari et al., 2008). This finding is supported by Fatoki and Odeyemi (2010), who postulate that, out of 445 SMEs interviewed in South Africa, 406 applied for a bank loan, but only 27% were successful. This shows that access to finance is a problem with many SMEs. A study by SEDA (2012) also confirmed this finding.

Human resources: Human resources consist of education and training provided to employees. Educated employees are not only efficient and productive, but are also innovative. Human resources are a critical feature in the success of any business (Kumar, 2012). As Lall (1992) asserts:
"... technical competence of an industrial workforce is improved by education imparted by various formal training systems and by in-firm training".

SMEs that employ highly skilled employees are likely to be more efficient, as they may increase productivity by producing a higher level of output or by producing output of greater value (Cooke, 2000). The fact that SMEs operate in a constantly changing environment due to globalisation requires a workforce that has attained a certain level of education (Al-Dairi et al., 2012). Lack of human resources is a major constraint in SME development (Salleh, Kasolang & Jaffar, 2012; SEDA, 2012; Lall, 1992:166). An empirical study by Salleh et al. (2012:343) conducted in 2012 on total quality management in Malaysia found that the ability to perform work is supported by training and development programmes, job and placement, systematic job development and career planning. In many circumstances SMEs do not have the resources to provide such skills, as they are operating at a smaller scale compared to big businesses that benefit from economies of scale and scope. This finding is supported by an empirical study by Tan and Batra (1996), which analysed the relationship between firm size and its likelihood to provide training to its employees, which found that larger firms are more likely to provide training to their employees compared to small businesses. The same study also looked at mean years of education of the workforce and the proportion of the workforce that is skilled. The results showed that an educated workforce is more likely to receive training than a less educated one. This shows the difficulties that SMEs are facing in terms of up-skilling their workforce. Other studies that support the importance of human resources in SMEs businesses include Lee (2001) and Hussain et al. (2012). In order to facilitate the participation of SMEs in PPP projects, human development should be an important factor for SMEs, as nowadays infrastructure projects in general involve the use of advanced technologies which local SMEs may not be familiar with. For SMEs to participate fully in PPP projects, they must have the know-how of the latest technologies.

Low technological capabilities: Technological capabilities are imperative for SME competitiveness. Technological innovation is regarded as a tool for strengthening the competitiveness of a nation, as it helps in improving productivity (Lee, 2001). The increase in the amount of goods and services produced can be achieved through the use of new technologies that reduce production input costs while increasing output per unit of input employed (Tan and Batra, 1996). Improving technological capabilities by SMEs can go a long way in improving their profits which are imperative for the future expansion of any business. Technological capabilities benefit SMEs in several ways, namely by enhancing SME efficiency, reducing costs, allowing speedy communication with customers, eliminating traditional supply constraints, and broadening market reach, both locally and internationally (Subrahmanya, 2012; Hussain et al., 2012).

The knowledge and capabilities of SMEs to adopt technological innovation is limited due to the fact that financial institutions and governments are less supportive to SMEs (AL-Mubaraki and Aruna, 2013). An empirical work by Pitt and Lee (1980) showed that larger firms are more efficient than small firms because they possess technological know-how. Collaboration between SMEs and PPPs can play a critical role in trying to address these constraints, as technological capabilities can be transferred from a PPP's workforce to SME employees involved in PPP projects. This can happen because PPPs would set service standard targets for SMEs. For SMEs to meet these standards, they will be forced to improve their technological know-how.

Access to markets: Access to markets by SMEs is one of the major constraints that hinder the development of the SME sector in developing countries (Hussain et al., 2012). Even if SMEs can have all the right human capital, access to finance and technological know-how, they can still fail if they do not have access to markets. Large firms and the public sector are reluctant to deal with small businesses that do not have a track record of meeting clients' expectations; as a result SMEs are reluctant to participate in public tenders because they are

normally unsuccessful. For example, a study conducted in 2007 to evaluate SMEs' access to public procurement markets in the European Union revealed that SMEs, in particular micro- and small enterprises, are on average under-represented in public procurement. The amount of public contracts awarded to SMEs does not reflect SMEs' overall weight in the EU economies (European Commission. DG Enterprise and Industry, 2010).

SMEs lack marketing skills and also lack information about participating in international markets. For a firm to penetrate a market, it needs to have information about the market it wants to penetrate and also marketing skills (UNIDO, 2007). SMEs struggle to penetrate big markets because in such markets they get exposed to a more complex and risky business environment compared to larger firms, due to poor resources or lack of resources (OECD, 2004; Al-Mubaraki and Aruna, 2013). If SMEs were to be given an opportunity to work with PPPs, they will gradually improve their efficiencies and develop to bigger firms that can effectively compete in international markets.

Having discussed the challenges faced by SMEs, the question that one can ask is: Can PPPs address these SME challenges mentioned above? The answer to this question is that PPPs can address these problems but cannot eliminate them completely, as SMEs and government will also need to play their respective roles. However, PPPs have the potential to make SMEs attractive to banking institutions and financial markets, as PPPs can provide a constant market for the goods and services produced by SMEs, thus creating a sustainable revenue stream. PPPs can contribute to technological skills transfer to SME employees involved in PPP projects. Involving SMEs in PPP projects can put SMEs in a better position to expand their operations to other sectors of the economy, as they may acquire the resources required to get involved in other ventures.

Table 4: SA policy and institutional framework for SME support

Department	Agency	Mandate
Department of Trade and Industry	Small Enterprise Development Agency (SEDA)	To support small business development
	National Empowerment Fund	To fund black-owned businesses and empower both small and big businesses
	National Small Business Advisory Council	To advise the Minister on ways to boost support for small businesses
	Khula Finance Limited	To supply funding to small businesses. To bridge the funding gap in the SME market not addressed by commercial financial institutions
Department of Economic Development	Industrial Development Corporation	To fund industrial projects, but small business funding forms a bigger part of its mandate.
	SA Micro-finance Apex Fund (Samaf)	To facilitate the provision of affordable access to finance by micro, small and survivalist businesses
Department of Science and Technology	Technology Innovation Agency (TIA)	To fund innovation for big and small businesses
The Presidency	National Youth Development Fund	To assist the youth with career skills and to help start their own businesses.
Department of Agriculture	Micro-Agricultural Financial Institute of South Africa	To help the working poor's ability to run existing agriculture businesses, to start new ones and be able to develop these into fully commercial operations.

Sources: Republic of South Africa. National Credit Regulator (2011)

South African government's initiatives to support SMEs: The South African government has implemented a number of institutional initiatives that are aimed at supporting the development of the SME sector. The government established SME support agencies such as Ntsika, which then became the Small Enterprise

Development Agency (SEDA), and Khula Enterprise Finance to provide funding to SMEs. It also created the Apex Fund that provides microfinance loans of less than R10 000. It passed the Small Business Act in 1996, while the broad-based black economic empowerment (BBBEE) codes also stipulate how SMEs should be addressed by big companies (SBP, 2009). Other initiatives include the establishment of the Umsobomvu Youth Fund, which now is part of the Youth Development Fund, tasked with promoting job creation, entrepreneurship and skills development for the South African youth. The Industrial Development Cooperation (IDC) also provides funding to SMEs, although its main focus is developing big industrial projects. All these initiatives have not yet yielded the expected national outcome of increasing employment and reducing poverty and inequalities. Since they were implemented, the country's SME sector's development is still lagging behind in terms of its contribution to GDP and employment, compared with the SME sectors of other developing countries. The main agencies and funds of the South African government supporting SMEs are found in five different national departments as listed in Table 4 above. The idea of linking SMEs to PPP projects that is being advocated in this paper is expected to build on top of these other government initiatives, as these initiatives aim to address other SME challenges that cannot be fully addressed by PPP projects. As can be seen from the above table, there is currently no support for SMEs from the National Treasury PPP Unit.

The potential role of PPPs in addressing challenges faced by SMEs: In general, PPPs represent cooperation between the public and the private sector with the intention to develop infrastructure networks and at the same time provide public services. So far there is no research that the author is aware of, on the involvement of SMEs in PPP projects. However, Hussain et al. (2012) define PPPs for SMEs as:
"... an approach to addressing SMEs' growth problems through the combined efforts of public, private, and developmental organisations.'

This definition does not talk about the involvement of SMEs in PPP projects but refers to institutional programmes led by both the public and private sectors that can help address SME challenges. PPPs can be the main users of goods and services produced by SMEs. As SBP (2009) asserts:
"... one of the most obvious and surprising untapped ways that companies can support developmental objectives in countries and communities in which they operate is through spreading economic opportunities through a variety of small enterprise development, training and business linkage initiatives."

This is the role that large PPP projects should play in economies of developing countries. PPPs should use SMEs to provide them with the services they need, while at the same time supporting SMEs with the necessary skills. Many PPP models for developed and developing countries do not mention the use of SMEs as potential suppliers of PPP goods and services, and they do not embed SMEs into their PPP models. One of the reasons may be that SMEs lack the technical, financial and technological ability to deliver services required by PPPs, as these services may be required on a larger scale. This may be true if the services required by PPPs are bundled. In a case where these services are unbundled, SMEs have the potential to respond positively to PPPs' requirements. Another reason could be that involving an SME in a PPP can be time-consuming, and at the end it can increase the PPP project implementation costs, as this may involve a complex structuring of the project. The problem with involving too many stakeholders in a project is that it can complicate the allocation of responsibilities, such as who does what, what is the role of state officials, what is the role of the SME and what is the role of the private sector partner in the PPP (Ansell Gash, 2007). This is one of the risks that the state and the private partner may need to manage so that the risks do not negatively affect the private partner involved in the PPP project.

In many cases, a PPP is only formed by a private firm and the public agency responsible for the development of the infrastructure asset. Although the South African PPP regulations do not prescribe the size of the private sector partner, in most cases, if not all, the private partner is one of the big local or international construction companies. This model has overlooked the potential that PPP projects can have in developing a sustainable SME sector that can create jobs for the unemployed and generate income for the poor, while at the same time addressing the challenge of infrastructure backlog. The role of PPPs in developing the SME sector is also acknowledged by Paolo (1992). As Paolo asserts, "Although having SMEs as subcontractors in big PPP projects is understood as an area of potential growth for developing countries, there is yet no discussion about SME involvement in PPP projects in many countries."For PPPs to contribute to the development of the SMEs sector, there should be a policy that will enforce strong partnerships between government, PPPs and

SMEs to the benefit of all parties. For example, when the expanded public work programme (EPWP) started in 2004, its target was to create one million jobs and 3000 SMEs by March 2009. The EPWP exceeded its target by creating 1,617 million jobs, and created 4325 SMEs by the end of March 2009 (Republic of South Africa. Department of Public Works, 2009). The infrastructure sector exceeded its target and achieved 127%. It out-performed all sectors involved in the EPWP programme. Although most of the jobs created through this programme were short-term this, however, gives an indication that, if the private sector works together with the public sector to create jobs, a lot can be achieved.

It is worth noting that creating jobs through infrastructure using SMEs has its own challenges. These challenges are due to the fact that jobs created through infrastructure projects are short-term in nature, especially during the construction phase of the projects. However, during the operational phase of a PPP project, a number of jobs remain long-term. The other challenge is that SMEs are more likely to utilise labour-intensive production methods, and such methods are slow and produce poor quality work compared to capital intensive methods used by big firms. There is also a high risk of projects captured for patronage purposes, as was detected during the first and second phases of the EPWP. During the implementation of the first two phases of the EPWP, there were accusations that the selection of EPWP participants was hijacked by politicians for patronage purposes (Republic of South Africa. Department of Public Works, 2014). This may also happen when SMEs are used to create jobs through participating in PPP projects. One may find that only SMEs that have a strong link with politicians get opportunities to participate in PPP projects. There is also a high possibility of fronting, in the sense that big PPP firms may create their own small companies that will participate in PPP projects as SMEs. If not addressed properly, this can sabotage the whole idea of using PPP projects to develop sustainable SMEs that would create jobs, alleviate poverty and reduce inequality.

Most debates in the PPP arena are about finding the best way of using the private sector to deliver public infrastructure, but little has been said about using PPPs to develop SMEs and create jobs for the poor. This is the missing link that governments can use to boost job creation through SME development. The advantages of PPPs have been advocated only to be in the transfer of financial and non-financial risks to the private party, cost savings, enhanced asset quality and service levels provided to the public, freeing up fiscal funds for other areas of public expenditure, etc. (Republic of South Africa. National Treasury, 2004). The development of the SME sector using PPP projects has been ignored by the traditional PPP model followed by most developing countries. As Hussain et al. (2012) assert, PPPs are a source of developing businesses in developing countries. They can be used to address developing countries' socio-economic challenges. For this to happen, there should be a change in the way developing countries see PPP projects. PPPs should be structured in such a way that they benefit (a) the public in general through job creation or development of the SMEs sector, (b) the public sector through the provision of the required infrastructure and (c) the private sector through the continuous business opportunities provided by the long-term nature of PPP contracts. Quite often the general public do not feel or think they benefit much from PPP projects, as the current PPP model tends to favour the private sector partner more than the public as a key stakeholder of a PPP project.

In order to ensure that PPPs benefit a wider group of beneficiaries, there is therefore a need for developing countries to develop their own PPP model that will talk or respond to their economic, political and social challenges. The current practice of many developing countries is such that they model their PPP projects on PPP models of developed countries. These models fail to take into account the socio-economic conditions of developing countries. The question is how PPPs can assist in developing a sustainable SME sector for developing countries. This can happen when the public and the private sectors jointly bring funding and other resources to implement PPP projects through a Special Purpose Vehicle (SPV). The SPV can then contract SMEs to provide it with the necessary services required by the PPP projects. In this case, the SME is guaranteed of a market for its products and a continuous income for the duration of the PPP concession. The current practice in the South African PPP market is such that the SPV should meet the country's BBBEE requirements. Although small businesses participation in a PPP project is mentioned in the National Treasury PPP Manual, the main emphasis, however, is on black ownership of the SPV (Republic of South Africa. National Treasury, 2004). A PPP collaboration that brings together the public sector, private sector and the SME sector has a better chance of being more effective in fighting poverty, unemployment and inequalities, which are the most worrying challenges of many developing countries. Such an approach has a huge potential to contribute to the radical economic transformation agenda of the country.

PPP projects normally involve big international organisations who possess the know-how of project and business management. SMEs, on the other hand, are small business operations with limited resources such as human capital, technological know-how and access to finance, as mentioned earlier. Linking SMEs with PPP projects that involve international organisations can provide other opportunities for SMEs, such as technological transfer, better human capital formation, deeper international trade integration, and more competitive local SME firms (Klein, Aaron and Hadjimichael, 2001; UNECA, 2009). International studies, such as those by Elibariki (2007) and the World Bank (2004), found that organisations that involve foreign firms as foreign direct investors (FDIs) have a positive impact on productivity and efficiency, and therefore on poverty. FDIs do not only bring extra capital but also lead to technological transfer, better human capital formation, deeper international trade integration, a more competitive business environment and increased tax revenue, to name just a few (Klein et al., 2001; UNECA, 2009). All these add to poverty reduction strategies through increased private consumption. Having discussed the potential role of PPPs in addressing SMEs challenges, the following section gives an analysis of South African experience on SMEs' participation in PPP projects, based on a survey conducted by the author.

3. Methodology

The information used to analyse the participation of SMEs in PPP projects in South Africa was collected by the Author using a questionnaire between February 2015 and April 2015.Both quantitative and qualitative information was collected from 14 PPP projects. These PPP projects came from different sectors. Data was collected only from operational PPP projects. These PPP projects were the only projects that met the sampling criteria, which focused on PPPs that had operated for at least a year. Data was collected from three respondents per PPP project. These respondents were, namely, the public sector partners, the PPP firms themselves, and the SMEs that provided services to the PPP projects. A total of 54 responses were targeted for both the private and the private sectors. The questionnaire was developed using Survey-Monkey, and a link to the questionnaire was emailed to each respondent. The response rate from these respondents was 61%. A second questionnaire was drawn up, which aimed at collecting specific information from SMEs, and targeted both private sector PPP firms and public sector agencies that administered PPP projects. Five more public sector and 13 more SME responses were received from the supplementary survey.

4. Results

The analysis is mainly focused on the participation of SMEs in PPP projects in South Africa, and the challenges that SMEs and PPP firms face when SMEs are contracted to provide goods and services to PPP project firms (concessionaire or the SPV). Through a desk top research the author identified a number of activities or tasks that could be executed by big firms and by SMEs in a PPP project as shown in table 5 below. Note that the list in the table is not exhaustive.

Table 5: Summary of activities for big firms and SMEs

	Activities at the implementation phase	Activities at the application phase
Activities to be allocated to big firms	Big firms implementation experts Engineering design of asset Construction of asset Construction of bridges Refurbishment of existing asset Major IT system installation Security (for prison PPPs) Medical equipment etc.	Big firms application experts Major asset maintenance IT system maintenance Major equipment maintenance and replacement etc.
Activities to be allocated to SMEs	SME implementation experts Consulting services Road markings Road signs installation Road rail installation Security services	SME application experts Minor asset maintenance and replacement Toll collection/billing services Tow-truck services (road PPP) Road marking Guard rail replacement

	Construction of toll offices	Road signs replacement
	Furniture provision	Security
	Plumbing services	Furniture provision
	Electrification services	Catering
	Supply of construction materials etc.	Laundry, Cleaning etc.

Source: Author

Although activities or tasks during the implementation phase are short term, services required by PPP firms during the operation or application phase are long-term in nature and that provides sustained opportunities for SMEs.

Services outsourced by PPP firms during the operational phase: Table 6 shows some of the services that are currently outsourced by South African PPP firms during the operational phase of PPP projects. Information on the implementation phases of the project was difficult to find, due to the fact that most of the people which were involved during the implementation phase were no longer working for the PPP project firms during the study period. Most of the PPP project firms covered in the survey outsourced certain services to SMEs. The only PPP that did not outsource its services to SMEs was the nature conservation PPP. PPPs that outsourced five out of the six identified possible services at the operational stage of the projects are office accommodation and hospital PPPs. It can be argued that these PPPs have a high potential for providing SMEs with opportunities, as well as having a high potential for job creation, followed by roads and prisons PPPs. Although roads PPPs only outsource four of the six services identified, roads PPPs have the highest potential for job creation compared to other PPPs, given the fact that road construction and operation is more labour-intensive than any of the PPPs listed in Table 6 below.

Table 6: Services outsourced during the operational phase of PPP projects

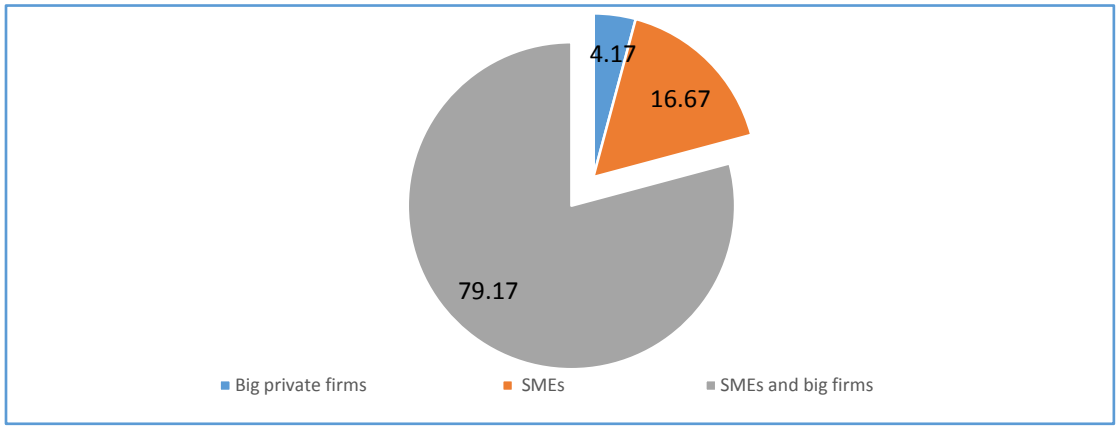
Types of services that can be provided by SMEs to PPPs	**Road**	**Nature conservation**	**Water and sanitation**	**Prison**	**Hospital**	**Office accommodation**
Maintenance	x	-	X	x	x	x
Catering	-	-	X	x	x	x
Laundry	-	-	-	x	x	x
Security	x	-	X	x	x	x
IT	x	-	X	-	x	x
Tolls/tariffs collection	x	-	X	-	-	-

Source: Survey conducted by Author

X =means the service is provided by SMEs, - =means there is no service provided SMEs

Size of enterprises providing services to PPPs during the operational phase: Figure 1 shows different types of enterprises that provide services to PPP projects during their operational phase. Most of the services (79,2%) are provided by SMEs and big firms. About 17% of the respondents indicated that SMEs provide services to PPP projects they worked for, while only 4% of PPPs indicated that their services were provided only by big private firms, and there were no services provided by foreign companies. This is a good indication that local companies have the ability to provide services to PPPs as this is the only way to ensure that local SMEs benefit from PPP projects.

Figure 1: Types of enterprises providing services to PPPs (%)

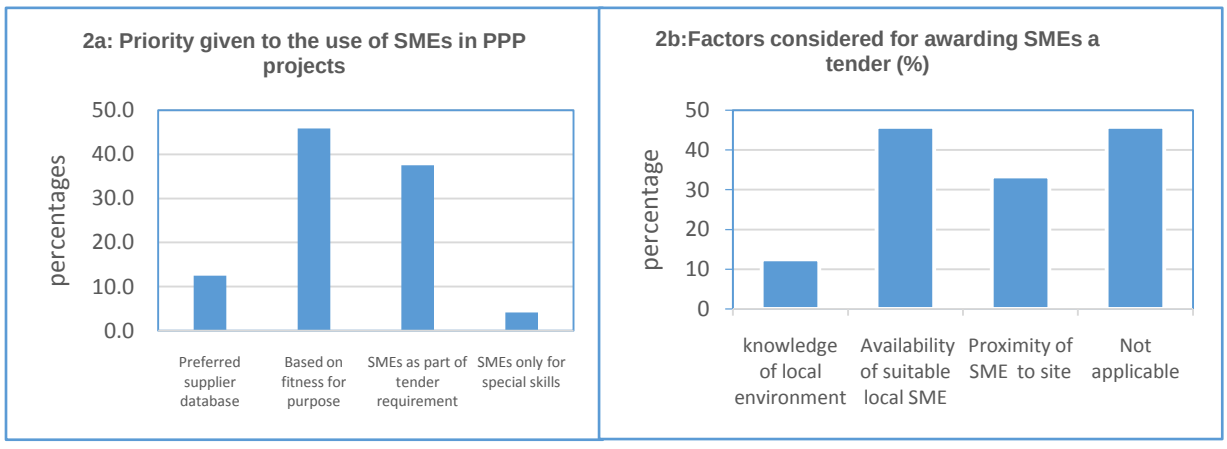


Source: Survey conducted by Author

Although the majority of PPP project firms outsource their services to both big and small firms (79,2%), the bigger share of these services is provided by big firms. Figure 4 shows in detail to what extent PPP services are provided by SMEs and big firms.

Factors considered by PPP firms when awarding contracts to SMEs: Figure 2a shows the different factors considered by PPP firms when awarding contracts to SMEs. About 46% of PPP firms appoint SMEs as service providers based on fitness for purpose, meaning there are no lighter requirements for SMEs compared to big firms when awarding a contract to provide services to PPPs. SMEs have to compete with large firms for tenders under the same requirements or conditions. About 37% of the respondents indicated that their companies allocate contracts to SMEs because some of the tenders that PPP firms secure from the public sector have conditions that require them to subcontract SMEs. However, this requirement is not for SMEs, but for historically disadvantage individuals' (HDIs) compliance. Given the fact that most firms owned by HDIs are SMEs, many respondents see this requirement as an SME requirement. When the PPP firms' respondents were asked if their approaches to using SMEs vary depending on the geographical location of the project, the majority (54%) of them indicated that this category did not apply to them, while 46% said their approaches vary, based on the geographical location of the project. Figure 2b gives the different factors considered by those who vary their approaches to using SMEs if the project is in a different geographic area. It is worth noting that about 46% of the respondents do not consider any factor for awarding tenders to SMEs, as they indicated that the factors listed were not applicable to them.

Figure 2: Priority given and factors considered when awarding contracts to SMEs

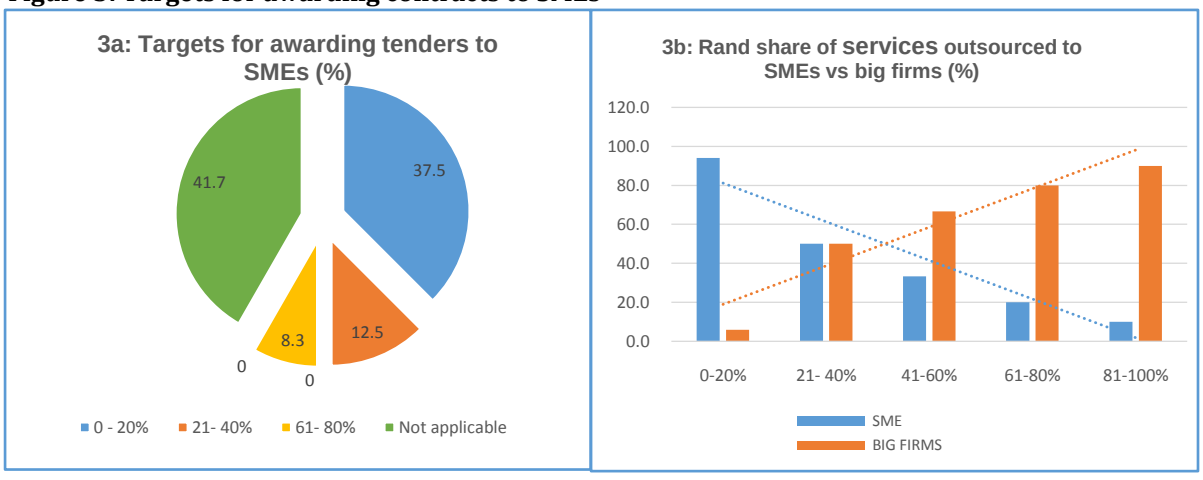


Source: Survey conducted by Author

Target for contracts to be awarded to SMEs: Figure 3a shows that most PPP firms have targets for awarding contracts to SMEs. However, it has been found during the survey that the target that respondents referred to, was not meant for SMEs, but for HDI owned companies, which happen to be SMEs, as discussed earlier. The target that the respondents referred to was the 10% which is one of the requirements of the Preferential Procurement Regulations of 2001. The Public Finance Management Act (PFMA) requires that all bids awarded by a public entity should be awarded to companies that comply with the Preferential Procurement Regulations requirements. The Preferential Procurement Regulations of 2001 require that not more than 10 percentage points be awarded to companies that are owned by HDIs or subcontract HDI-owned companies. Therefore indirectly there is a target for SMEs. Figure 3a shows that the majority of PPP firms set a target of between 0 and 20% for SMEs, and the target becomes smaller as one moves towards higher percentage shares. About 42% of the respondents indicated that targets for contracts to be awarded to SMEs do not apply or are not applicable to their PPP firms. Figure 3b shows that the share in rand amount of contracts that are awarded to SMEs is high at the lower percentage band and becomes lower (in percentages) as one moves towards the higher percentage bands. This confirms that SMEs get a smaller share from a PPP contract and this is not good for developing a sustainable SME sector.

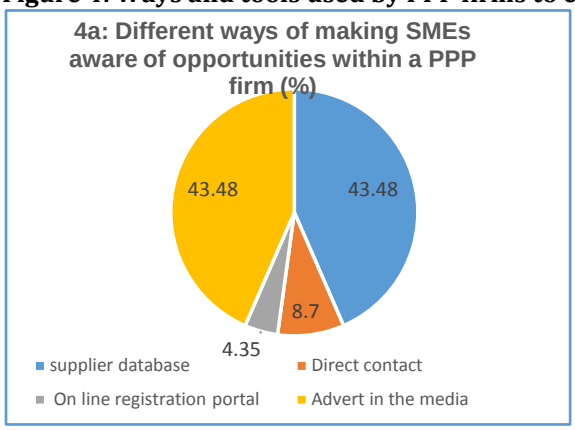
Tools used by PPP firms to engage with SMEs: Figure 4a shows that most PPP firms make SMEs aware of business opportunities through supplier databases or through adverts in the media. The most commonly used tools, as shown in Figure 4b, are the list of approved SMEs or supplier databases and local area directory of suppliers. It is possible that these tools are not only used to engage with SMEs but also to engage with big firms. About 44% of the respondents indicated that they do not use any tool to create awareness about SME opportunities in their respective PPP firms. Making SMEs aware of available PPP opportunities is very important if we were to develop a sustainable SMEs sector by increasing their participation in PPP projects. PPP project firms should find other ways of making sure that SMEs are aware of opportunities within their companies. The proportion (43, 5%) of PPPs that do not use any tool to advertise opportunities available for SMEs within their companies is worrying and should be reduced by encouraging them to use some of the commonly used tools like media and local area directory.

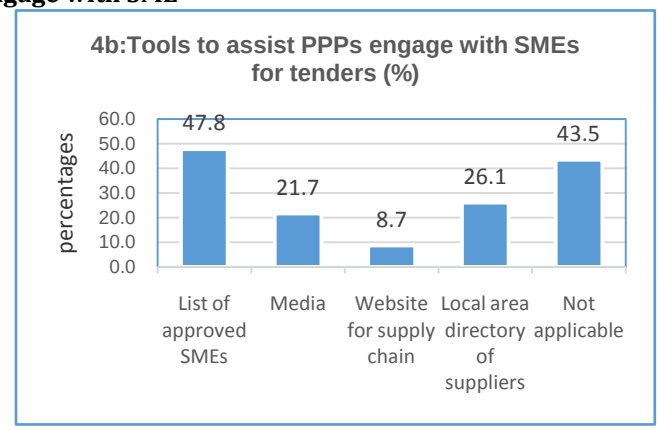
Figure 3: Targets for awarding contracts to SMEs



Source: Survey conducted by Author

Figure 4: Ways and tools used by PPP firms to engage with SME





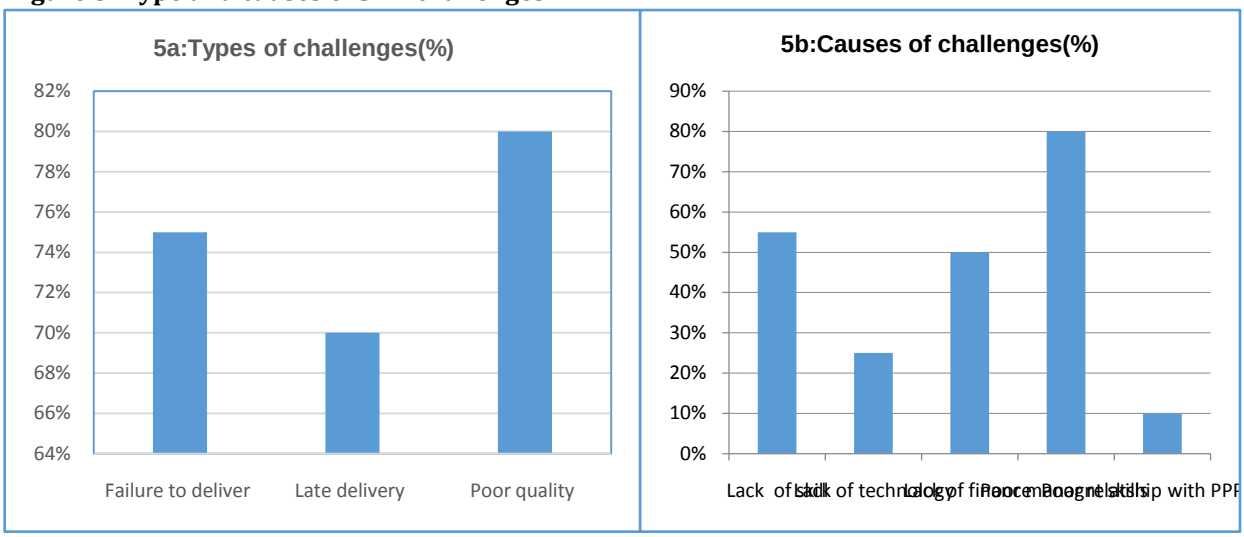
Source: Survey conducted by Author

Challenges and causes of challenges in using SMEs in PPP projects: The questionnaire also focused on collecting information on the different challenges that PPP firms face when dealing with SMEs in a PPP project. It also analysed data on the different ways in which the challenges could be overcome in order to increase SMEs' participation in PPP projects.

Challenges faced by PPP firms when using SMEs: Figure 5a shows the different challenges that PPP firms face when dealing with SMEs. When respondents were asked whether their firms face challenges with provision of services by SMEs, about 87% of respondents indicated that their PPP firms do face challenges when working with SMEs. The most worrying challenge they face is poor service quality delivered by SMEs, followed by failure by SMEs to deliver the service on time (see Figure 5a). This finding is also confirmed by literature on SMEs, in that SMEs struggle to deliver services of high standard on time due to lack of human capacity. In addition to the above challenges, Aigbavboa and Thwala (2014) investigated challenges and problems facing SMEs involved in construction in Mbombela (Nelspruit) and found that lack of managerial planning, technical know-how, financial skills and job opportunities are the main challenges facing SMEs in the construction industry. Brink, Cant and Ligthelm (2003) also investigated problems experienced by small businesses, focusing on SMEs operating in townships and CBD areas in Gauteng in 2003, and found that inflation, interest rates, competition, technology change and credit management were also of particular concern for the success of SMEs.

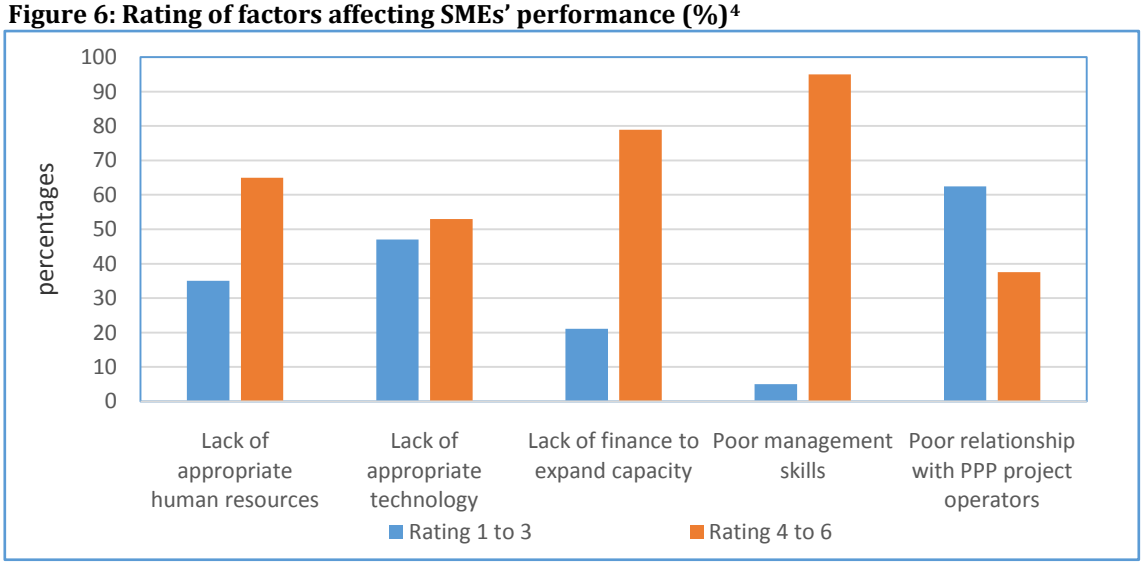
Causes of challenges and their possible solutions: The main reason why SMEs encounter the problems mentioned above is lack of appropriate management skills. Figure 5b shows that about 80%of the respondents indicated that poor management of SME firms is the main cause of the problems. The second main cause is lack of appropriate human resources, followed by lack of access to finance. Lack of appropriate technology and poor relationship between SMEs and PPP firms respectively were not identified as major problems. The majority of respondents think finding ways to improve managerial skills of SMEs should be a priority, followed by providing SMEs with training to improve the quality of the skills of their employees. Although access to technology is also seen as a hindrance, respondents did not consider acquiring relevant technology as a high priority area that needs immediate attention by SMEs.

Figure 5: Type and causes of SME challenges



Source: Survey conducted by Author

Figure 6: Rating of factors affecting SMEs' performance (%)[4]



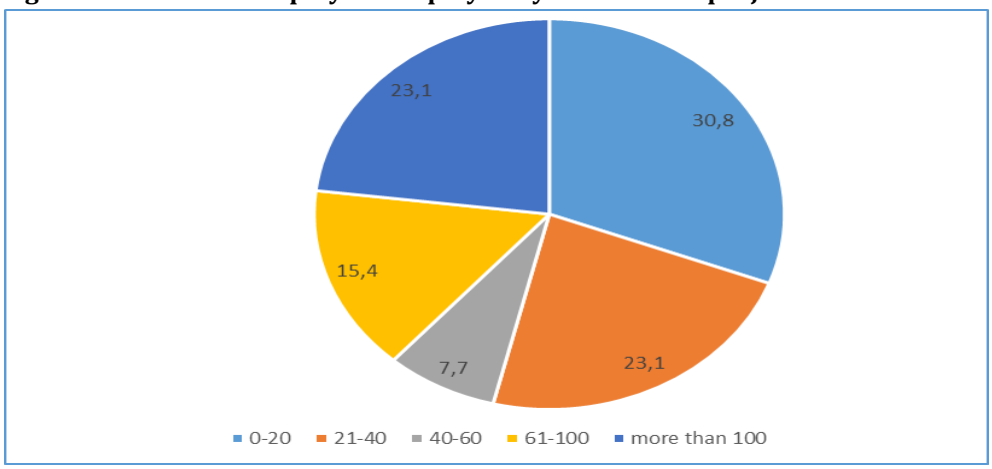
Source: Survey conducted by Author

Respondents were also asked to rate (from 1 to 6) the impact of the causes of the challenges faced by PPP firms when using SMEs to provide services. The results of the ratings are presented in Figure 6, where a rating of 1 means less significant impact and a rating of 6 means significant impact. Poor management skills for SMEs have a significant impact on the performance of SMEs. About 95% of the respondents who answered this question gave this factor a rating of 4 to 6, and only 5% of the respondents gave it a rating of 1 to 3. The next significant factor was lack of finance, followed by lack of appropriate human resources. Poor relationship with PPP project operators had no significant impact on the performance of SMEs. The rating of the challenges is consistent with the results presented in Figure 5b above. It is important for policy makers to be aware of these challenges and their causes, in order to devise a strategy that would mitigate or eradicate these challenges through policy intervention. Eradication of these challenges is paramount for effective participation of SMEs in PPP projects. Given all the challenges faced by SMEs, however, SMEs providing services to PPP firms in this country do create jobs and the jobs created have shown an increase over time. The following section discusses the job creation potential of SMEs operating in PPP projects in detail.

[4]A rating of 1–3 means less significant to medium impact, while a rating of 4-6 means significant impact

Employment and growth by SMEs providing services to PPP projects: Figure 7 shows the number of employees employed by SMEs that provide services to PPP projects. The result show that, on average, the majority of SMEs that are contracted by PPP project companies employ between 0 and 20 employees (30,8%), followed by those who employ 21 to 40 (23,1%), and those employing more than 100 employees (23,1%). This trend follows the one for the rand share of services outsourced to SMEs versus big firms, shown in Figure 3.

Figure 7: Number of employees employed by SMEs in PPP projects



Source: Survey conducted by Author

Table 7 gives the number of people that the different SMEs employed in the beginning of their respective contracts with PPP firms and the current number of people who were still employed by the different SMEs during the research period. These employment figures do not include SMEs that provide services to PPP firms for a specific project, say not more than six months. Most of the SMEs that provided information on employment had a contract for at least three years and the figures presented here are for permanent employees. Eight PPP projects were covered by the employment figures, although other respondents refused to answer questions on employment. This translates to 57% of the PPP projects that comprised the study sample. SME1 to SME6 provide services to office blocks PPPs, SME7 provides service to prison PPP, SME8 to SME12 provide services to road PPPs, and SME13 provides services to a hospital PPP. There were no responses received from SMEs providing services to water and conservation PPP projects. It is clear from Table 7 that the number of people employed by the different SMEs increased during the contract period. It is also observed that SMEs that provided services to PPP projects for a longer period increased their number of employees by a bigger margin over the years. This shows that PPP projects have a potential to create jobs through the use of SMEs.

Table 7: Employment by SMEs in PPP projects

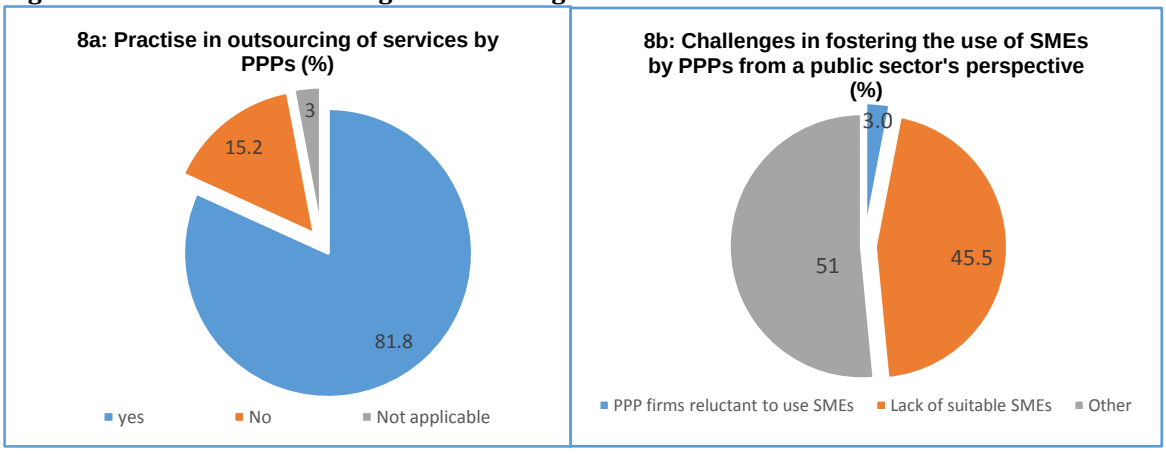
Starting period	SME 1	SME 2	SME 3	SME 4[5]	SME 5	SME 6[6]	SME 7	SME 8	SME 9	SME 10	SME 11	SME 12	SME 13
Starting employment[7]	9	20	24	0	4	343	33	100	10	4	16	6	18
Current employment-2015	15	36	36	2	4	350	65	200	36	100	107	60	24
Percentage increase (%)	67	80	50	100	0	2	97	100	260	2400	569	900	33

Source: Survey conducted by the Author

SME 1=facility management, SME 2= cleaning, SME 3=catering, SME 4=CCTV, SME 5= Garden services, SME 6= combined services for office block, SME 7=asset maintenance in general, SME 8= road maintenance, rehabilitation and accident response, SME 9=security, SME 10=road maintenance, SME11=rehabilitation and accident response, SME 12= toll collection, SME13=security

Practice and challenges in fostering the use of SMEs by PPP firms: When respondents were asked whether their PPP firms outsource some of the services they need, 82% said yes, and 15% said their PPP firms do not outsource (see Figure 8a). It is worth noting that these PPP firms that outsource services do not only outsource their services to SMEs alone, but to both SMEs and big firms. Therefore the 82% represent services provided by both SMEs and big firms. Some of these PPP firms only outsource to big firms. When those respondents whose responses were no, were asked to give reasons why their PPP firms do not outsource to SMEs, the responses were that the extent of risk that can be transferred to SMEs can be over-whelming for many SMEs, while others said they had not ventured into this idea because the National Treasury PPP Unit first needed to be well-resourced and stabilised before PPP firms could consider using SMEs intensively. Others argued that the quality of work provided by some SMEs is not of a high standard, thus PPP firms are reluctant to employ SMEs, as most SMEs lack experience and capacity (see Figure 8b). It was also argued by the respondents that PPPs are too expensive for SMEs and the finances needed by SMEs to participate in PPP projects can be difficult to access for most SMEs. In the tourism sector, because of the remoteness of nature reserves, finding a suitable SME is a challenge, therefore in many cases PPPs struggle to find a suitable SME firm.

Figure 8: Practices and challenges in fostering the use of SMEs in PPPs



Source: Survey conducted by the Author

[5]There was no staff members employed in the beginning of the project.
[6]The figure under this SME represents a number of SMEs providing services to the PPP project. The researcher could not get disaggregated figure.
[7]The starting operation date for SME1 to 5 and SME13 was 2010. For SME 6 was 2003, for SME 7 was 2002, for SME 8 was 1997, and for SMEs 10,11,12 was 1997.

From the public sector perspective, the main challenge in improving the participation of SMEs in PPP projects was found to be the lack of suitable SMEs to provide the required services, due to the challenges mentioned earlier that SMEs lack skills and access to finance; as a result they may have difficulties in meeting the expectations of PPP firms in terms of service quality and delivery. Given the respondents' experience with PPP projects and the involvement of SMEs as HDI-owned companies in PPPs, public sector respondents argue that most of the SME companies are technically and financially weak. As a result, some of them opt for financial compensation and to be bought out of the project by big firms. Another argument made by public sector respondents was that it is difficult for a big project to involve SMEs because that would mean to have a number of them coming together in order to have the capacity to deliver the service, which brings about new challenges. Other respondents mentioned reluctance of PPP firms to use SMEs as a challenge for increasing the participation of SMEs in the PPP market. This may be because of the poor quality service that PPP firms receive from SMEs, such as late delivery and substandard services. However, these challenges can be overcome by unbundling PPP projects to allow a fair participation of SMEs. Such unbundling will allow SMEs to execute tasks that they are capable to execute.

Improving the participation of SMEs in PPP projects: Respondents were asked how they thought the participation of SMEs in PPP projects could be improved, and also about who they thought should play a significant role in improving the participation of SMEs in PPP projects. With regards to improving the participation of SMEs in PPP projects, most respondents (mainly SMEs and public-sector respondents) thought the state should lead in this area by creating an environment conducive for both the SMEs and the PPP firms. The state should enforce the participation of SMEs by making it a mandatory requirement, through legislation or through the concessionaire contract, that any PPP project should have a significant SMEs content in it. This can be done in addition to the transformation requirement of the Preferential Procurement Regulations of 2001. The state should provide training to SMEs in areas where SMEs struggle, such as providing managerial skills and financial management skills. With regards to who should play a significant role in promoting the participation of SMEs in PPP projects, respondents opined that both the state and the PPP firms should play a significant role; however, the responsibility should start with the state. The state should start by ensuring that SMEs are able to access opportunities in PPP projects. This can be done through legislation. Table 8 summarises the survey responses on how the participation of SMEs in PPP projects could be improved and who respondents thought should play a significant role.

Table 8: Improving participation of SMEs in PPP projects

Respondents' opinions on how the participation of SMEs in PPP projects can be improved (things to be done by government)	**Respondents' views on who should play a significant role in improving the participation of SMEs in PPP projects between government and the PPP company and why (things to be done by PPP firms)**
Government should put mechanisms in place to give incentives to PPP companies who actively involve SMEs	The role of empowerment should be the task of both parties, as this can ensure a certain degree of credibility that will ensure SMEs are trained to successfully integrate and benefit from the PPP project
SMEs need to acquire management skills in general, and financial management skills in particular, to ensure that problems are addressed as early as they emerge; such skills can be provided by the state	PPP company (concessionaire) must take responsibility for assisting SMEs to deliver services required by the concessionaire by helping SMEs with skill development and access to technology and finance.
Government should put mechanisms in place to give preferential treatment to PPP companies who actively involve SMEs	The concessionaire should drive the process of SME participation in PPP projects and government should monitor progress
Base all activities on business ethics, sound business principles and best practices. Business management, skills development and training in business intelligence should be a prerequisite for the increased participation	PPP operator needs to have good oversight skills to identify problems at an early stage so that the SME can be assisted not to get into trouble, particularly financially, due to non-

Respondents' opinions on how the participation of SMEs in PPP projects can be improved (things to be done by government)	Respondents' views on who should play a significant role in improving the participation of SMEs in PPP projects between government and the PPP company and why (things to be done by PPP firms)
of SMEs in PPP projects A database of SMEs, ranked based on performance during the past five years, may assist concessionaires to select appropriate SME partners. PPP contracts should require the concessionaires to have a programme of skills transfer allowing SME participation to increase during the period of the contract The government's role should be to create the right environment for the SMEs to acquire the correct skills. The SMEs also need to put in effort on their side to acquire those skills Government should ensure that SMEs take part in the forming of a concessionaire rather than being add-ons towards the end to satisfy government requirements More clear objectives to be set on what and how much of the work to be outsourced to SMEs and government to monitor compliance with these targets Skills transfer, as well as policy development to integrate SMEs to the current PPP market system is a necessity Government should incentivise PPP companies, maybe through tax breaks, for using SMEs to provide some of their services Government to assist with access to finance for SMEs to procure goods that can be delivered to the PPPs PPP company should lead, but government should provide stringent policy and legislation to enforce compliance Provide realistic requirements in PPP contracts and avoid over expectations; knowing what SMEs can and cannot do will be helpful Government intervention should be embedded in the concessionaire contract and should not be construed as interference Government should train SMEs about opportunities in PPP projects by publishing a list of PPP projects and associated opportunities for SMEs on its website	performance All participants should play a role, especially the PPP company. The PPP company needs to make sure that it gets appropriate services or product from SMEs that can assist them in delivering the service as specified within the PPP agreement.

Source: Survey conducted by Author

The responses given by respondents in the above table show that most of the things that need to be done in order to increase the participation of SMEs in PPP projects need to be done by the state. Low participation of SMEs in PPP projects should not be blamed only on the failure of PPP firms, but should also be blamed on the government's failure to provide the right environment for PPP firms to use SMEs in PPP projects. The creation of such an environment involves the development of a clear policy on how SMEs should be involved in PPP projects. Such policy could assist PPP firms in engaging with SMEs for available opportunities within PPP projects. In many cases, initiatives fail because it is difficult for participating parties to bring the private sector and the public sector together, but PPPs are capable of doing that. This means that, by having a PPP project, the difficulty of bringing the private sector and the public sector together has already been overcome.

5. Conclusion and Recommendations

It is worth noting that, although linking SMEs with PPP projects is necessary, it is not sufficient for the development of the SME sector. To develop a sustainable SME sector requires other interventions, such as the promotion of an entrepreneurship culture and the development of social capital and networks, the reduction of red tapes and the creation of a more enabling environment, including political will to implement policy and improve public sector capacity to respond to the needs of SMEs, and the reduction of crime and corruption. Although a number of different interventions have been implemented in South Africa, what may be lacking is a cohesive approach to deal with SMEs challenges.

Recommendations: If the following recommendations are implemented, the use of SMEs by PPP firms would be enhanced and the fight against unemployment, poverty and inequality would be won to a certain extent. Linking SMEs to PPPs can increase the benefits of PPPs in society, as this may achieve two things at one go, namely: providing the needed infrastructure to the citizens, and developing the SME sector. The following is therefore recommended:

- *Develop a policy to foster the use of SMEs in PPP projects:* Government should introduce an incentive-based policy or insert a section in the existing policy and make it mandatory for PPP firms to use SMEs during both implementation and operational phases of PPP projects. Minimum requirements for SME participation in PPP projects should be clearly stated in the policy;
- *Unbundle PPP projects:* Given that PPP projects are big in nature and SMEs do not always have the technical and financial know-how to execute such projects, government should incentivise PPP firms to unbundle PPP projects into smaller but viable projects to allow ease of SME participation in PPPs. However, unbundling may hinder participation of big PPP firms in PPP projects as unbundling may increase PPP projects' implementation risks. Therefore incentive-based policy is paramount to mitigate for this unintended consequence;
- *Put in place a coherent approach to government's institutional framework to support SMEs*: Government must develop a coherent and cohesive approach that links together all the different government initiatives to support SMEs and ensure they support each other and avoid duplication of responsibilities. The policy should also clearly define the role of government and that of the PPP firm in developing SMEs;
- *Award well performing PPP firms:* PPP firms that go an extra mile in using SMEs, for example those that surpass the minimum requirement on using SMEs, should be rewarded, while those that only strive to meet the bare minimum requirement should be penalised; and lastly,
- *Develop human capacity in PPPs within the public sector:* In order to ensure that implementation of the proposed model is not hindered by lack of capacity within the public sector, it is recommended that PPP capacity building within government departments working on PPP projects should be given priority.

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Business Attributes and Marketing Communication Strategies of SMEs in South Africa

Morongwa Ramasobana, Olawale Fatoki
Department of Business Management, University of Limpopo, South Africa
morongwa.ramasobana@ul.ac.za, olawale.fatoki@ul.ac.za

Abstract: The purpose of this study was to investigate business attributes and marketing communication practices of SMEs in South Africa. This study adopted the quantitative research design with a descriptive research method. Data was collected through the use of self-administered questionnaires in a survey. Descriptive statistics, ANOVA and regression analysis were used to analyse data. The results revealed that some marketing communication tools indicate that there is no significant difference in the marketing communication tools adopted by SMEs on the basis of business attributes. In addition, some marketing communication tools indicated that there is a significant difference in the marketing communication tools adopted by SMEs on the basis of business attributes. This study recommended that SMEs' owners should consider their business factors when selecting the marketing communication strategies and equip themselves with the knowledge of marketing communication.

Keywords: *Marketing communication, SMEs, business attributes*

1. Introduction

Small and Medium-Sized Enterprises (SMEs) are critical drivers of economic growth, employment creation and poverty alleviation in both developed and developing countries (Nkosi, Bounds & Goldman, 2015:1). According to Steyn & Leonard (2012:24), SMEs serve as the primary means of sustainable industrial and social diversification of the society, thus becoming one of the main drivers of economic development in the majority of countries. Muritala, Awolaja and Bako (2012:18) posit that the majority of developed and developing countries rely heavily on risk tasking, dynamism and the resourcefulness of small and medium enterprises to trigger and sustain the process of economic growth. The development of small and medium enterprises is therefore an essential strategy to grow the economy of South Africa (Monks, 2010:3).However, the sustainability of SMEs has been a subject of concern in South Africa. Adeniran and Johnston (2011:1) note that despite the importance of the SME sector, it is estimated that the failure rate of SMEs in South Africa is between 70% and 80%. Various factors can be attributed to this failure. Van Scheers (2010:5050) posits that SMEs do not have access to finance and marketing skills. Marketing communication is one of the key factors to the survival of SMEs in South Africa.Existing literature on marketing communication in South Africa observed factors such as integrated marketing communication for SMEs (Gabrieli & Balboni, 2010), marketing resources and firm performance among SMEs (Spillan & Parnell 2006), marketing knowledge and strategy for SMEs (Marjanova & Stojanovski, 2012). This study seeks to examine the effect of business attributes on the choice of marketing communication strategies of SMEs in South Africa. Businesses attributes considered for this study includes the size of the business, the sector, access to finance and the age of SMEs. According to the researcher's knowledge, no study has investigated the effect of business attributes on the choice of marketing communication tools in SMEs. This gap in the literature has stimulated this study.

Objective of the study: The objective of the study was to examine the effect of business attributes on the choice of marketing communication strategies of SMEs.

Hypotheses
Ho1: There is no significant difference in the marketing communication tools adopted by SMEs on the basis of the size of SMEs.
Ha1: There is a significant difference in the marketing communication tools adopted by SMEs on the basis of the size of SMEs.
Ho2: There is no significant difference in the marketing communication tools adopted by SMEs on the basis of the sector of the SME.
Ha2: There is a significant difference in the marketing communication tools adopted by SMEs on the basis of the sector of the SME.

Ho3: There is no significant difference in the marketing communication tools adopted by SMEs on the basis of access to finance.
Ha3: There is a significant difference in the marketing communication tools adopted by SMEs on the basis of access to finance.
Ho4: There is no significant difference in the marketing communication tools adopted by SMEs on the basis of the age of the SME.
Ha4: There is a significant difference in the marketing communication tools adopted by SMEs on the basis of the age of the SME.

2. Literature Review

This study provides the theoretical literature review of business attributes and marketing communication practices adopted by SMEs.

Theoretical background of marketing communication: Integrated Marketing Communication (IMC) theory by Schultz (1996) provides the theoretical framework for this study. IMC is the integration of different marketing communication techniques such as traditional and guerrilla marketing strategies to provide added value to the customer, and to increase positive relationships with all stakeholders (Du plessis, Van heerden & Cook 2010:19). Schultz posits that consumers integrate all messages received from an organisation. Therefore, if the organisation transmits uncoordinated messages to the same consumer, that consumer will aggregate and integrate those messages according to some pattern. Gabrielli and Balboni (2010:287) assert that SMEs are able to use various communication tools (IMC), including both traditional and guerrilla marketing tools, to declare ambitions and long-term goals, as well as to define in-depth messages. The use of traditional and guerrilla marketing communication techniques will allow SMEs to send complete messages through different mediums/channels to customers. Both traditional and guerrilla marketing strategies contribute differently to integrated marketing communication (IMC). Kailani (2012:122) finds that traditional marketing contributes to integrated marketing communication in the form of marketing communication mix. Du plessis, Van heerdenand Cook (2010:19) define IMC as the combination of advertising, publicity, public relations, personal selling, sales promotion, sponsorship, direct marketing and digital communication. Guerrilla marketing has a unique method of contributing to IMC. Anukam (2014:180) posit that guerrilla marketing strategies can be undertaken in a traditional way. For example, buzz marketing can emanate from public relations and publicity.

Marketing communication practices adopted by SMEs: According to Marcomm (2006:221), marketing communications are all strategies, techniques, and activities involved in delivering the desired marketing messages to intended target markets, regardless of the media choice. In this study, marketing communication is defined as the use of guerrilla and/or traditional marketing tools to effectively communicate with customers.

Guerrilla marketing: Teoh (2012:2) defines guerrilla marketing as the promotion of advertisement with a low budget, in an unconventional way to make the consumer have an ineradicable impression and to create ample amount of social buzz. According to Ujwala (2012:122), guerrilla marketing has been proven to work for SMEs around the world for the reasons that it is simple to understand, easy to implement and inexpensive. As a form of guerrilla marketing, Dlodlo and Dhurup (2013:55) posit that SMEs should incorporate internet-driven marketing principles such as e-marketing into their business practices. SMEs use viral marketing through social media platforms such as Facebook, blogs, LinkedIn, YouTube and twitter to minimise marketing costs (Dzisi & Ofosu, 2014:106).

Traditional marketing: Higuera (2015:1) asserts that traditional marketing refers to any form of promotion, advertising or campaign in the form of print advertisements such as billboards, newsletters, flyers and newspaper print advertising. Abdul-Rahim, Wahab and Saad (2015:135) report that traditional media is limited to a one-to-many approach, an approach in which a business can communicate with many people in a way that is one-directional. For example, customers can listen to an advertisement on radio, but will not be able to respond verbally to the advertisement (Nekatibebe, 2012:20). According to Ruzzier, Ruzzier and Hisrich (2013:222), SMEs use cost-effective forms of media such as advertising on local rather than on

national TV, or use cable channels such as radio and newspapers. SMEs use direct marketing, public relations, publicity, personal selling and sales promotion to effectively communicate with customers (Du plessis, Van heerden & Cook, 2010:36).

Business attributes: Suttle (2016:1) defines business attributes as characteristics that best represent all brands or businesses in the marketplace. Business attributes include size and the age of the business (Coad & Tamvada, 2012:384). Business attributes considered for this study include the size of the business, sector/ industry of the business, age of the business and access to finance.

Size of the business: Marketing communication is determined by various factors in SMEs (Ruzzier, Ruzzier & Hisrich 2013:231). The size of the business can determine its marketing communication practices. Marjanova and Stojanovski (2012:136) point out that SME marketing is based on inherent SME characteristics such as the SME size. According to Gabrielli and Balboni (2010:281), traditional marketing, which is a broad category that incorporates many forms of advertising and marketing such as print, broadcast, direct mail and tele-marketing, can be adopted and adapted for small businesses. Thrassou and Vrontis (2007:191) posit that small service SMEs, despite having an informal approach to marketing communications, spend more time communicating and engaging with their customers than larger firms. SMEs with a conservative approach to marketing might advertise in a local newspaper using commonplace advertising, while a large firm that uses entrepreneurial marketing might launch a sophisticated advertising campaign (Marjanova & Stojanovski, 2012:135). According to Centeno and Hart (2012:251), microenterprises do little of traditional marketing activities because of their size; the marketing communication messages are not targeting a very large audience as compared to small and medium-sized enterprises. The above findings indicate a significant difference in the marketing communication tools adopted by SMEs on the basis of SME size.

Sector/ industry of the business: SMEs formulate parts of different business industries/sectors and engage in various marketing communication techniques depending on the business industry (Rabova, 2015:49). According to Ramsey and Ibbotson (2006:317), the majority of manufacturing SMEs are still in the lower stages of e-business adoption because these businesses perceive very low levels of benefit from e-business. This is consistent with the view by Esteves (2009:27) that the majority of manufacturing SMEs are in the lower stages of e-marketing adoption as these firms perceive very low levels of supply chain benefits from e-business. Šerić and Gil-Saura (2011:283) are of opinion that public relations and product placement were used as a substitute for advertising when creating publicity in the tourism industry. Wang, Wu and Yuan (2009:219) posit that SMEs in the heritage destination (tourism sector) communicate with their customers through public relations and advertisements. Opoku, Abratt, Bendixen and Pitt (2007:363) suggest that a retailer's web site is an important part of its communications strategy, and therefore, managers should focus on the message that their web site is portraying. Gurau (2008:17) agrees that some retail SMEs monitor the communication between the online user and their web site; and the time spent by a customer on a specific web page can indicate his/her present interest in the products. Retailers use the data provided by their online behaviour monitoring system to produce personalized promotions targeted to individual customers. Spence and Essoussi (2010:1048) find that manufacturing SMEs communicate their brands or products through the use of web sites that support the positioning of both the brands and products. Based on the above literature, it is evident that there is a significant difference in the marketing communication tools adopted by SMEs on the basis of the sector of the SME.

Access to finance and the age of the business: Rogerson (2008:62) observes that one of the primary causes of SME failure in South Africa is the non-availability of external finance. Beck and Bemirguc-kunt (2006:2941) remark that SMEs are more constrained by limited access to finance, and with the absence of well-developed financial markets, it is difficult for SMEs to grow to their optimal size. The availability of finance has been stressed out as a key factor in the development, growth and success of SMEs (Abdulsaleh & Worthington, 2013:36). According to Rakaumba (2014:25), as compared to medium-sized enterprises, small businesses often lack financial records and the collateral required for loans from commercial banks. A total of 75% of applications for credit by new businesses are rejected while only two percent of new SMEs are able to access loans (Finscope, 2010:2). The initial expenditure of getting any SME to function is also high, and as such, marketing cost does not take priority (Kroon & Moolman, 2007:18). SMEs are financially constrained, and therefore do not have enough budget to spend on traditional marketing communication (Kudryavtseva,

2012:2). SMEs can rather resort to guerrilla marketing mainly because it is inexpensive (Teoh, 2012:2). Financial assistance helps SMEs to grow, meaning that most SMEs which already had a long lifespan were financially assisted and are now sustainable (Fatoki, 2012:122). According to Ruzzier, Ruzzier and Hisrich (2013:231), sustainable SMEs can be able to have enough budgets for traditional marketing communication, whereas relatively new SMEs will not have enough budgets for traditional marketing and will rather engage in guerrilla marketing. Based on the above findings, there is a significant difference in the marketing communication tools adopted by SMEs on the basis of access to finance and age of the SMEs.

3. Methodology

Quantitative research methodology was considered for this study because the research was subject to verifiability, which provided an air of legitimacy and reliability (Struwig & Stead, 2013:139). This study focused on SMEs located in Polokwane Local Municipality in Limpopo Province, South Africa. Non probability sampling was deemed appropriate for this study because of the difficulty in obtaining a list of SMEs in the study area. The study used convenience sampling and snowball sampling methods because; there was no defined population frame of SMEs in the research area. In addition, the researcher wanted to include the very small enterprises which majority of them are not registered. The researcher used self-administered questionnaire to collect data because, this method has proved to have a higher response rate than other data gathering techniques such as mail surveys (Grix, 2010:213). The questionnaire was developed by the researcher after a thorough review of literature on marketing communication strategies and SMEs. A total of 370 questionnaires were distributed to respondents, but only 160 were returned. Descriptive statistics, ANOVA and regression analysis were used to analyse data. Descriptive statistics was used to narrow down biographical details of the respondents. ANOVA and regression analysis were used to establish the variance between the following: (1) the size of SMEs and marketing communication; (2) SMEs' access to debt finance and marketing communication; and (3) the age of the business and marketing communication. The Cronbach's alpha test was used to measure reliability of the questionnaire items.

4. Results and Discussions

One hundred and sixty SME owners participated in the study.

Table 1: Biographical details of the respondents

Biographical details	Frequency
Gender	
Male	109
Female	51
Age of the owner	
Below 20	1
20-30	57
31-40	32
41-50	47
Above 50	23
Qualification of the owner	
Below Matric or equivalent	19
Matric or equivalent	55
Above Matric	86
Access to internet	
Yes	43
No	117
Number of years of business operation	
Below one year	4
1-5 years	28
6-10	16
Above 10	2
Access to debt finance	

Yes	25
No	135
Number of employees	
0	1
1-5	51
6-20	15
21-50	11
51-200	34

Biographical details of the respondents: Table 1 depicts the biographical details of the participants. The majority of the participants are male, in the 20-30 age bracket, with post matric qualification. The respondents do not have access to internet and debt finance. Their businesses have existed for between one and five years and have between one and five employees.

Table 2: Business attributes and marketing communication strategies of SMEs

		Sum of Squares	df	Mean Square	F	Sig.
Size of the business	Between Groups	99.046	2	49.523	29.379	0.000
	Within Groups	264.648	157	1.686		
	Total	363.694	159			
industry of the business	Between Groups	1.571	2	0.785	0.878	0.418
	Within Groups	140.404	157	0.894		
	Total	141.975	159			
Access to debt finance	Between Groups	1.779	2	0.889	7.230	0.001
	Within Groups	19.315	157	0.123		
	Total	21.094	159			
Age of the business	Between Groups	38.262	2	19.131	9.598	0.000
	Within Groups	312.932	157	1.993		
	Total	351.194	159			

Business attributes and marketing communication strategies of SMEs: Table 2 depicts the effect of business attributes on marketing communication strategies of SMEs. The results indicate that there is a significant difference in the marketing communication tools adopted by SMEs on the basis of the size of SMEs. Therefore; Ha1 is accepted. These findings are consistent with Centeno and Hart (2012:251) indicating that micro enterprises do little of traditional marketing activities and because of their size, the marketing communication messages are not targeting a very large audience as compared to small and medium-sized enterprises. The results also indicated that there is no significant difference in the marketing communication tools adopted by SMEs on the basis of the sector of the SME. Therefore; Ho2 is accepted. These findings are inconsistent with Rabova (2015:49) indicating that SMEs engage in various marketing communication techniques depending on the business industry.In addition, the results indicated that there is a significant difference in the marketing communication tools adopted by SMEs on the basis of access to finance. Therefore; Ha3 is accepted. These findings are consistent with Rakaumba (2014:25) indicating that, as compared to medium-sized enterprises, small businesses often lack financial records and the collateral required for loans from commercial banks. Furthermore, the results indicated that there is a significant difference in the marketing communication tools adopted by SMEs on the basis of the age of SMEs. Therefore; Ha4 is accepted. These finding are consistent with Ruzzier, Ruzzier and Hisrich (2013:231) highlighting that SMEs that already have a long lifespan can be able to have enough budget for traditional marketing communication, whereas relatively new SMEs will not have enough budget for traditional marketing and will rather engage in guerrilla marketing. The above results are further supported by the regression analysis below.

Table 3: Business attributes and marketing communication strategies of SMEs

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	3.655	0.385		9.491	0.000
Size of the business	0.246	0.051	0.576	4.835	0.000
industry of the business	0.47	0.107	0.026	0.438	0.662
Access to debt finance	-0.530	0.142	-0.299	-3.734	0.000
Age of the business	-0.129	0.049	-0.296	-2.642	0.009

Dependent Variable: Marketing communication

Table 3 depicts the effect of business attributes on marketing communication strategies of SMEs. The results indicate that there is a significant difference in the marketing communication tools adopted by SMEs on the basis of the size of SMEs. Therefore; Ha1 is accepted. The results also indicated that there is no significant difference in the marketing communication tools adopted by SMEs on the basis of the sector of the SME. Therefore; Ho2 is accepted. In addition, the results indicated that there is a significant difference in the marketing communication tools adopted by SMEs on the basis of access to finance. Therefore; Ha3 is accepted. Furthermore, the results indicated that there is a significant difference in the marketing communication tools adopted by SMEs on the basis of the age of the SME. Therefore; Ha4 is accepted.

5. Conclusion

The high failure rate of SMEs in South Africa can be linked to various aspects. While extensive debates and research have been directed on the financing aspect, limited research has been conducted in the area of marketing and SME attributes. The objective of the study was to examine the effect of business attributes on the choice of marketing communication strategies of SMEs in South Africa. This study concludes that there are significant differences between business attributes and the majority of marketing communication tools used by SMEs.

Recommendations: SMEs in the study area should consider their business attributes such as the size of the business and the access to finance when selecting marketing communication tools. This will enable them to select marketing communication tools that are within their budget, effectively communicate with their stakeholders and be sustainable. SMEs' owners/ managers need to use the available development programmes from organisations that assist them with training and finance such as the Small Enterprise Development Agency (SEDA) to equip themselves with relevant knowledge on the issue pertaining the adoption and utilisation of marketing communication strategies.In addition, the findings of this study can help these organisations that support SMEs in South Africa to better understand the marketing communication strategies adopted by SMEs and to design intervention mechanisms to improve the marketing function of SMEs.The government can also subsidise the marketing function of SMEs in order to sustain them. This support from the government will enable SMEs to have funds in order to engage in both traditional and guerrilla marketing strategies to improve their performance and be profitable.

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Strategic Planning and Performance of Nigerian SMEs: The Moderating Role of Entrepreneurial Characteristics

Makinde Olubisi G., AsikhiaOlalekan U.
Department of Business Administration and Marketing, Babcock University, Nigeria
makindeo@babcock.edu.ng, asikhiao@babcock.edu.ng

Abstract: Studies that considered the moderating effect of entrepreneurial characteristics on the relationship between strategic planning and performance of SMEs are few. This research is aimed at investigating the relationship between strategic planning and SME performance while also considering the moderating effect of entrepreneurial characteristics on the relationship between these two variables. The study employed the use of survey research design using the owners/managers of 4,535 SMEs registered with SMEDAN as the target population. Correlation analysis was used to establish the extent of the relationship between strategic planning and performance of SMEs while hierarchical regression analysis was used to establish the moderating effect of entrepreneur characteristics on the relationship. Findings showed that there exist statistically significant positive relationship between strategic planning and performance of SMEs in Lagos State, the study also indicated that entrepreneurial characteristics significantly moderates the relationship between strategic planning and performance of SMEs. The study concluded that entrepreneurial characteristics being exhibited influenced the performance of the business. Policy implications and recommendations were made.

Keywords: *Strategic Planning, Performance, SMEs, Economic Development, Entrepreneurial Characteristics*

1. Introduction

Economic development has been ascribed to an effervescent Small and Medium Enterprises (SMEs) (Muritala, Awolaja, and Bako, 2012). Most developed economies of the world have relied more on the development of the SME sector in order to achieve and sustain their economies. Safiriyu and Njogoh (2012) opine in their study that SMEs are very critical in the attainment of economic prosperity while Muritala, Awolaja and Bako (2012) assert that there is connection between the importance given to the SMEs and economic growth and development of a country. Many developed economies have ascribed their advancement to a successful and virile SME sector and the developing economies also considered the sector as the "engine for economic development" (Ale, Ahmed and Taha, 2010).The small and medium scale enterprises are contributing to the growth and development of several countries in terms of employment generation which in turn leads to poverty reduction and growth in the Gross Domestic Product (GDP) as well as increase in export which forms the backbone of economic and industrial development which have contributed to the economic success of Asian countries (Onugu, 2005; Ayozie, 2011; Agu & Nwachukwu, 2012; Idowu, 2012; Gbandi & Amissah, 2014).

The Central Bank of Nigeria (CBN, 2011) reports that the SME sector in India is responsible for up to 39% of manufacturing activities and 33% of total exports of that country. Moreover, the report of the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) published by the National Technical Working Group (2009) indicated that SMEs in the United Kingdom contribute up to 54% to employment generation and poverty eradication. Similarly, Belgium and Ireland recorded 66.6% and 66.5% respectively. Developing economies such as China and South Korea were also able to accomplish up to 75% and 70% respectively while Nigeria has only been able to attain 10%.Oni and Daniyan (2012) note that there has been a move from capital intensive and large scale industrial projects to small and medium scale enterprises since the introduction of the 1981 Economic Reform in Nigeria because this is considered as a catalyst that will propel the economy towards development. In like manner, Ojo (2009) states that one of the responses to the challenges of development in developing economies like Nigeria is the success of the SME sector.There has been a drop in job availability in the country and those that are employed are having challenges keeping their employment therefore there is need for vibrant Small and Medium Scale Enterprises (SMEs) which have become means of guaranteeing "self-independence, employment creation, import substitution, effective and efficient utilization of local raw materials" (Oni and Daniyan, 2012). Agwu and Emeti, (2014) state that there is high level of unemployment in the country which could be attributed to the poor performance of SMEs in

employment generation. Moreover, government at various levels have all focused on the development SMEs in order to improve the socio-economic development through alleviating poverty, employment generation, enhancing human development, and improving social welfare of the people by formulating policies that will ensure the growth and performance of SMEs (Akingunola, 2011).

The Federal government of Nigeria has supported the SMEs with special policies and funding but despite the various government intervention policies and funding, there are still challenges of survival. As such, the desired impact to the economic development of the country is still farfetched which suggests that there are other factors responsible for the failures other than finance. It was therefore postulated that other endogenous factors may be responsible for the failure. It has further been indicated that in strategic planning research and practice, attention to environmental influences (moderating factors) seem to have been ignored (Drago and Clements, 1999; Asikhia, 2010; Islam, Khan, Obaidullah and Alam, 2011; Dandira, 2011; Nooraie, 2012). One of such factors, identified in this study is entrepreneurial characteristics. This seems to support assertions that performance lapses among SMEs are due to entrepreneurs' inabilities to envisage and factor into their planning processes the role of some contextual variables and the influence that strategic planning has on organizational performance. Is it possible then to conclude that a contextual factor such as the entrepreneurial characteristics can influence the strategic planning and performance relationship of SMEs? In line with this observation while considering the work of previous researchers, this research aims to study the influence of moderator's factors (entrepreneurship characteristics) on the contribution of strategic planning to SMEs performance. It attempts to answer the following question: "Do entrepreneurship characteristics influence the contribution of the strategic planning to SMEs performance?" The essential motivation of this research is summed up in the researchers' desire to identify, describe and measure the impact of strategic planning on SMEs performance taking into account the effect of entrepreneurship characteristics such as entrepreneurial orientation and managerial attitude, in the context of SME sector in Lagos, Nigeria. The specific objectives of this research are to: determine the level of adoption of strategic planning by SMEs in Lagos State, Nigeria. Secondly, to evaluate the strength of the entrepreneur characteristics on the strategic planning-performance link in the SME sector in Lagos, Nigeria.

2. Literature Review

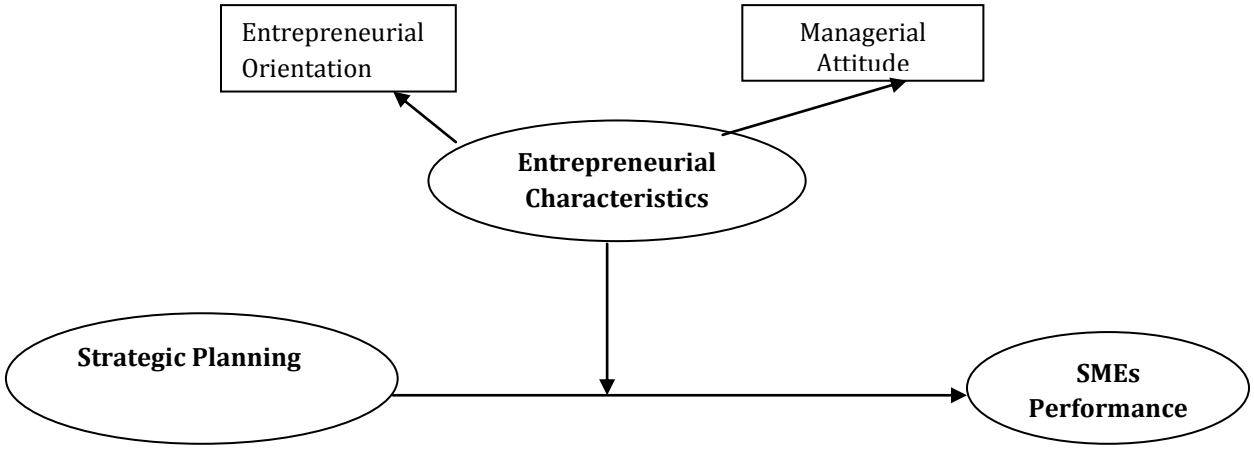
Strategic Planning and Performance of SMEs: Performance is the measure of an organization's judicious use and management of resources to add value to customers and other stakeholders (Wu, 2009). It is also described as how well an organization has been managed and the value (Laitinen, 2002 in O'Regan, & Ghobadian, 2007). It is the ability of an object to produce the desired results in a dimension that meets the expectation in relation to a target (O'Regan and Ghobadian, 2007). Yusuff, Olagbemi and Atere (n.d.) posit that firm's performance is multifaceted and is categorized by the firms' ability to create adequate results and activities. It was concluded that performance can include "survival, profit, return on investment, sales growth and number of employees". Adeoye and Elegunde (2012) categorize performance of an organization into financial performance, product or market performance and shareholders' return. Performance of an organization can also be described as an approach used in assessing the progress made towards achievement of goals, recognizing and adjusting factors which will limit the development of the organization in the environment (Adeoye & Elegunde, 2012). An organization is said to be effective if it makes use of its resources to attain high level of performance (Adeleke, Ogundele and Oyenuga, 2008). It was also postulated that a business organization can be said to be effective if it achieves the set goals of sales or market share which depends on how efficient the organization is. Performance is therefore conceived according to Adeleke, Ogundele and Oyenuga (2008), as a "set of processes for establishing shared understanding about what is to be achieved and of managing and developing people in a way which increases the probability that it will be achieved in the short and long term".

The use of strategic planning has been adopted by the management world as a tool for achieving organizational performance. Various studies have been conducted on the relationship between strategic planning and organizational performance in different economic settings (Grant, 2003; Glaister, Dincer, Tatglu, Demirbag and Zaim, 2008; Efendioglu and Karabult, 2010; Arasa and K'Obonyo, 2012). Organizations have adopted the use of strategic planning to identify the strategies that have resulted in increased outcomes and competitive advantage. According to Ansoff (1965) the key to an organization's successful acquisition,

distribution and processing of resources is the use of strategy. Strategic planning benefits an organization by improving its performance and enabling it to cope with environmental challenges, assists with change management and helps an organization to resolve human resources challenges. Adeleke, Ogundele and Oyenuga (2008), posit that organizations use strategic planning to predict changes in the environment in order to forestall any unforeseen circumstances. Silverman (2000) concludes that the performance of an organization depends on proper implementation of strategic planning. Every organization desires success and high performance hence there is need to plan strategically to ensure the realization of such success. Based on the discussions above, the following hypothesis is hereby formulated:
Hypothesis 1: there is no significant relationship between strategic planning and SMEs performance in Lagos State.

The Moderation Effects of Entrepreneurial Characteristics: As implied, entrepreneurial characteristics in this research paper focuses on two major areas of the SMEs– *entrepreneurial orientation and managerial attitude*. Arguably, entrepreneurial orientation and managerial attitude are indispensible factors that shapes and determines the success or failure of a firm or business activities (Wiklund & Shephard, 2003). Thus, they determine the effectiveness of the firm performance and business activities. According to Wiklund and Shephard (2003, referring to Hamel, 2000), entrepreneurial orientation (EO) has positive performance implication for the firm. The authors indicated that when product and business lifecycles are shortened, profitability becomes uncertain. Previous studies have revealed that entrepreneurial characteristics and managerial attitude are important factors to consider when talking about SME performance (Asikhia, 2010; Covin, Green & Slevin, 2006; Wiklund& Shephard, 2003). It was posited that the attitude of the manager and the orientation he has as an entrepreneur will affect his behaviour. Aziz, Mahmood, Abdullah and Tajudin, (2013) posit that the entrepreneurial orientation and performance are closely related. Chakravarty (1982) explores the entrepreneurial strategy-making and its relationship with performance and there exists a relationship between the two concepts. Similarly, Aziz, Mahmood, Abdullah and Tajudin, (2013) also confirm that entrepreneurial orientation has effect of the overall firm performance. While Asikhia (2010) also confirm that there is a relationship between managerial attitude and SME performance. Wiklund and Shephard (2003) examine knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. The study found that entrepreneurial orientation moderates the relationship between knowledge based-resources and firm performance. This finding implies that the willingness of a firm to be innovative, proactive, and risk taking enhances the positive effects of knowledge-based resources on performance. Hence, it is assumed that entrepreneurial orientation and managerial attitude would play significant roles of strengthening and stabilizing the relationship between strategic planning and firms' performance.From the above discussions, the following hypothesis is being advanced:
Hypothesis 2: There is no significant moderating effect of entrepreneurial characteristics on the relationship between strategic planning and SME performance.

Figure 1: Model of Strategic Planning and Performance



Source: Developed by the Researchers

Conceptual Framework: In order to attain the objective of the research paper, we propose a conceptual model that focuses on the relationship between all the variables: entrepreneurial characteristics, strategic planning and SMEs performance. Specifically, we wish to test the causal link between the SMEs performance in the study area and strategic planning, taking into consideration the entrepreneurial orientation and managerial behaviour.

$H_0 1 \quad SMEPERF = \alpha_0 + \alpha_1 SP + \mu_1$ ..... (1)

$H_0 2 \quad SMEPERF = \beta_0 + \beta_2 SP(EC) + \mu_2$ ..... (2)

3. Methodology

Research Context: The study investigated the factors responsible for the failure of SMEs in Nigeria despite the different policies of Government over the years and the special funding options that have been provided for this sector of the economy. Despite all efforts of government, it has been postulated that up to 85% of SMEs die before the tenth year of existence (NTWG, 2009). While the report of the NTWG (2009) identified external factors responsible for the failure of the sector, other internal factors were also identified. Most studies have focused on the external factors while the internal factors are yet to be investigated fully. This study explored the internal factors by studying the use of strategic planning as it relates to the performance of the SMEs while also considering the moderating effect of entrepreneurial characteristics of the owners who are in most cases the managers of these SMEs.

Sample and Data Collection: This study adopted the descriptive survey research design. The population of the study comprised of the Small and Medium Scale Enterprises (SMEs) operating in Lagos State registered with the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) which was 4,535 as at May, 2012. A sample size of 520 was selected for the study using the Cochran (1977) standard method of randomization. The sample was drawn from the five divisions of Lagos which are Badagary, Epe, Ikeja, Ikorodu and Lagos Island. The data for the study was collected through a well structured questionnaire. The questionnaire was measured by six-point Likert type scale ranging from 1 (strongly disagree) to value 6 (strongly agree) used throughout the questionnaire. Thirty copies of the questionnaire were pre-tested among randomly selected SMEs in Ogun State to ensure the validity and reliability of the instrument. The Cronbach-alpha method was used to determine the internal consistency of the instrument and the following values were obtained: Strategic Planning [formulation (0.898), implementation (0.753) & control (0.711)], Enterptreneural Characteristics [managerial attitude (0.781), entrepreneurial orientation (0.726)], and SME performance [(0.887) for SME performance scale. The values surpassed the minimum acceptable level of 0.70 suggested by Nunally, (1978). Therefore, it shows that the items used in the construct are reliable and consistent. The original users of the measuring instruments established the validity. However, Average Variance Extracted (AVE) > 0.5 were treated as an additional evidence of convergent validity, the construct validity of all variables involved in the study were therefore ascertained. The copies of the questionnaire were taken to the leaders of the various associations, unions and cooperative societies for easy administration and collection.The leaders worked with the research assistants to help in distributing the copies to the members during their monthly meetings. Out of the 520 copies of the questionnaire administered, 482 questionnaires were retrieved representing 92.7% return rate. The collected data were all processed by using Statistical Package for Social Science (SPSS) computer software program. Data was analyzed using descriptive statistics and the hypotheses were tested by standard hierarchical regression analysis at 5% significance level.

Measures: The measures of the variables were drawn from existing literature as provided in table 1:

Table 1: Sources of Adopted Questionnaire

Objectives	Variables	Source(s) of Instrument
1 Strategic planning	Formulation Implementation Control	Shelette (2002)
2 Entrepreneurial Characteristics	Managerial Attitude Entrepreneurial Orientation	Asikhia, (2010) Covin, Green and Slovin (2006)
3 SME Performance .	Sustainable Competitive Advantage Sales Growth Profitability	Asikhia, 2010

4. Results and Discussion

Table 2 reveals the demographic characteristics of the owner/managers of SMEs

Table 2: Demographic Profile of the Respondents

Category	Frequency	Percentage
Age:		
18-30	215	44.6
31-44	206	42.7
45-59	24	5.0
60 and Above	37	7.7
Total	482	100.0
Gender		
Male	361	74.9
Female	121	25.1
Total	482	100.0
Educational Qualification		
Diploma	155	32.2
First Degree	131	27.2
Second Degree	30	6.2
Doctoral	71	14.7
Others	95	19.7
Total	482	100.0
Working Experience		
0-5 years	254	52.7
6-9 years	142	29.5
10-14 years	26	5.4
15 and Above	60	12.4
Total	482	100.0

Source: Field Survey, 2015

Table 2 presents the demographic information of the owner/managers of the SMEs surveyed. Majority of the respondents – 445 representing 92.3% of the valid sample size were within the age bracket of 18-59 years. Majority of the respondents (361 in all or 74.9%) who participated in the survey were male entrepreneurs, managers and CEOs while 121 (25.1%) were female. A total of 155 respondents (32.2%) had diploma, followed by 131 (27.2%) with first degree certificate. As regards their years of working experience, majority of the respondents (52.7%) in the participating SMEs surveyed had prior experience in their fields of endeavor. A large percentage (45.2%) of the firms or participating SMEs surveyed had been in existence in Nigeria for between 4 to 10 years. Most of the participating SMEs (46.15%) have less than five employees in their business. This confirmed that all the respondents work in firms that actually fall within the established category of small and medium enterprises (less than 199 employees) as stipulated by the National Policy on

Micro, Small and Medium Enterprises. Lastly, a majority of the participating SMEs (41.1%) were in the manufacturing sector.

Hypothesis Testing: To test hypotheses, regression analysis was used to analyze the relationship between the strategic planning and SMEs performance. The coefficient of correlation and coefficient of determination (R^2) are indicated in table 3. The coefficient of determination (R^2) indicates the goodness and fitness of the model.

Hypothesis 1 (H_0): there is no significant relationship between strategic planning and SMEs performance in Lagos State.

Table 3: Moderated Multiple Regression Model Summary for Entrepreneurial Characteristics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	ANOVA	Sig.
1	.817[a]	.667	.665	5.56559	147.301	.000

Dependent Variable: SMEs Performance
Source: Researcher's Field Survey from SPSS output, 2015

Table 3indicates the model summary of the hierarchical regression equation that predicted the value of SME performance reacting to strategic planning and entrepreneurial characteristics. The results showed that SMEs performance has a significant relationship with strategic planning with correlation valueof (r=0.817, p =0.000, < 0.05 alpha level). The R^2 which is the proportion of the variation in the dependent variable that can be attributed to the independent variableshowed that 66.7% of the variance in SME performance appears accounted for by Strategic planning.The results indicated that strategic planning contributed significant amount of variance in SMEs performance in Lagos State. The significant relationship at $p<0.05$ level provides empirical support for H1 that significant relationship exists between Strategic planning and SMEs performance. Therefore, the null hypothesis which states that there is a significant relationship between strategic planning and SMEs performance in Lagos State, is rejected.

Hypothesis 2: There is no significant moderating effect of entrepreneurial characteristics on the relationship between strategic planning and SME performance.

The hypothesis was tested using the standard hierarchical regression models of Ordinary Least Method (OLS) for strategic planning, entrepreneurial characteristics and SME performance. Hierarchical regression allows for an assessment of the incremental increase in the explained variance of a dependent variable that is explained by the successive addition of sets of independent variables where the variance explained by previously entered variables is partialled out. This is to enable the researcher to determine whether entrepreneurial characteristics moderate the relationship between strategic planning and organization performance of SMEs selected in Lagos State, Nigeria.Analyses were made following the steps suggested by Baron and Kenny (1986) in conducting moderation test. In testing the interaction effects of entrepreneurial characteristics on the relationship between strategic planning and SME performance, the problem of multicollinearity had to be dealt with. Multicollinearity which is multi correlations with sufficient magnitude and has the potential to adversely affect regression estimates (Fox, 1992). According to Aiken and West (1991), multicollinearity can inflate the value of R^2 (the proportional variation in the dependent variable which can be explained by independent variable) even when none of the beta weights are statistically significant. Multicollinearity can also produce bizarre beta weight estimates, and may lead to enormous changes in the model whenever a predictor variable is added or removed. According to Fox (1992), multicollinearity is better measured using tolerance and Variance Inflation Factor (VIF). Tolerance is the percentage of variance in the independent variable that is not accounted for by other independent variables, while Variance Inflation Factor is the reciprocal of tolerance. It was further pointed out that VIF of 3 or greater are often cited as indicative of problematic collinearity and have the potential to adversely affect regression estimates. A test for multicollinearity revealed that strategic planning has low level of multicollinearity with entrepreneurial characteristics (VIF of 1.490).

Table 4: Multicollinearity with entrepreneurial characteristics

Model	Collinearity Statistics	
	Tolerance	VIF
Strategic Planning* Entrepreneurial characteristics	0.6711	1.490
Strategic Planning*Entrepreneurial characteristics Centered	0.721	1.386

Source: Researcher's Field Survey from SPSS output, 2015

To avoid any problem associated with multicollinearity with interaction term, strategic planning and entrepreneurial characteristics variables were subtracted from their averages (centered) before a regression analysis was run. While analyzing the transformed scores, the effects of other variables were considered to be null. According to Baron and Kenny (1986), even if the basic effect in the 1st and 2nd steps is found to be insignificant, but the interaction variable is found to be significant, it is sufficient for assessment of moderation effect.

Table 4: Means of the variables

	N	Mean	Std. Deviation	Variance
Strategic Planning	482	56.1870	7.05826	0.8769
Entrepreneurial characteristics	482	49.5496	8.12439	0.9864
SMEs Performance	482	81.4437	10.68043	0.6904
Valid N (listwise)	482			

Source: Researcher's Field Survey from SPSS output, 2015

The SPSS syntax was used to determine the means, center the variables and to generate an interaction term. From table 4, SMEs Performance had the highest mean of 81.4437, followed by strategic planning at a mean of 56.1870. Entrepreneurial characteristics had the least mean of 49.5496. Moderation analysis was undertaken using regression because both the independent variable and moderating variable had a scale level data (Faraway, 2002).

Table 5: Model Summary of Strategic Planning, Entrepreneurial Characteristics, & SMEs Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. Change	
1	.817[a]	.667	.665	5.56559	.667	147.301	2	479	.000	
2	.858[b]	.737	.734	5.54104	.007	5.254	1	478	.022	1.658

a. Predictors: (Constant), Entrepreneurial Characteristics, Strategic Planning
b. Predictors: (Constant), Entrepreneurial Characteristics, Strategic Planning, Strategic Planning*Entrepreneurial Characteristics
c. Dependent Variable: SMEs Performance

From Table 5, $\Delta R^2 = 0.007$, $\Delta F(1,478) = 5.254$, $p = 0.022$. Because $p<0.05$, the interaction term is significant, therefore entrepreneurial characteristics has a moderating effects on the relationship that exists between strategic planning and SMEs performance. Hypothesis two, which states that entrepreneurial characteristics has no significant moderating effect on the relationships between strategic planning and the SMEs performance in Lagos State is therefore not supported, and thus rejected.

Table 6: Coefficient of Strategic Planning, EntrepreneurialCharacteristics, and SMEs Performance

Dependent Variable	Independent and Moderating variables, and interaction effects	Standardized Coefficients	t-test	Significance
SMEs Performance	(Constant)	56.187	221.640	.000
	Strategic Planning	.793	7.632	.000
	Entrepreneurial Characteristics	.452	3.536	.000
	(Constant)	56.465	201.706	.000
	Strategic Planning	.643	5.555	.000
	Entrepreneurial Characteristics	.553	4.585	.000
	Strategic Planning*Entrepreneurial Characteristics	.403	6.292	.022

Source: Researcher's Field Survey from SPSS output, 2015

The results in Table 6 show the moderator role of Entrepreneurial Characteristics in the relationship between strategic planning and SME performance. Indeed, strategic planning has a positive effect on the SMEs performance ($\beta = .793$, $t = 7.632$, $p = .0001$). Entrepreneurial Characteristics also has a direct effect on the SMEs performance ($\beta = .452$, $t = 3.536$, $p = .0001$). The product or interaction (Planning*Entrepreneurial Characteristics) has a strong positive effect on the SMEs performance ($\beta = .403$, $t = 6.292$). The result shows the presence of moderating effect of entrepreneurial characteristics on the relationship between strategic planning and SME performance. Therefore, the null hypothesis, which states that 'there is no significant moderating effect of entrepreneurial characteristics on the relationship between strategic planning and SME performance', is rejected. Hence, entrepreneurial characteristics have a significant moderating effect on the relationship between strategic planning and SME performance in Lagos State.

Discussions: This section discusses the result and findings derived from the data analysis. The main purpose of this study was to examine the strength of the entrepreneur characteristics on the strategic planning-performance link in SMEs in Lagos State, Nigeria. The result of the study shows that there is a high and significant relationship between strategic planning and SMEs performance, where ($r= .817$, $p < .05$). This means that SMEs that practice and use strategic planning have high performance than SMEs that do not practice strategic planning. The result supported the findings of Pushpakumari and Toshimitsu (2009) who discovered that strategy and performance of manufacturing SMEs in Japan and Sri Lanka are related. The study of Babsundaram (2009) also reports that strategic planning contributes to the relationship with the overall performance of small business. Furthermore, the study of Awino (2013) supports the findings since the result revealed that strategic planning is a means of achieving competitive advantage in the ICT industry of the SME sector in Kenya. The finding of the study suggests that strategic planning is important for business to succeed.

The result of the moderated (hierarchical) regression analysis indicates that the product or interaction of strategic planning and entrepreneurial characteristics has a strong positive effect on the SMEs performance, where ($\beta = .403$, $t = 6.292$, $p < .05$). It shows the presence of moderating effect of entrepreneurial characteristics on the relationship between strategic planning and SME performance. The finding further suggests that SMEs with good entrepreneurial characteristics tend to do better than SMEs with poor entrepreneurial characteristics. The studies conducted by Chakravarty (1982), Asikhia (2010) and Aziz, Mahmood, Abdullah and Tajudin, (2013) do support this finding that entrepreneurial characteristics moderate the relationship between strategic planning and SME performance. Furthermore, the finding is supported by the studies of Wiklund and Shephard (2003), that the willingness of a firm to be innovative, proactive, and take risks enhances the positive effects of the bundle of knowledge-based resources on performance.

5. Conclusion

The study examined the influence of entrepreneurial characteristics (moderating variable) on the relationship between strategic planning and SME performance in Lagos State, Nigeria. Furthermore, the relationship between strategic planning and SME performance was also examined. Even though the success of every developed economy has been traced to the success in the small and medium enterprises sector, little research seems to have been conducted on the relationship between strategic planning and performance in the SME sector in Lagos State. Therefore, the study investigated the relationship between the two variables and also considered the moderating roles of some entrepreneurial characteristics on the relationship between the strategic planning and SMEs performance in Lagos State. It was discovered that strategic planning positively affects the performance of SMEs and the entrepreneurial characteristics also affect the relationship that exists between the variables. When entrepreneurs exhibit the right characteristics, that is having the right orientation and managerial attitude combined with effective strategic planning, performance will be positively affected and the SME sector will be able to contribute significantly to economic development in Lagos State, Nigeria.

Recommendations: The findings of the study revealed that entrepreneurial characteristics positively influence the relationship between the use of strategic planning and performance of SMEs, it is therefore recommended that managers and owners of SMEs should be conscious of the kind of attitude being exhibited at the workplace. Since entrepreneurial orientation involves risk taking, innovativeness and proactiveness, they should acquire this orientation in order to be able to achieve their desired objectives. Furthermore, the Small and Medium Enterprises in Lagos State, Nigeria should embrace the use of strategic planning as a tool and a concept to be used in achieving organizational performance. The owner/managers of SMEs should look inwards to develop the right managerial attitude and have the right orientation rather than continue to hinge the poor performance of the sector on external factors. The results from this study could form the basis for SME operators to re-evaluate their internal competencies in order to achieve greater performance.

Limitations and Further Research: Although this research produced meaningful results, it was also subject to certain limitations which in turn provide avenues for further research. For instance, the study only treated the moderating variables in relation to the owners and managers of SMEs. There is a possibility that the variables considered can also be related to the workers in these sectors. Moreover, there is also the possibility that other internal factors can also affect strategic planning and performance. Future researchers may consider other moderating variables that could also affect the strategic planning-performance relationship. Other external variables could also be used as moderators between strategic planning and SME performance. Further limitations of the study included using qualitative or non-financial performance measures of SMEs. Future research could examine other performance measures such as the financial measures to know how strategic planning could influence those measures.

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Finance Function Performance Measurement-A Data Envelopment Analysis Approach

Stephen Migiro, Patricia Shewell
University of KwaZulu-Natal, Westville Campus, South Africa
Migiro@ukzn.ac.za, shewellp@ukzn.ac.za

Abstract: The practice of measuring performance of the finance function as a business support unit is not widespread. This study assessed the importance of measuring finance function performance, by ascertaining whether such measurement facilitates identification of the relative efficiency of business finance functions, and by establishing its impact, if any, on overall company performance. Focussing on a sample of companies in the South African Freight Forwarding industry, a performance metric was developed and implemented to measure finance function performance. Relative finance function efficiency was then evaluated using input-orientated data envelopment analysis (DEA) to identify 'best in class' performance and to benchmark participants' performance. Further, value chain DEA (VC-DEA) was applied to evaluate finance function efficiency simultaneously with overall company efficiency. Results show that implementation of the performance metric together with DEA facilitated the benchmarking of the finance functions of the sample group and the establishment of improvement targets for the finance functions determined as inefficient. In addition, a link between overall company performance and finance function performance in terms of inputs was confirmed; however, this link was not conclusively established as regards finance function performance in terms of outputs. The contribution of the study includes confirmation that implementation of the performance metric together with DEA facilitates the critical evaluation of finance function performance, thus establishing the importance of measuring the performance of the finance functions. In addition, incorporating the use of DEA in a performance framework for the finance function as a business support unit has extended the range of applications of DEA.

Keywords: *Finance function, performance measurement, data envelopment analysis*

1. Introduction

In order to manage business performance effectively, an appropriate performance measurement system needs to be in place. The beginnings of modern performance management are said to lie in the invention of double entry bookkeeping in the 15th century, centred on identifying profit and controlling cash flow (Morgan, 2004). Performance measurement, on the other hand, began with return on investment (ROI) as developed by the Du Pont Company (Lehtinen & Tuomas, 2010). In support of performance measurement, Neely (2004)argues that simply the act of deciding what to measure has value in that it forces management to be clear about its goals, and that having appropriate measures in place facilitates the communication of a well-defined structure for moving towards the achievement of these goals. Furthermore, he holds that having the correct measures in place with appropriate targets also allows for testing whether these objectives are being met.

In addition to much research relating to overall business performance measurement systems, there are empirical studies concerning measurement systems specifically designed to manage the performance of business support units. Examples include those related to the purchasing and supply chain management functions (PSM) (Das & Narasimhan, 2000; Easton, Murphy, & Pearson, 2002; Ellram, Zsidisin, Siferd, & Stanly, 2002; Narasimhan, Jayaram, & Carter, 2001; Saranga & Moser, 2010), and those related to the information technology (IT) function (Chen & Zhu, 2004; Ebrahimnejad, Tavana, Lotfi, Shahverdi, & Yousefpour, 2014; Mitra, Sambamurthy, & Westerman, 2011; Wang, Gopal, & Zionts, 1997).There is, however, evidence that performance measurement of the finance function as a business support unit is not commonplace (Shewell, 2011; Van Arnum, 2004). This lack of performance measurement is reported as making it difficult to identify whether the finance function is changing in line with identified shifts in the role and function of finance functions internationally (Shewell, 2011), and is seen as a primary barrier to finance improving its performance (Van Arnum, 2004). If companies do not set up measurements to establish baseline performance for the finance function then it is not possible to measure improvements (PricewaterhouseCoopers [PWC], 2015).

To the degree that finance function performance measurement is implemented, relevant business literature reveals that it is for the most part the preserve of consultancy companies and professional organisations (Accenture Management Consulting, 2014; Financial Executives Research Foundation [FERF], 2016; O'Connor, Schneider and Willman, 2015; PWC, 2015). In the South African context specifically, there is limited evidence of any such finance function benchmarking having taken place, with only one study identified, which was carried out by PricewaterhouseCoopers and focused on the insurance industry (PWC, 2014). There is, however, no evidence in the research literature that the efficacy of any such currently used finance function performance measures have been empirically tested either to establish how they relate to input–output efficiency of the finance function or to confirm that an efficient finance function adds value to the business as a whole.Focussing on the finance functions of a sample of companies in the South African Freight Forwarding industry, the main objective of this research was to establish the importance of measuring finance function performance. To this end, finance function performance measures confirmed by industry experts as being important and measurable were implemented, and data envelopment analysis (DEA) was applied to determine whether such performance measurement can (i)facilitate the identification of the relative efficiency of business finance functions, and (ii) establish the impact of such finance function efficiency on overall company performance.

As regards what constitutes the finance function, the main roles of the accounting and finance function have been listed as follows: recording transactions and reporting thereon; financial management, which includes finance mix and dividend policy; and management accounting, which includes activities such as investment analysis, budget preparation, management reporting and variance analysis (Johnston, Brignall, & Fitzgerald, 2002). Boisvert (2001b), on the other hand, has identified five key roles that suggest a broader view of the role of the finance function than that of Johnston et al. (2002), in that he indicates that decision-support activities for the finance function should encompass direct involvement in strategic and operational decision-making throughout a firm. This research defined the finance function as incorporating not only the more traditional roles as outlined by Johnston et al. (2002), but also strategic and business partnering roles as discussed in the literature (Boisvert, 2001a; Boisvert, 2001b; Court, 2005; Lenihan & O'Malley, 2002; Van der Stede & Malone, 2010). This wider definition of the finance function was selected to ensure that performance measures selected could support the transformation of the finance function into a broader more strategic business partner.

The remainder of this paper is organised as follows. In section 2 the literature pertaining to finance function performance measurement and to the application of DEA as it relates to business support units is summarised. Section 3 outlines the methodology followed and the model applied, and section 4 outlines the results of the application of an input-orientated DEA model to the finance function performance data as a means to analyse the relative efficiency of the finance function. In Section 5 the impact of finance function performance on overall company performance is analysed through the application of VC-DEA. Section 6 concludes with an evaluation of the insights gained as regards the potential value to be derived from finance function performance measurement coupled with an implementation of DEA.

2. Literature Review

Value of performance measurement: Much has been written on the value of measuring performance. Reported benefits include that having appropriate measures in place assists in strategy implementation by translating strategy into achievable goals and communicating a structure for achieving such goals (Lehtinen & Tuomas, 2010; Neely, 2004). Furthermore, it allows for the linking of different measures such that strategic goals can be achieved, but also allows for conflicting goals to be identified and aligned (Neely, 2004). The value of having a consistent standard of measurement across organisations is another proposed benefit of implementing a performance measurement system (Morgan, 2004).Performance measurement is, however, not without its challenges. Such systems can result in unintended behavioural consequences, such as when disappointing data is used in a judgmental way, or performance data is seen as a source of power and control (Neely, 2004). Further challenges include a focus on minimising variances as opposed to improving processes, and the fact that much measurement is based on historical measures, leading to reactive behaviour on the part of managers (Kaplan, 1984; Morgan, 2004). It is in response to these challenges that academics

and practitioners concentrated on developing measurement frameworks that align performance measurement with corporate strategy (Lehtinen & Tuomas, 2010).

A number of performance measurement models exist, including those referred to as the balanced measurement frameworks, designed to encourage businesses to implement a balanced set of performance measures (Brown, 1996; Fitzgerald, Brignall, Silvestro, Keegan, Eiler, & Jones, 1989; Lynch & Cross, 1992). However, the most well-known of these is that put forward by Kaplan and Norton (1996a), which proposes a four-faceted approach to performance measurement, including both operational and financial measures. As regards finance function performance measurement specifically, there are extant finance function performance benchmarks reported in the business literature, with a number of consulting groups and business organisations conducting benchmark studies by collecting and comparing data internationally across multiple industries (including, Accenture Management Consulting, The Hackett Group, FERF, PWC). However, many companies do not independently measure the performance of their finance functions (Van Arnum, 2004). These accepted performance benchmarks provide a basis from which to evaluate what measures may be combined to constitute an effective performance metric for the finance function in any industry.

Data envelopment analysis in performance measurement: In managing through the use of performance measurement, a key challenge is to shift the focus from justifying individual figures to learning from the current situation, and applying the findings to identifying how the targets can be achieved (Neely, 2004). In a similar vein, Kaplan and Norton (1996b) indicate that many managers become caught up in local improvement plans and reorganisations, without linking them to specific targets or to improved financial performance. This assertion by Kaplan and Norton gives credence to the argument that it is important to be able to link improving finance function performance to the future financial performance of the company overall. DEA has been identified as a potential method for establishing the relative efficiency of finance functions, and identifying whether the performance of the finance function can be linked to overall company performance.

DEA is a mathematical programming tool used in evaluating performance. In its current form, DEA was first introduced in 1978, and has since been recognised as an excellent methodology for performance evaluations (Cooper, Seiford, & Zhu, 2004). As such, Cooper et al. indicate that DEA has been used in evaluating the performance of many different types of business units and activities in the ensuing years. The original Charnes, Cooper, Rhodes (CCR) DEA model (Charnes, Cooper, & Rhodes, 1978) utilises linear programming to produce an efficiency measure for a decision-making unit (DMU), requiring only that the DMUs convert similar inputs to similar outputs and that these can be quantified. In terms of the model, any DMU measured as having an efficiency score of 1 is considered to be relatively efficient, and any with a score less than one is relatively inefficient (Elkins, 2003). Inefficiency means, in reference to its peer group, either its outputs could be increased without increasing inputs, or inputs could be decreased without decreasing outputs.

DEA, as originally developed, was designed to measure the efficiency of business systems as a whole without considering the internal structure of the business, often referred to as a 'black box' approach (Chen & Zhu, 2004; Kao, 2014). However, some evidence arose to suggest that in order to understand the efficiency of a DMU it was necessary to study the efficiency of its component processes (Kao, 2014). Wang et al. (1997) were among the first to address this issue, when they demonstrated the use of DEA to assess the marginal benefits of information technology on corporate performance in the banking industry. Following from this study many more complex cases have been studied where the business system is separated into more processes, either with a series or parallel structure, or some mix of these (Kao, 2014). One such study by Chen and Zhu (2004) developed a DEA-based methodology, which allows for the identification of the efficient frontier in two-stage processes where there are intermediate measures of performance. Chen and Zhu (2004) explain that the original DEA model can measure the efficiency at stage one and at stage two, but it cannot accommodate a process in two stages with intermediate performance measures in one application.

The Chen and Zhu model has been adopted by, among others, Saranga and Moser (2010), who term the model value chain DEA (VC-DEA).They utilised it to evaluate the performance of 120 international firms with respect to purchasing and supply chain management. The model was also adopted by Chiu and Huang (2011),

who evaluated the operational and profitability efficiencies of tourist hotels in Taiwan using the model. More recently the model has been applied in evaluating the impact of IT and risk performance in commercial banks in Taiwan (Wang & Lu, 2015). Kao (2014) summarised a wide range of network DEA studies that were based on problems identified and the models that have been developed and applied to them. The most recent studies with regard to network DEA focus on the stage weights applied in the model, and their impact in determining stage and overall efficiencies (Ang & Chen, 2016; Despotis, 2016; Guo, Shureshjani, Foroughi & Zhu, 2016). These studies reveal an emphasis on refinements in the theory, whereas the purpose here is to review existing network DEA applications in order to determine their usefulness in performance measurement systems for support units within businesses.

As is demonstrated through the application of the model by Saranga and Moser (2010) to the purchasing and supply chain management functions, and by Chen and Zhu (2004) themselves to information technology, it appears that the VC-DEA model is ideally suited to incorporation into performance measurement frameworks for support functions such as the finance function. Although the model does not allow for the identification of the impact of other exogenous inputs on overall company performance, it does allow for the relative efficiency of the finance function as a support DMU to be directly and simultaneously linked to the relative efficiency of the business as a whole. Saranga and Moser (2010) contend that a key challenge in measuring performance of support functions, such as PSM, is that they are not seen as directly adding value to products and services, making their value add difficult to measure. If the aim is to measure the performance of the finance function as a support function and to identify whether it adds value to the business as a whole, and not to unpack all the factors contributing to overall business efficiency, then it is contended that the Chen and Zhu (2004) VC-DEA model is fit for this purpose.

3. Methodology and Model

This research focussed on the finance function of companies in the South African Freight Forwarding industry. In order to identify relevant performance measures, selected companies were targeted to participate by responding to a semi-structured questionnaire and in follow-up interviews designed to identify and define the most important and measureable finance function performance measures in the context of the industry, and also to identify and define the most commonly used measure of overall company performance. Potential finance function measures were established with reference to relevant literature regarding finance function performance measurement (Accenture Management Consulting, 2014; FERF, 2013; Institute of Management and Administration, 2005).

The top-ranked measures identified were then further analysed, and they were categorised as either primary or secondary measures. A distinction is made between leading and lagging measures of performance (Kaplan and Norton, 1996b; Nørreklit, 2000). In the case of the finance function's input and output measures, those measures that for the most part have the characteristics of lagging indicators, were designated as primary measures. Six such primary measures of finance function performance were identified, and one primary measure of overall company performance. The finance function input measures identified are: *finance function cost as a % of revenue,* and *finance staff per million ZA rand of revenue.* The primary finance function output measures are: *average days' sales outstanding, business days to close and report, number of general ledger accounts reconciled at least quarterly,* and *customer billing error rate.* Finally, the identified measure of overall company performance was *net profit as a percentage of turnover.*

Table 1: Descriptive statistics of all input and output variables

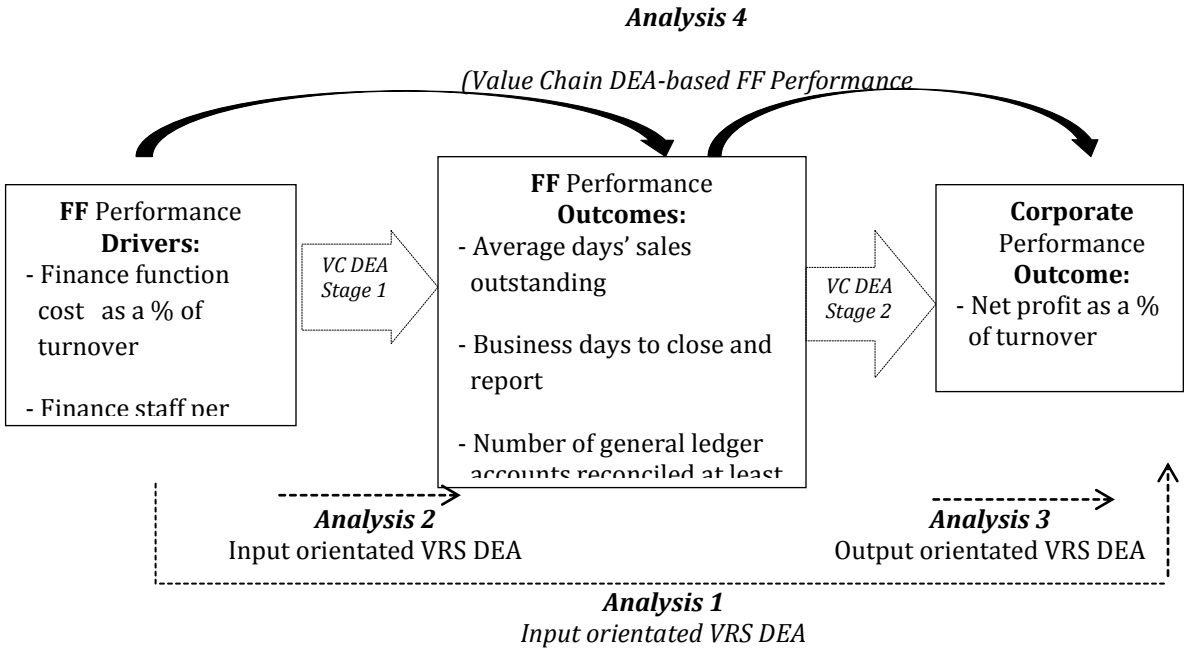
Variable	Mean	Std. dev	CV	Minimum	Maximum	Lower quartile	Median	Upper quartile
Finance function cost as a % of turnover	7.8%	5.4%	0.7	0.9%	22.4%	3.4%	6.6%	10.2%
Finance staff per R' million of revenue	2.2	2.6	1.2	0.07	9.6	0.2	1.7	2.8
Average days sales outstanding	36.0	12.1	0.3	9.1	56.1	28.0	35.5	42.0
Number of general ledger accounts reconciled at least quarterly	73.7%	33.6%	0.5	10.0%	100.0%	42.1%	100.0%	100.0%

Customer billing error rate	6.3%	4.5%	0.7	0.7%	21.00%	3.9%	5.0%	8.0%
Business days to close and report	10.5	8.9	0.8	2.0	41.00	5.0	10.0	13.0
Net profit as a percentage of turnover	16.0%	10.6%	0.7	3.0%	35.00%	5.2%	13.8%	27.0%

For the industry analysis of finance function performance, attention was focussed on these primary measures, which were collated into a performance measurement instrument designed to collect the performance data. This instrument was distributed to 35 companies, which were identified in the relevant industry directly through the agency of the South African Association of Freight Forwarders, but also through a call for participation placed on its website. A total of 19 usable responses were received. For the application of DEA as an operation management technique, a sample size equal to two to three times the number of input and output measures to be analysed is recommended (Chen and Zhu, 2004; Golany and Roll, 1989; Zhu, 2014). The study included seven input and output measures, and therefore the sample size was considered satisfactory given the methodology used. Data collected relate to the period ending 31 December 2015. Descriptive statistics in respect of the measurement data so collected are reported in Table 1.

4. Results

Figure 1: Summary of DEA analyses



Source: Developed by study authors, adapted from Saranga and Moser, 2010

Based on this measurement data, DEA was implemented to confirm the importance of such measurement and employed to establish the relative efficiency of the finance functions and to identify whether efficiency of the finance function had any identifiable impact on overall company performance.DEA was selected as a methodology due to its advantages over other approaches such as statistical regression analysis, which include its empirical orientation and the non-necessity of prior assumptions in DEA, prior assumptions being inherent in these other approaches. Furthermore, studies of benchmarking practices using DEA show inefficiencies in some of the most profitable firms, and so DEA provides a better vehicle for establishing benchmarks than using profitability as a criterion (Cooper et al., 2004). Furthermore, a benefit over single input-output ratio analysis is thatDEA allows for multiple performance dimensions to be combined in a single measure of efficiency. More specifically, for a business support unit such as the finance function, applying the value chain DEA model (VC-DEA) (Chen & Zhu, 2004; Saranga & Moser, 2010) was determined to be appropriate, given this model's capability of linking performance of the intermediate process to overall

company performance. Mirroring the approach of Chen and Zhu and Saranga and Moser, for comparative purposes, four analyses were conducted here: first, measuring efficiency of conversion of finance function inputs into overall company outputs (Analysis 1); and second, measuring the efficiency of conversion of finance function inputs into finance function outputs (Analysis 2). For both of these analyses, an input-orientated VRS DEA model was implemented. Next, an output-orientated VRS DEA model was implemented to measure efficiency of conversion of finance function outputs into overall company outputs (Analysis 3). Finally, these analyses were compared with VC-DEA (Analysis 4), which aims simultaneously to minimise finance function inputs and maximise overall company output (Ebrahimnejad et al., 2014). The four comparative analyses employed as described here are depicted in Figure 1.

In this application, three out of the four finance function output measures (*average days' sales outstanding, business days to close and report* and *customer billing error rate*) have the objective of minimising the output level. However, the basic premise underlying DEA is to maximise outputs relative to inputs. Different approaches to accounting for this anomaly in output measures were identified and considered. The approach adopted was to introduce a linear monotone decreasing transformation vector for these outputs (Seiford and Zhu, 2002; Hua and Bian as cited in Zhu and Cook, 2010), the advantages being that it maintains the integrity of the production process and preserves convexity (Seiford and Zhu, 2002). Accordingly, a vector was selected that was large enough to ensure the transformed output values would be greater than zero. Having translated the data as described, the resultant efficiency scores for the four comparative DEA models are as shown in Table 2.

Table 2: Comparative efficiency scores - analysis 1 to 4

Comparative results	**Analysis 1**	**Analysis 2**	**Analysis 3**	**Analysis 4**	
Respondent number	**FF Inputs → Overall profit**	**FF Inputs → FF Outputs**	**FF Outputs → Overall profit**	**Efficiency1**	**Efficiency2**
2.1	1.0000	1.00000	2.25606	1.00000	3.50275
2.2	0.1016	0.08825	4.83623	0.07537	6.25000
2.3	1.0000	1.00000	1.00000	0.63979	1.66619
2.4	0.9394	1.00000	1.82487	0.81167	3.01274
2.5	1.0000	1.00000	1.80848	0.94864	2.65511
2.6	0.2937	1.00000	1.00000	0.07083	1.66667
2.7	0.6010	1.00000	1.00000	0.62267	11.66667
2.8	1.0000	0.25000	1.62791	0.25000	1.62791
2.9	0.8806	1.00000	2.87984	0.66720	6.73077
2.10	0.5538	0.40571	1.00000	0.09659	1.29438
2.11	0.2422	0.10791	1.00000	0.03803	1.09787
2.12	0.1216	1.00000	1.00000	0.09907	7.95455
2.13	1.0000	0.14167	1.00000	0.14167	1.00000
2.14	0.9266	1.00000	1.08500	0.28333	2.05882
2.15	0.4829	0.37030	1.00000	0.08374	1.28299
2.16	0.6682	1.00000	1.66249	0.24286	2.53623
2.17	1.0000	1.00000	6.25575	1.00000	11.66667
2.18	0.3176	1.00000	6.65128	0.27331	8.75000
2.19	1.0000	0.74000	1.02215	0.43895	1.20042
Number efficient	7	12	8		

Relative efficiency of the finance function as a business unit: To address the first sub-objective, which is to assess the relative finance function efficiency among respondent companies using DEA, in the first instance

Analysis 2 is considered, in effect evaluating the function as a standalone process. This analysis measures the conversion of finance function inputs into finance function outputs, and utilises an input-orientated approach. The objective of the input-orientated DEA approach is to reduce the level of inputs for a given level of outputs, using the peer group as a potential benchmark. An efficiency score of one reflects optimum efficiency, whereas a score of less than one denotes inefficiency relative to the peer group. In terms of Analysis 2, 12 out of 19 (63%) of the finance functions of respondent companies were identified as relatively efficient in the finance function activity. Given their outputs, and in comparison with the input/output relationships of others in the set, their inputs were at an optimum level. While the reported results for *finance cost as a percentage of revenue* for these efficient units ranges from a low of 0.85% (respondent 2.17) to a high of 12% (respondent 2.6), and the results for *number of finance function staff per million rand of revenue* range from a low of 0.076 (respondent 2.1) to a high of 9.56 (respondent 2.14), they have all nonetheless been determined as efficient. This performance rating is because DEA compares the input/output relationship of each respondent against the input/output relationship of those in the set and not against an imposed target or an average.

Table 3: Deriving performance targets in DEA – examples from Analysis 2

		Input measures		Output measures			
Respondent number	Weighting	Finance function cost as a % of revenue	Finance function staff per R' million revenue	Average days sales outstanding	Number of general ledger accounts reconciled at least quarterly	Customer billing error rate	Business days to close and report
Current 2.2		16%	2.8	33	62%	8.70%	10
Peers							
2.4	0.067	5.50%*	0.16*	33**	83%**	8%**	5**
2.9	0.311	1.66%*	0.32*	28**	20 %	2.86%**	10**
2.17	0.622	0.85%*	0.22*	35.5	100 %**	4.20%**	10**
Target 2.2		1.41%	0.247	33.00	73.98%	4.04%	9.67
Current 2.19		14.00%	0.2	34	27 %	21.00%	15
Peers							
2.1	0.143	6.56%*	0.076*	40	10%**	3.98%**	15**
2.4	0.857	5.50%*	0.16*	33**	83%**	8%**	5**
Target 2.19		5.65%	0.148	34	85.43%	7.43%	6.429

* = Input less than inefficient respondent

**= Output better than or equal to inefficient respondent

In addition to determining the efficient finance functions, the model also establishes targets for improvement, which would enable inefficient finance functions to move onto the efficiency frontier. The targets are in essence a weighted average of the input and output measurements of efficient finance functions whose outputs most closely correspond with the given outputs of the inefficient finance function, and who therefore form the standard setting group for the inefficient unit. Efficiency targets can be better understood by examining some examples in more detail. Respondent 2.2 has a target *finance function cost as a percentage of revenue* of 1.41%, as compared with its current 16%, and a target *number of staff per million rand of revenue* of 0.247 staff per million compared with its current level of 2.8 staff per rand million. The targets for respondent 2.2 were established as a weighted average of the inputs of respondents 2.4, 2.9, and 2.17. These efficient functions all have inputs measurements lower than respondent 2.2, whilst achieving superior outputs in the majority of cases. On the other hand, another inefficient respondent, respondent 2.19, has output measures that are all currently inferior to respondent 2.2 examined above. This respondent's target *finance function cost as a percentage of revenue* is 5.65% (current 14%) and its target *number of staff per million rand of revenue* is 0.148 staff per million (current 0.2 staff per rand million). The targets in this case are established with reference to efficient respondents 2.1 and 2.4. These two units have lower inputs than

respondent 2.19 whilst at the same time achieving better outputs in most measurements. This comparative analysis of targets for respondents 2.2 and 2.19 is shown in Table 3.

The individual input targets for the seven inefficient functions in Analysis 2 range from 0.85% (respondent 2.8 and 2.13) to 5.651% (respondent 2.19) for *finance function cost as a percentage of revenue*, and 0.1480 staff per rand million (respondent 2.19) to 0.9737 staff per rand million (respondent 2.1) for *number of staff per million rand of revenue*. The range in these results reflects the individualised nature of the targets, and the fact that they are set in relation to relative outputs. A reported benefit of using DEA is that it allows for the benchmarking of DMUs in relation to peers, rather than in comparison to an average or an imposed target. Instead of the respondents all being compared to an imposed target or the overall best performer, which may be considered unachievable for some, they are compared to comparators that are achieving the same or better outputs with less inputs. In conclusion, application of the input-orientated VRS DEA model to evaluate finance function efficiency shows that implementing performance measurement does enable benchmarking of the performance of the finance function in relation to industry peers.

Establishing finance function impact on overall company performance: The second sub-objective in confirming the importance of measuring finance function performance, was to determine if a link could be established between finance function efficiency and overall company performance. Referring to the DEA analyses reported above, Analysis 1, 3 and 4 all aim to link finance function performance with overall company performance. Some earlier attempts to incorporate intermediate processes in performance measurement followed approaches similar in nature to Analysis 1, 2 and 3 as described by Chen andZhu (2004) and Saranga andMoser (2010). The validity of these approaches in determining the impact, if any, of finance function performance on overall company performance was also tested. It was shown that companies efficient in finance function activities (Analysis 2) are not always efficient in converting finance function input into overall company profits (Analysis 1), and that in applying Analysis 1 and 3, finance functions can be established as adding to overall company efficiency whilst not being efficient in themselves (Analysis 2). These problems and inconsistencies arising from the ways in which Analysis 1 and 3 accommodate intermediate processes in performance evaluation, provided the impetus for the development of VC-DEA (Chen & Zhu, 2004), and having been confirmed in this study, further justified the use of VC-DEA in this case.

The VC-DEA model returns efficiency scores for stage one (conversion of finance function inputs into finance function outputs) and stage two (conversion of finance function outputs into overall company outputs). The model "looks to minimise the inputs and simultaneously maximise the final output given the level of intermediary inputs" (Saranga and Moser, 2010, p.202). In terms of the VC-DEA model, only firms that return an efficiency score of 1 in both stage one and stage two are considered efficient when the process is viewed as a whole. In addition, the model provides targets for the intermediary measures (in this case finance function outputs), which, if met, would result in the two stages being efficient.

The results of the application of VC-DEA to the finance function performance data in this case, are shown in Table 2 as Analysis 4. In this analysis, no companies are found to be efficient when the process is viewed as a whole, given that no companies have an efficiency score of 1 at both stage one and stage two. Two companies (respondent 2.1 and 2.17) are found to be efficient at stage one, but not at stage two. Further interrogation of the targets returned in respect of these two companies shows that only an improvement in their overall company profits is required in order for them to be efficient when the process is viewed as a whole. That is, they are efficient in terms of finance function inputs and outputs. In contrast, all but these two companies are required to improve on the finance function inputs employed in order to generate the optimum intermediary outcomes and overall company profits, as is indicted by the targets returned by the model in respect of finance function inputs (stage 1) shown in Table 4. This finding demonstrates that improvement in finance function input performance is required in order to improve overall company performance for these 17 companies in the set, and, therefore, shows that finance function input performance is a determining factor in overall company performance.

As regards stage 2, only one company (respondent 2.13) is found to be efficient. For this company, only an adjustment to its finance function inputs is required in order for it to be efficient across the process. Moreover, as regards finance function outputs, the intermediary output targets (see Table 4) are for the most

part referencing the current intermediary output performance of this respondent, it being the only efficient unit at stage 2. However, many units are currently achieving intermediary output performance superior to the efficient unit, and therefore targets returned for these units are in fact inferior to their current performance, effectively showing that they should be able to achieve higher profitability without requiring improvement in finance function outputs. An example of this is in the measure *average days' sales outstanding* where the efficient unit had one of the highest current *average number of days sales outstanding*, and therefore 16 out of the 19 (84%) companies are reflected as not needing to improve performance in this regard to achieve overall process efficiency. Only in one measurement, where the performance of the efficient unit matched the maximum recorded performance, *number of general ledger accounts reconciled at least quarterly,* do all inefficient units have to either maintain their performance (if already at the maximum) or improve their performance in order to achieve overall system efficiency.

To summarise the results in respect of the impact of finance function performance on overall company performance, finance function input targets for units reported as inefficient at stage 1 reflect that an improvement in input performance is required to achieve system efficiency. In contrast, finance function output targets for units determined as inefficient at stage 2 are in some cases inferior to current performance, thus showing that improvement in performance in terms of these outputs is not required to achieve system efficiency. Therefore, it can be concluded that finance function input performance is linked to system efficiency, whereas for finance function output performance this link is not conclusively proved. In concluding that finance function outputs are, for the most part, not a contributing factor in overall company performance, it is nonetheless noted that the profitability performance of the stage 2 efficient unit (respondent 2.13) in the data set is significantly higher (more than two standard deviations above the mean) than others in the set. It is also noted that the study is cross-sectional in nature in that data have been collected for a particular period (the year and/or month ended 31 December 2015, as relevant). Accordingly, although companies were asked to validate their data post collection (making the conclusion valid in respect of the particular data set), in order to check for robustness of this conclusion, an alternative was considered where the tails of the profitability measure were removed. The results of this check showed that removing outliers from the sample did impact on the number of companies being determined efficient overall (two respondents were now efficient at both stage 1 and stage 2). However, in respect of targets for finance function (intermediary) output performance, the results remained mixed in terms of whether an improvement in such output performance was necessary for achieving efficiency in terms of final company profit (stage 2 efficiency).

5. Conclusion

To examine the importance of measuring performance of the finance function, DEA was applied to evaluate utilising such measurement to establish relative finance function performance within the peer group, and to examine whether a link between finance function efficiency and overall company efficiency could be identified. In order to establish benchmarks for the finance function as a standalone business unit, input-orientated VRS DEA was applied (Chen & Zhu, 2004; Saranga & Moser, 2010). The efficient companies relative to the peer group were identified, and targets for improving efficiency in the units identified as inefficient were unpacked. Therefore, performance measurement was shown to facilitate the establishment of relative efficiency of companies in the peer group. In terms of this model, 12 of the 19 respondent company finance functions were found to be efficient. Following the approach of Chen and Zhu, Saranga and Moser, and others, various approaches to linking the performance of the finance function to overall company performance using DEA were then evaluated. It was established that using either an input-orientated VRS DEA to evaluate efficiency of conversion of finance function inputs to overall company profits, or an output-orientated VRS DEA approach to evaluate conversion of finance function outputs to overall company profits, both were deficient in that they gave contradictory results. This deficiency provided the rationale to adopt the Chen and Zhu VC-DEA approach to evaluate the link between finance function performance and overall company performance.

The results of the VC-DEA application showed that achieving overall process (system) efficiency for companies determined as inefficient in stage one, required an improvement in finance function inputs, and therefore demonstrated a link between finance function input performance and overall company performance. Those companies found to be inefficient in stage two, required an improvement in overall

company profits. The model also, however, returned targets in respect of intermediate (finance function) outputs. Here it was found that improvements in these intermediary outcomes were not always required in order to achieve efficiency throughout the process. Therefore, the results in respect of the link between finance function outputs and overall company performance are mixed.

The implementation of DEA in this study has facilitated the critical evaluation of the importance of performance measurement of the finance function in the freight forwarding industry, whereas the value of performance measurement is reported as being difficult to isolate (Neely, 2004). Furthermore, it has facilitated the critical evaluation of the value added by the finance function as a business support unit; whereas establishing the value added by support functions has been reported as particularly difficult because they do not directly add value to the business (Saranga & Moser, 2010). In addition, applying VC-DEA to performance measurement of the finance function has extended the range of DEA applications.

Table 4: VC-DEA actual vs target performance

	Finance function inputs				Intermediary finance function outputs								Overall company output	
Respondent number	Finance function cost as a % of revenue		Finance function staff per R' million revenue		Average days sales outstanding		Number of general ledger accounts reconciled at least quarterly		Customer billing error rate		Business days to close and report		Net profit %	
	Act.	Tgt.	Act.	Tgt.	Act.	Tgt.	Act.	Tgt.	Act.	Tgt.	Act.	Tgt.	Act.	Tgt.
2.1	6.6%	6.6%	0.08	0.08	40.0	52.7	100%	100%	4.0%	4.9%	15.0	15.0	9.9%	34.7%
2.2	16%	1.2%	2.80	0.21	33.0	55.6	62%	100%	8.7%	4.6%	10.0	12.0	5.6%	35.0%
2.3	9.4%	6.0%	0.14	0.09	38.7	54.0	100%	100%	2.0%	4.8%	2.0	13.6	20.9%	34.8%
2.4	5.5%	4.5%	0.16	0.13	33.0	55.1	83%	100%	8.0%	4.7%	5.0	12.5	11.6%	34.9%
2.5	6.2%	5.9%	0.10	0.10	42.0	39.7	100%	100%	12.3%	4.7%	5.0	13.5	13.1%	34.8%
2.6	12%	0.9%	5.00	0.22	9.1	55.6	10%	100%	6.0%	4.6%	2.0	12.0	21.0%	35.0%
2.7	8%	5.0%	0.20	0.13	35.0	38.7	75%	100%	0.7%	4.6%	20.0	12.0	3.0%	35.0%
2.8	3.4%	0.9%	1.86	0.22	56.1	55.6	100%	100%	7.3%	4.6%	13.0	12.0	21.5%	35.0%
2.9	1.7%	1.1%	0.32	0.21	28.0	55.6	20%	100%	2.9%	4.2%	10.0	12.0	5.2%	35.0%
2.10	8.8%	0.9%	2.40	0.22	49.5	55.6	100%	100%	6.5%	4.6%	6.0	12.0	27.0%	35.0%
2.11	22.4%	0.9%	7.16	0.22	27.8	55.6	42%	100%	7.3%	4.6%	41.0	12.0	31.9%	35.0%
2.12	8.6%	0.9%	3.23	0.22	17.7	55.6	100%	100%	3.9%	4.6%	2.0	12.0	4.4%	35.0%
2.13	6.0%	0.9%	1.73	0.22	55.6	55.6	100%	100%	4.6%	4.6%	12.0	12.0	35.0%	35.0%
2.14	3.0%	0.9%	9.56	0.22	21.0	35.5	60%	100%	5.0%	4.6%	12.0	12.0	17.0%	35.0%
2.15	10.2%	0.9%	2.78	0.22	42.0	55.6	20%	100%	2.5%	4.6%	9.0	12.0	27.3%	35.0%
2.16	3.5%	0.9%	1.91	0.22	41.0	55.6	100%	100%	4.1%	4.6%	5.0	12.0	13.8%	35.0%
2.17	0.9%	0.9%	0.22	0.22	35.5	55.6	100%	100%	4.2%	4.6%	10.0	12.0	3.0%	35.0%
2.18	3.1%	0.9%	1.17	0.22	46.0	55.6	100%	100%	8.0%	4.6%	6.0	12.0	4.0%	35.0%
2.19	14.0%	6.2%	0.20	0.09	34.0	53.9	27%	100%	21.%	4.8%	15.0	13.7	29.0%	34.8%

Performance measurement together with an application of DEA has made it possible to determine the relative efficiency of the companies' finance functions and to establish finance function input and output targets for the companies in the set. In addition, simply providing comparative performance data for companies gives them valuable additional information for decision-making that was not previously available in this industry. It is recommended, therefore, that the industry body consider the implementation of the metric, and make the resultant data available on an ongoing basis as one of the value-add services it provides to members. There is

also scope to carry out similar analyses in other industries or across industries to investigate the importance of finance function performance measurement across a broader spectrum and thereby increase the likelihood of such measurement being adopted by business more generally.

It is acknowledged that there are limitations to the study that impact the scope of the conclusions. The range of finance function performance measures selected was limited, although being based on rigorous analysis of industry inputs in this regard. There could be other drivers of finance function performance that are impacting finance function efficiency and that could be found to link to overall company performance. Extending the number of measures included in the analysis could allow for further discrimination of efficiency. Related to this limitation is that only a small proportion of companies in the industry responded to the call to provide performance data for the application of the DEA model. The small size of the sample does limit the number of inputs and outputs included in a DEA application, and increasing the size of the sample would allow for the extension of the number of inputs and output measures included in the analysis. Therefore extending the analysis in respect of both the number of input and output measures and the size of the sample are both avenues for further study.

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Foreign Direct Investment Dynamics in Hungary

Kunofiwa Tsaurai
University of South Africa, Pretoria, South Africa
tsaurk@unisa.ac.za, kunofiwa.tsaurai@gmail.com

Abstract: The study discussed the dynamics of FDI in Hungary during the period from 1991 to 2015. The impact of FDI, FDI trends and determinants of FDI in Hungary were discussed. Empirical literature observed that FDI positively influenced economic growth in Hungary through boosting human capital development levels, total factor productivity, economic transformation, innovation, research and development, additional capital in the economy, modern technology, increased volume of additional capital and technology transfer. The study also revealed that most of the net FDI inflow into Hungary originated from developed countries and the least FDI net inflow came from transitional economies during the period under study. The general trend of FDI net inflow into Hungary followed a mixed pattern, with some years experiencing a positive net FDI inflow whilst other years were characterised by negative net FDI inflows. What is clear however is that FDI net inflow was consistently positive and experienced a positive growth following the integration of Hungary into the EU bloc of countries? The accession of Hungary into the EU removed barriers for the movement of capital, people, goods and services within the EU, reduced the cost of doing business and improved trade openness. These are the key locational advantages of FDI which improved FDI inflow into Hungary for a sustained period of time after the EU accession. The study also empirically tested the determinants of FDI in Hungary using the OLS multiple regression model with data ranging from 1991 to 2015. In contradiction to most previous studies on the subject matter, trade openness and financial development were found to have had a negative influence on FDI. The study also observed that inflation had a positive influence on FDI, contrary to Sayek (2009) who revealed that higher inflation levels erodes the foreign investors' profits, thereby making the host country not an attractive investment destination. However, exchange rate, education and economic growth had a positive but non-significant impact on FDI in Hungary, consistent to both theoretical and empirical literature. The implication of the study is that the Hungarian authorities are urged to design and implement policies aimed at improving education and economic growth in order to attract more FDI. Practical steps need to be taken by the Hungarian authorities in making sure that the value of the local currency is not overvalued and that trade openness is controlled and managed so that it does not reach a point where it begins to negatively affect FDI inflows.

Keywords: *FDI; Growth; Determinants; Hungary; Eastern Europe*

1. Introduction

According to Pilarska and Walega (2014), the inflow of FDI into Central and Eastern European countries, in particular Hungary is quite linked to the economic transformation witnessed since the integration with the European Union. This is consistent with an observation by UNCTAD (2012)which noted that international capital flow is an integral part of economic growth and development in the host countries.Although quite a number of studies which examines FDI in Central and Eastern European countries were done, those that exclusively focused on Hungary and are conclusive are very scant. Majority of studies on FDI in Hungary either used a case study approach or an empirical investigation. This study departs from previous studies in that it uses a case study approach and literature review approach to investigate the dynamics of FDI in Hungary. This study explores in greater detail the impact of FDI, the determinants of FDI and the trends of FDI (1991-2015) in Hungary using both case study and empirical literature review approaches. The fact that the author employed two different methodologies in one paper makes this study quite unique from previous ones done on a similar subject matter. The results from this study are expected to inform the Hungarian authorities how best they can package FDI related policies in order to stimulate economic growth in Hungary. This involves the environment which the Hungarian policymakers should strive to put in place in order to scale up FDI inflow activities that guarantee growth in the economy. The rest of the paper is structured as follows: Part 2 discusses the impact of FDI inflows into Hungary, part 3 presents the trends of FDI in Hungary whilst part 4 investigates the determinants of FDI in Hungary from an empirical literature point of view. Part 5 is an empirical test of the determinants of FDI in Hungary. Part 6 concludes the study.

Impact of Foreign direct investment inflow in Hungary: Theory on the impact of FDI in the host country was pioneered by Romer (1986), Lucas (1988), Calvo and Sanchez-Robles (2002), Kumar and Pradhan (2002) and Nath (2005), among others. They generally concur that economic growth requires capital injection and that FDI induces technology transfer, managerial expertise and technical know-how necessary for economic growth take off. They also agree that FDI improves capital accumulation and total factor productivity which helps host countries to sustain the growth of their economies.A number of empirical research work examined the role played by FDI in the Hungarian economy. For example, Sgard (2014) studied the relationship between FDI and productivity levels in the firms in Hungary using data from 1992 to 1999. The study found out that FDI had a substantial net positive impact on total factor productivity among Hungarian firms investigated. Moreover, the study revealed that FDI improved the rate of Hungarian economy's convergence towards the European Union's productivity levels. Hlavacek and Bal-Domanska (2016) observed that FDI was at the center of not only economic transformation but also economic growth acceleration in most Central and Eastern European countries which include Hungary, Czech Republic, Estonia, Lithuania, Latvia and Poland.

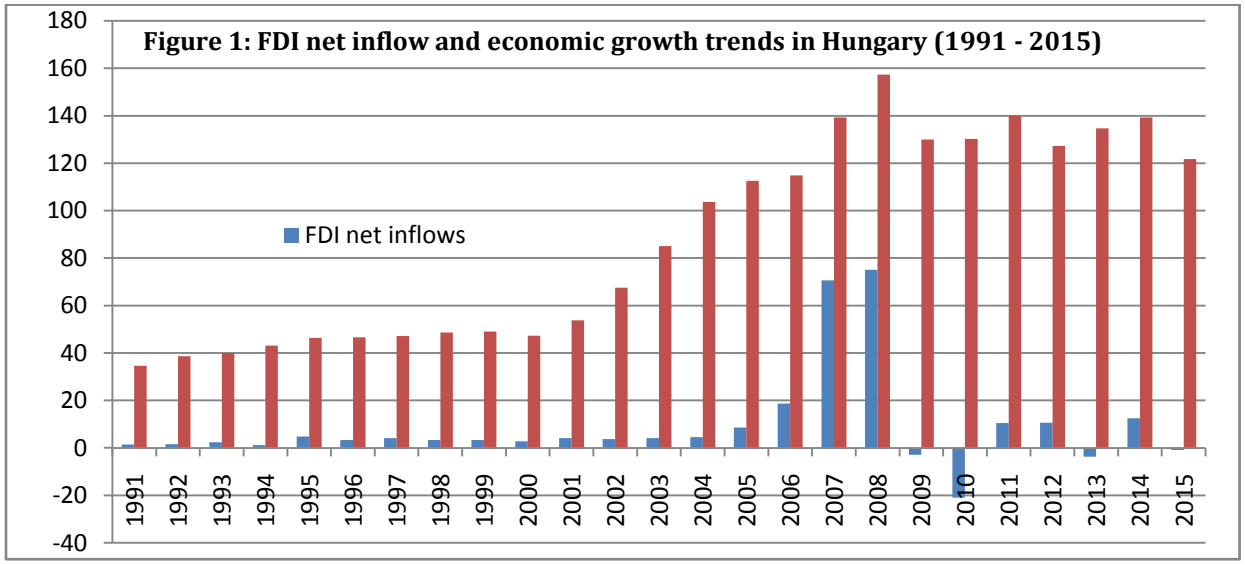
Lengyel and Leydesdorff (2015) studied the impact of FDI on innovation in Hungary. The finding was that FDI had an overwhelming positive influence not only on innovation but on the overall growth of Hungary's economic regions. Foreign owned companies in Hungary positively influenced synergies in the Hungary's regional innovation frameworks. The finding resonated with Inzelt (2000) whose study revealed that FDI was instrumental in speeding up the rate of transformation system of innovation and subsequently boosted economic growth in Hungary. Using log linear model and the Cobb-Douglas function, Torlak (2003) investigated the link between FDI and productivity in Central and Eastern European countries. The results pointed out that there was a very strong positive and significant correlation between FDI and productivity levels of firms in Hungary, Poland, Czech Republic, Bulgaria and Romania. Farkas (2000) also investigated the role played by FDI on innovation and research and development in Hungary. The study revealed that research and development and innovation relied more strongly on the inflow of FDI into Hungary during the period under study. It further found out that FDI provided the necessary additional capital to spearhead the implementation of innovative ideas through research and development in Hungary.

Benacek et al. (2000) studied the influence of FDI in Hungary, Poland and the Czech Republic using panel data analysis. Their study noted that the existence of foreign investors had to a larger extent boosted productivity levels and the growth of the economy in Hungary, Poland and Czech Republic. Andras (2014) examined the role FDI played in Hungary's food industry using data ranging from 1960 to 1990. The finding was that the favourable natural conditions in Hungary and the modern technology used in bigger farms from foreign investors played a major and instrumental role in promoting the food industry in Hungary. Fifekova and Nemcova (2015) studied the influence of FDI on economic growth in V4 countries which include Hungary, Poland, Slovakia and Czech Republic during the pre and post EU accession periods. They found out that FDI improved the volume of total investment, boosted capital stock, increased total productivity levels and real GDP in all the V4 countries. FDI transferred technology which also helped to boost total factor productivity over and above bringing in the technical know-how, innovation, knowledge capital, managerial, marketing and administrative skills into the V4 countries (Fifekova and Nemcova, 2015:13). The findings were supported by Gunther (2002) whose study observed that FDI immensely contributed to the modernisation of the Hungarian industry through building modern manufacturing plants and escalating innovation, research and development.

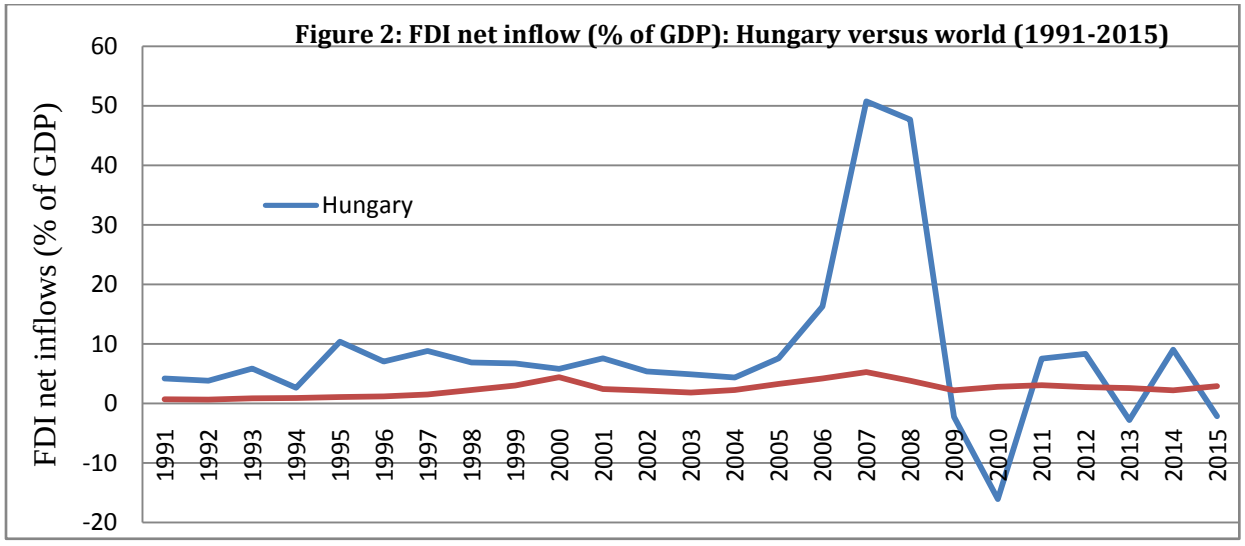
2. Foreign direct investment trends in Hungary

FDI net inflow and economic growth trends in Hungary (US Billion Dollars): FDI net inflows (billions of US$ dollars) were characterised by a mixed pattern whilst GDP experienced a consistent positive growth during the period from 1991 to 2015 (see Figure 1). FDI net inflows grew by 3.34%, from US$1.46 billion in 1991 to US$4.8 billion in 1995 whilst GDP increased by 11.64% during the same time period (from US$34.65 billion in 1991 to US$46.29 billion in 1995). FDI net inflows then declined from US$4.8 billion in 1995 to US$2.75 billion in 2000 before experiencing a 5.76% increase to close the year 2005 at US$8.51 billion. On the other hand, GDP marginally went up by 0.92%, from US$46.29 billion in 1995 to US$47.21 billion in 2000 before further going up by 65.38% to end the year 2005 at US$112.59 billion. The five-year period between

2005 and 2010 saw FDI net inflows declining by a massive 29.44% to close the year 2010 at a negative US$20.93 billion whilst GDP grew by 17.67% during the same period to end the year 2010 at US$130.26 billion. Moreover, GDP negatively grew by 8.54%, from US$130.26 billion in 2010 to US$121.72 billion in 2015 whilst FDI net inflows experienced a 20.02% rebound from a negative US$20.93 billion in 2010 to end the year 2015 at a negative US$0.91 billion.



Source: World Bank (2015)

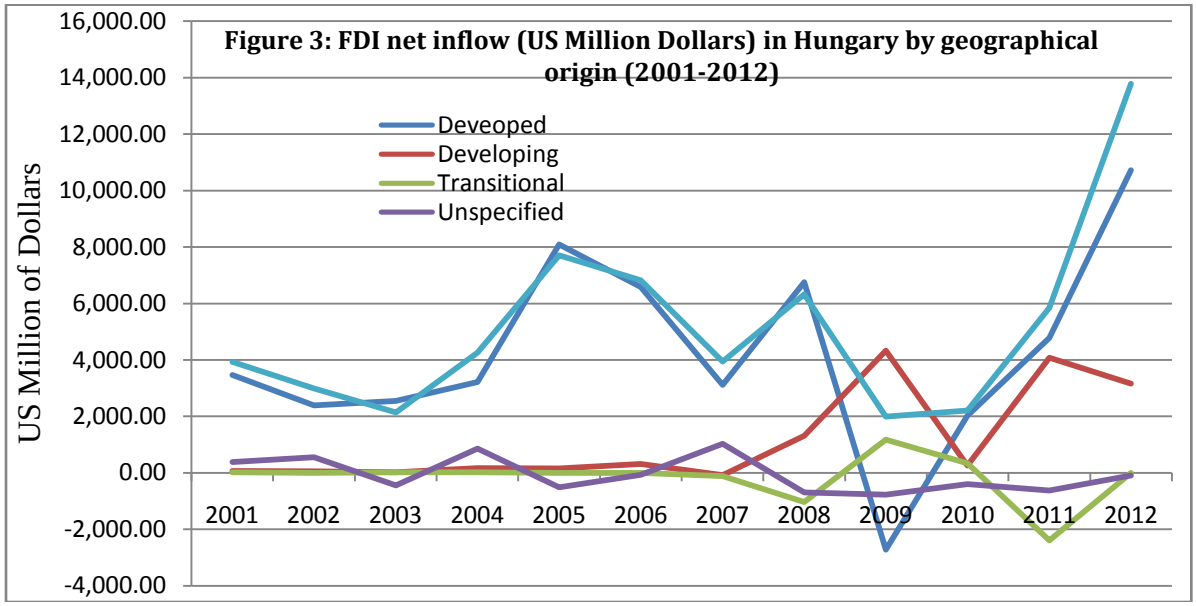


Source: World Bank (2015)

FDI net inflow as a share of GDP trends: Hungary versus the world: Figure 2 compare the FDI net inflows as a share of GDP for Hungary versus the entire world during the period from 1991 to 2015.FDI net inflows (% of GDP) went up by 6.16 percentage points, from 4.22% in 1991 to 10.38% in 1995 in Hungary whereas the entire world experienced a 0.42 percentage points growth in FDI net inflow (% of GDP) during the same time frame to end the year 1995 at 1.064%. Whilst Hungary was characterised by a 4.56 percentage points decline in FDI net inflow (% of GDP) during the five-year period between 1995 to 2000, the world experienced a 3.32 percentage points (from 1.064% in 1995 to 4.379% in 2000) positive growth in FDI net inflow (% of GDP) during the same time frame. In addition, FDI net inflows (% of GDP) increased by 1.73 percentage points, from 5.82% in 2000 to 7.554% in 2005 in Hungary whereas FDI net inflow as a share of GDP for the entire world negatively grew by 1.15 percentage points during the same timeframe (from 4.379%

in 2000 to 3.232% in 2005). Both Hungary and the entire world experienced a (1) negative growth in FDI net inflow as a share of GDP during the period from 2005 to 2010 and (2) a positive growth in FDI net inflow (% of GDP) between 2010 to 2015. Specifically, Hungary was characterised by a massive 23.63 percentage points negative growth in FDI net inflows (% of GDP), from 7.554% in 2005 to -16.071% in 2010 before experiencing a positive growth by 13.92 percentage points during the subsequent five-year time period to close the year 2015 at -2.156%. On the other hand, the entire world saw FDI net inflow (% of GDP) marginally declining by 0.49 percentage points, from 3.232% in 2005 to 2.743% in 2010 before experiencing an increase by 0.12 percentage points, from 2.743% in 2010 to 2.867% in 2015.

Hungary FDI net inflow by geographical origin trends: A mixed pattern characterised the FDI net inflow into Hungary by geographical origin during the period between 2001 and 2012 (see Figure 3). In 2001, 88.03% of FDI net inflow into Hungary originated from developed countries whereas 1.6%, 0.58% and 9.78% of FDI net inflow into Hungary came from developing, transition and unspecified countries respectively.



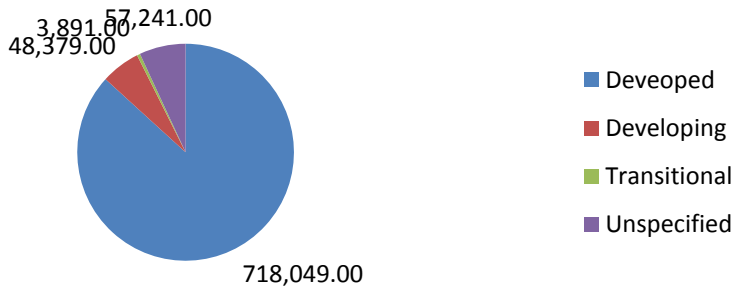
Source: UNCTAD FDI/TNC Database based on data from the Central Bank of Hungary

The net FDI inflow into Hungary that originated from developed countries in 2003 increased to 119.10% whilst the net FDI inflow into Hungary from developing and unspecified countries went down to 0.7% and -20.60% respectively. The net FDI inflow into Hungary that originated from transition economies went up from 0.58% in 2001 to 0.79% in 2003. Moreover, Hungary's net FDI inflow that originated from developed countries went down by 14.22 percentage points, from 119.10% in 2003 to 104.88% in 2005 whereas the net FDI inflow into Hungary that came from developing, transition and unspecified countries was 1.92%, -0.08% and -6.72% respectively. The period between 2005 and 2007 saw net FDI inflow into Hungary which came from developed going down by 25.97 percentage points, from 104.88% in 2007 to 78.91% in 2007 whereas net FDI inflow into Hungary that originated from developing countries declined from 1.92% in 2005 to a negative 2.20% in 2007. Moreover, net FDI inflow into Hungary that came from transition economies further plummeted from a negative 0.08% in 2005 to a negative 2.84% in 2007 whilst Hungary's net FDI inflow from unspecified countries rebounded from a negative 6.72% in 2005 to a positive 26.13% in 2007. FDI net inflow into Hungary that originated from developed countries plummeted by a massive 136.35%, from US$3 117 million in 2007 to a negative US$2 723 million in 2009 whereas Hungary's net FDI inflow from developing nations experienced a massive positive growth of 216.42%, from a negative US$87 million in 2007 to a positive US$4 322 million in 2009. On the other hand, transition economies' contribution towards Hungary's net FDI inflow went up by 58.69%, from a negative US$112 million in 2007 to a positive US$1 172 million in 2009 whilst the contribution from unspecified countries declined by 38.76%, from US$1 032 million in 2007 to a negative US$774 million in 2009.

The year 2011 saw the origin of net FDI inflow into Hungary being distributed as follows: 81.84% (from developed countries), 69.71% (from developing countries), 40.86 %(from transition countries) and -10.69 %(from unspecified countries). Last but not least, net FDI inflow into Hungary grew by a further 77.79%, from US$4 783 million in 2011 to US$10 717 million in 2012 whereas Hungary's net FDI inflow originating from developing countries went down by US$915 million, from US$4 074 in 2011 to US$3 159 million in 2012. FDI net inflow into Hungary that came from transition economies improved from a negative US$2 388 million in 2011 to a negative US$3 million in 2012 whilst Hungary's net FDI inflow from unspecified nations also improved from –US$624 million in 2011 to –US$97 million in 2012.

FDI stock in Hungary, by geographical origin (US Million Dollars): Figure 4 shows that most FDI stock in Hungary between the period 2001 to 2012 originated from developed countries, followed by unspecified countries, then developing countries and lastly transitional countries.

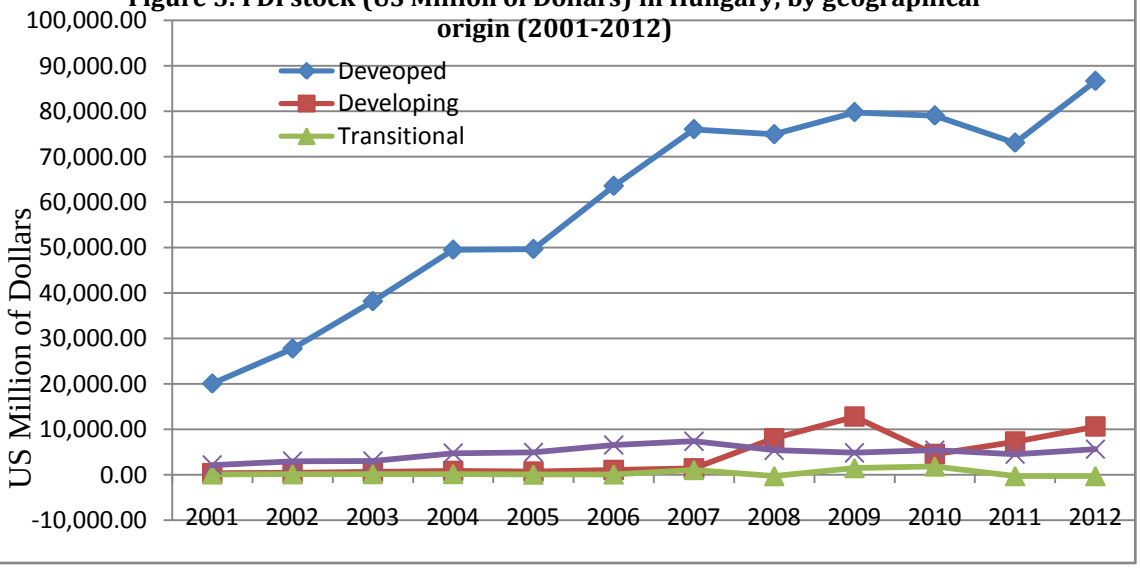
Figure 4: Total FDI stock (US Million Dollars) in Hungary by geographical origin from 2001 to 2012.



Source: UNCTAD FDI/TNC Database based on data from the Central Bank of Hungary

Specifically, the total FDI stock that originated from developed countries was US$718 049 million, US$57 241 million (unspecified), US$48 379 million (developing) and US$3 891 (transitional) between the year 2001 and 2012 (refer to Figure 4 and 5).

Figure 5: FDI stock (US Million of Dollars) in Hungary, by geographical origin (2001-2012)



Source: UNCTAD FDI/TNC Database based on data from the Central Bank of Hungary

3. Determinants of foreign direct investment in Hungary-Empirical literature

It is imperative to clarify the motives for FDI in order to be able to explain the differences in the FDI inflow into various host countries or locations. Dunning (1993) identified four broad motives for FDI, namely strategic asset, efficiency, market and resource seeking motives. Strategic asset seekers were defined as the multinational enterprises (MNEs) which consider FDI to promote or enhance their international competitiveness while efficiency seekers engage in FDI in order to rationalise their operational activities, enjoy the benefits of large economies of scale and take advantage of varying cost of factor endowments between and across countries. MNEs which are market seekers are driven by four main reasons. Firstly, to ensure they are physically present in prominent international markets in which their competitors operate. Secondly, to reduce costs of serving a local market through operating from a local facility. Thirdly, to follow customers or suppliers who might have relocated or expanded into other countries. Fourthly and lastly, to easily and quickly adapt its products to ever changing local tastes and this can be effectively managed through ensuring presence in the local market. Resource seeking MNEs invest in other countries in order to take advantage of the availability of resources or cheaper resources which include labour, physical resources, technology and expertise. Dunning (1993) observed that the resource and market seeking motives normally trigger initial FDI whilst strategic asset and efficiency seeking motives explains the subsequent FDI.

Markusen (1995) noted that vertically expanding MNEs may want to set up production facilities in other countries in order to cut the overall costs (efficiency seeking motive) whilst replicating production in foreign countries may put the MNE in a better position to access foreign markets (market seeking motive). In Hungary and Greece, market, efficiency and resource seeking were found to be the first, second and third order motives for FDI inflow respectively (Bitzenis et al., 2007:28). On the other hand, Tatoglu and Glaister (1998:219) showed that market development and faster access to new markets were the highest ranked motives for FDI in Hungary and Turkey. A number of empirical studies have investigated the determinants of FDI in Hungary and in other Central and Eastern European countries. Table 1 shows the factors that influenced foreign investment inflow into Hungary in their ranking order during the period from 2008 to 2012.

Table 1: Hungary's indicators' ranking of foreign investment attractiveness

	2008	2009	2010	2011	2012
Overall competitiveness	38	45	42	47	45
Economic performance	39	33	40	44	35
Government efficiency	47	50	51	52	51
Business efficiency	45	52	47	50	49
Infrastructure	27	33	35	35	35

Source: www.worldcompetitiveness.com

According to the world competitiveness statistics in Table 1, the influence of economic performance on FDI inflow into Hungary increased from 2008 to 2009, declined in 2010, further deteriorated in 2011 before improving in year 2012. The impact of infrastructural development and government efficiency on FDI inflow into Hungary consistently decreased from 2008 to 2012. Moreover, the ranking of business efficiency as a determinant of FDI inflow went down from 45 in 2008 to 52 in 2009 before improving to 47 in 2010. It further declined to 50 in the year 2011 before improving by one rank to 49 in year 2012. Tarro and Kramli (2013) examined the variables that determined FDI in Hungary. Their study noted that factors such as economic growth, market size and the political, social and the legal environment were quite instrumental in promoting FDI in Hungary. Benacek et al. (2000) explored the FDI determinants in Hungary, Poland and the Czech Republic using panel data analysis. In support of the market size hypothesis, market size was found to be an instrumental variable that drove FDI inflows into Hungary, Poland and Czech Republic during the period under study. According to Pilarska and Walega (2014), attractive market conditions, low transaction costs emanating from the European Union (EU) integration, economic growth and low levels of investment risk were the three dominant factors which attracted FDI into Hungary and other Central and Eastern European countries between 1996 and 2012. The EU integration removed the internal barriers to the free movement of people, capital, goods and services which in turn significantly lowered down the transaction

costs of doing business in the host countries. This greatly improved the locational advantage of FDI (Pilarska and Walega (2014:1170).

Ceka et al. (2014) investigated the determinants of FDI in Hungary, Bulgaria and Romania using the least squares method with World Bank extracted data ranging from 2000 to 2013. Their study found out that economic growth and the macro-economic environment positively and significantly influenced FDI into Hungary. On the other hand, Wang and Swain (1997) observed that market size, low cost of capital and political stability, low labour cost and a depreciated local currency were the key locational advantages of FDI in both Hungary and China. Employing ordinary least squares (OLS), multiple regression models, Torrisi (2015) examined the determinants of FDI in Hungary and Slovakia with data ranging from 1993 to 2012. Lower labour costs, trade openness, overall liberalization of the economy; low tax rates and economic integration with the EU were the major factors that attracted FDI into Hungary and Slovakia during the period under study (Torrisi, 2015:9).

4. An Empirical Test of the FDI Determinants in Hungary

Ordinary least squares (OLS) multiple regression model with annual time series secondary data ranging from 1991 to 2015 was used to estimate the determinants of FDI in Hungary. The sources of secondary include World development indicators, Global financial indicators, African development indicators, international financial statistics, International monetary fund and United Nations Development Programme (UNDP) databases and reports. Consistent with section 4 of this paper and other literature, the determinants of FDI can be summarised in the form of equation 1 (general model specification).

FDI=f(Trade openness. Inflation, economic growth, financial development, education, exchange rate) [1]
The multiple ordinary least squares (OLS) model that was used to estimate the determinants of FDI in Hungary appears as follows:

$$FDI_i = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + u_i \quad [2]$$

Table 2: Variables, a priori expectation and theory intuition

Variable	Theory intuition	Expected sign
Trade openness	Denisia (2010) noted that higher trade openness is a favourable government policy that attracts FDI. Due to the resultant stiff competition, trade openness crowds out local firms and economic growth, a business climatic condition that is not favourable to FDI (Baltagi et al., 2009).	+/-
Inflation	Sayek (2009) argued that higher levels of inflation in the host country chase away foreign investors as it erodes the amount of profits they would have generated.	-
Economic growth	Jorgenson (1963) observed that higher levels of GDP or market size positively influence the amount of FDI inflow into the host country.	+
Financial development	Bartels et al. (2009) observed that higher levels of financial development are more able to attract FDI through its ability to reduce transaction costs and ease the flow of information. In a well-developed financial system environment, foreign investors may opt for portfolio investment which then crowds out FDI (Hailu, 2010:109).	+/-
Education	High levels of education or human capital development allows companies to easily be able to utilize new technology that comes along with FDI (Craigwell, 2012).	+
Exchange rate	Aliber (1970) noted that strong currencies stifle FDI whilst weak currencies attract FDI. Countries which are characterized by strong currencies are attracted to invest in countries whose currencies are weak (Moosa, 2010).	+/-

Source: Author compilation

Where FDI is foreign direct investment, X_1 stands for trade openness, X_2 is inflation, X_3 is economic growth, X_4 is financial development, X_5 is education, X_6 represents exchange rate. $u_i$is the error term, αstands for the intercept whereas β_1,β_2 up to β_3 represents the coefficients of trade openness, inflation, growth, financial development, education and exchange rate respectively. To a larger extent, the choice of variables included in equation 2 was influenced by: (1) similar empirical studies on the subject matter (Giner and Giner. 2004; Sridharan et al., 2009; Vijayakumar et al., 2010; Branco. 2015; Pan. 2003; Kaur et al., 2013) and section 4 of this paper and (2) data availability. Exports of goods and services (% of GDP), inflation, consumer prices (annual %), GDP per capita, domestic credit provided by the financial sector (% of GDP), total education expenditure by government (% of GDP), exchange rate (local currency/US$) respectively were used as measures for trade openness, inflation, economic growth, financial development, education and exchange rate, in line with majority of the prior studies on a similar subject matter. Table 2 shows the theoretical relationship between FDI and the independent variables shown in equation 1.The results of the OLS multiple regression model are summarised in Table 3.

Table 3: OLS multiple regression model results

Variable	Co-efficient	Standard Error	T-statistic	Probability
Trade openness	-0.1643	0.9982	-0.1646	0.8711
Inflation	1.9940	1.2103	1.6475	0.1168
Economic growth	0.0050	0.0041	1.1956	0.2474
Financial development	-0.7884	0.6123	-1.2878	0.2141
Education	1.7846	1.9538	0.9134	0.3731
Exchange rate	0.0050	0.3107	0.0161	0.9873

*/**/*** indicate 10%/5%/1% respectively

Trade openness negatively influenced FDI in line with Baltagi et al. (2009) whose study argued thattrade openness crowds out local firms and economic growth, a business climatic condition that is opposite the dictates of the eclectic paradigm hypothesis and not favourable to FDI. Economic growth, exchange rate and education had a positive but non-significant impact on FDI, consistent with theoretical and empirical literature. Contrary to theory (Table 2), inflation positively but insignificantly influenced FDI in Hungary. The possible explanation is that higher inflation could have possibly led to the depreciation of the location currency which then attracted FDI into the Hungarian economy. On the other hand, financial development negatively but insignificantly affected FDI in Hungary, in line with Hailu (2010), who argued that in an environment in which financial development is high, foreign investors might opt for portfolio investment thus crowding out FDI.

5. Conclusion

The study discussed the dynamics of FDI in Hungary during the period from 1991 to 2015. The impact of FDI, FDI trends and determinants of FDI in Hungary were discussed. Empirical literature observed that FDI positively influenced economic growth in Hungary through boosting human capital development levels, total factor productivity, economic transformation, innovation, research and development, additional capital in the economy, modern technology, increased volume of additional capital and technology transfer. The study also revealed that most of the net FDI inflow into Hungary originated from developed countries and the least FDI net inflow came from transitional economies during the period under study. The general trend of FDI net inflow into Hungary followed a mixed pattern, with some years experiencing a positive net FDI inflow whilst other years were characterised by negative net FDI inflows. What is clear however is that FDI net inflow was consistently positive and experienced a positive growth following the integration of Hungary into the EU bloc of countries. The accession of Hungary into the EU removed barriers for the movement of capital, people, goods and services within the EU, reduced the cost of doing business and improved trade openness. These are the key locational advantages of FDI which improved FDI inflow into Hungary for a sustained period of time after the EU accession.The study also empirically tested the determinants of FDI in Hungary using the OLS multiple regression model with data ranging from 1991 to 2015. In contradiction to most previous studies on the subject matter, trade openness and financial development were found to have had a negative influence on FDI. The study also observed that inflation had a positive influence on FDI, contrary to Sayek (2009) who revealed that higher inflation levels erodes the foreign investors' profits, thereby making the host country not

an attractive investment destination. However, exchange rate, education and economic growth had a positive but non-significant impact on FDI in Hungary, consistent to both theoretical and empirical literature (refer to Table 2). The implication of the study is that the Hungarian authorities are urged to design and implement policies aimed at improving education and economic growth in order to attract more FDI. Practical steps need to be taken by the Hungarian authorities in making sure that the value of the local currency is not overvalued and that trade openness is controlled and managed so that it does not reach a point where it begins to negatively affect FDI inflows.

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The Role of Competitive Intelligence in Trade Facilitation in an Emerging Economy

Alexander Maune
CEMS, University of South Africa
alexandermaune6@gmail.com

Abstract: This article analyzed the role of competitive intelligence in trade facilitation in Zimbabwe, whose economy depends largely on exports of unprocessed minerals and tobacco among others to international markets. This study has been carried out when the country is facing persistent trade deficits as well as a number of trade complexities.This article was informed by both deductive and inductive approaches with an econometric model being developed to analyse the relationship between economic growth (GDP) and trade. A multiple regression analysis was used to measure this phenomenon using secondary data that was extracted from World Bank`s databases for the period 1975-2015. This analysis was then followed by a literature review of some identified peer-reviewed, published articles and documents that necessitated the development of a conceptual framework. The framework complemented the findings of the regression model.The special role of trade in economic development was analyzed using an econometric model with a positive correlation of 0.8045 obtained. An *F*-value equal to 34.86 was also obtained which is much greater than 1 thereby suggesting that the hypothesis H_0 is false. This was also confirmed by the *p*-value of 0.000000002526< 0.05. The coefficient of determination R^2, also known as the *multiple* R^2, expresses the proportion of total variance explained by the independent variables and in this case an R^2 of 0.647224 shows that the model was able to explain approximately 64.72% of the variation embedded in GDP. Competitive intelligence has been identified as a critical component in trade facilitation with positive effects on growth of trade, economy growth and development. It was also found that competitive intelligence enhances trade facilitation and hence its role cannot be overemphasized. This article is, however, of great significance to policy-makers, researchers and the academia.

Keywords: *Competitive Intelligence; Trade Facilitation; Emerging Economy; Zimbabwe*

1. Introduction

Since trade liberalization in the 1990s, Zimbabwe has been hampered by import restrictions and restricted access to international trade. The Zimbabwean economy largely depends on the export of unprocessed minerals and tobacco to China and imports of energy and consumption goods from South Africa among other countries. The country had also suffered from the highest inflation rates worldwide (26 470.8% - November 2007) (Maune, 2014a) before the government abolished the local currency (Zimbabwe dollar) and adopted a multi-currency regime in early 2009. Zimbabwe being a landlocked country has limited water transport services and according to World Bank (2012), it ranked 103rd out of 155 countries in trade logistics efficiency. It takes longer time and more costly to export and import in Zimbabwe compared to regional average (World Bank, 2013). It takes 53 days and 71 days to export and import a standard container of goods in Zimbabwe while the regional average stakes almost half, that is, 31 days for export and 28 days for import (World Bank, 2013). The problem lies in the long time to prepare documents, which takes 33 days to export and 42 days to import.

The Zimbabwean economy faces many challenges that include persistent trade deficits. Exacerbating this situation is the slow growth in export of goods and services especially the continuing trade imbalance and the low capacity utilization in the manufacturing sector without mentioning the rampant closure of companies. Makina (2016:22) states that "since 2009 trade deficits have averaged USD3 billion and current account balances as a percentage of GDP have averaged -22.5% well over the red flag level of -5%. These levels of deficit, however, are not sustainable for a dollarized economy."Many African countries are at different stages of implementing trade facilitation measures. These measures aim at reducing microeconomic barriers to trade. Trade facilitation measures (TFMs) seek among other things to reduce complexity, costs, time and levels of error. This will also result in increased transparency and efficiency in many aspects of trade. There is a broad consensus among trade policy-makers that the implementation of TFMs result in significant competitive gains through reduction in transaction costs and improving the business environment thereby attracting many investors and the much needed foreign direct investment.

African countries are now very keen to explore the possibilities provided by trade facilitation whether in the context of the WTO negotiations, regional or country-specific initiatives (Buyongeand Kireeva, n.d.). These initiatives seek to address both physical infrastructure (roads, ports, telephone connectivity, etc.) and administrative hurdles (Buyongeand Kireeva, n.d.).Trade Facilitation (TF) can help countries to reduce trade costs and increase competitiveness of the private sector (Rippel, 2011). Rippel (2011) argues that despite the reduction in tariffs and improvement in market access many countries and regions in Africa are still lacking regional and global integration. To Rippel (2011), this disconnection can have negative consequences for the economic opportunities of private sector businesses, employees, and consumers. The regional and global disintegration can be resolved through the incorporation of competitive intelligence in international trade issues. International trade calls for an in-depth understanding of international relations. African governments and policy-makers need to appreciate the essence of competitive intelligence (CI) as this is critical in the successful implementation of trade related policies. Despite efforts, some African countries have found it difficult to expand trade and take advantage of preferential market access programs, such as the Everything but Arms (EU) and the African Growth and Opportunity Act (U.S.) due to lack of CI (Rippel, 2011). Several African countries have been successful in expanding trade and exports, nevertheless countries lacking natural resources such as oil, natural gas, and minerals, have found it more difficult to expand exports (Rippel, 2011). While the well-endowed countries have enjoyed success, partly due to high prices for many commodities, they also have struggled to diversify their export-base to avoid being too dependent on a few export products. To Rippel (2011), the risk of drastic price declines might be limited, but the export earnings from the capital-intensive natural resources sector often benefit a small share of the population and do little to provide substantial new job opportunities.

Trade is critical in enhancing access to finance and technology and in overcoming constraints of mostly small domestic markets. It also plays an important role in employment creation. This study is very critical to Zimbabwe in particular and Africa in general given the region`s level of economic development and the role that trade can play to facilitate economic development. It must be noted that due to some structural constraints, Zimbabwe is failing to effectively participate in global trade hence the need to analyse the role of CI in TF. Furthermore, Zimbabwe`s export share against global exports is very low and is concentrated on a few products, primarily raw commodities. Proponents of TF have come up with measures that are critical in removing procedural and institutional bottlenecks that increase transaction costs in trade. Hence the need to examine the role that CI can play in TF in order to strengthen the country`s trade capacity towards economic development. CI helps to improve the easy of doing business. With international trade and globalisation, CI has become more important. CI aims to gain strategic advantage (Porter, 1980). It focuses on gathering information on the competition both internal and external (Agarwal, 1993 and Schollhammer, 1994). CI plays a very critical role in TF as it helps policy-makers make informed decisions. Intelligence reduces uncertainty thereby ensuring sustainability. Given the complexity of international trade and markets, this article seeks to examine the role of CI in TF in Zimbabwe.

Objective and research questions: The main objective of this article is to examine the role of CI in TF in Zimbabwe. However, a subordinate objective exists to assist in the appreciation of the primary goal. The objective of this study is as follows;

- To examine the importance of CI in TF.

The research question was formulated as follows;

- How has CI been of importance in TF in Zimbabwe?

The remainder of this article is structured into four sections as follows: Section 2 outlines the literature review; section 3 explains the methodology used in the analysis; section 4 presents data analysis and interpretation and section 5 conclusion.

2. Literature Review

Competitive Intelligence: 'Definitions,' to paraphrase Samuel Johnson (1709-1784), are like watches and none is ever exactly correct. The concept of CI is multifaceted and fuzzy. CI is variously presented as a process, a function, a product, or a mix of all three (Bergeron and Hiller, 2002). Adding to the confusion is the multitude of varying definitions of the term (for examples of definitions, see Bergeron and Hiller, 2002;

McGonagle and Vella, 2002 and Pellissier and Nenzhelele, 2013). Following the arguments of many different authors cited in Pellissier and Nenzhelele (2013), one is forced to conclude that there is no universally agreed definition of CI. The author adopted Pellissier and Nenzhelele`s 2013 definition for the purposes of this study. To Pellissier and Nenzhelele (2013), CI is a process or practice that produces and disseminates actionable intelligence by planning, ethnically and legally collecting, processing and analyzing information from and about the internal and external or competitive environment in order to help decision-makers in decision-making and to provide a competitive advantage to the enterprise [or country]. Moreover, CI should stimulate an organization's creativeness, innovativeness, and willingness to change (Bergeron and Hiller, 2002), in a continuing quest to create an evolving and intelligent organization. (For more detailed analysis of the definition and cycle of CI see Maune, 2014a, b, c, d).

Competitive intelligence in Zimbabwe: CI, as it is known today, is actually an amalgam of disciplines (Juhari and Stephens, 2006). Historical records reveal the important role that intelligence has played in the history of countries (Underwood, 2002). Accordingly, CI evolved from developments in economics, marketing, military theory, information science, and strategic management (Fuld, 1985; Helms, Ettkin, and Morris, 2000; Prescott and Miller, 2001). Intelligence issues are not alien to Zimbabwe as traditional chiefs have been recognized as custodians and fountains of knowledge as they made consultations with their council machinery or court system before taking any decision (Maune, 2014a). CI in Zimbabwe has a long history that can be traced back to the way our ancestors lived although part of this history was not documented as it was passed through oral tradition. However, there is much evidence on the ground through archeological activities to show how intelligence emanated. One is tempted to think that intelligence in Zimbabwe dates even back to the construction of the great monuments like the Great Zimbabwe, by ancestors of the Shona people that started in the 11th century and continued until the 14th century, spanning an area of 722 hectares. Great Zimbabwe is considered the largest in Africa after the Egyptian pyramids (Beach, 1998). The way Great Zimbabwe was built with three distinct architectural groups known as the hill complex, the valley complex and the great enclosure tells the whole story behind the intelligence of the people who built the monuments. Garlake (2002) claims that Great Zimbabwe became a centre for trading which formed part of a trade network linked to Kilwa and extending as far as China. Intelligence can also be traced back to the way the ancestors administer their empires, to the Masvikiros, the rain-making activities at Njelele and Matonjeni at Matopos hill together with many other activities. Zimbabwe has also developed its own intelligence during and after its wars of liberation in 1896-1897 and 1966-1979 as traces of CI in many countries has been linked to the military (Juhari and Stephens, 2006). The above background together with international practices has helped companies to develop their own intelligence strategies for survival (Maune, 2014a). Maune (2014a), however, argues that Zimbabwe is considered to have the most effective and efficient intelligence units in Africa although unauthenticated. However, more recent internal economic events had much impact towards the developed of CI in Zimbabwe.

The important role of competitive intelligence: Theoretical debates have generally focused on the increasing roles and functions of CI in economic growth. CI has played an intermediation role between economic development and its factors. Degerstedt (2015:5) argues that "the objective of CI is to understand how the surrounding competitive environment will impact an organization – by monitoring events, actors, trends, research breakthroughs, and so forth – in order to be able to make relevant strategic decisions." A major trend in the world today is the increasing competition in global and digitalized markets where the speed of change and innovation is becoming faster than ever before (Degerstedt, 2015). Degerstedt (2015) further argues that this development is fueled by developments in information technology (IT) and is likely to continue for a long time. In order for organizations to keep up with the rapid change, a systematic approach to understand the surrounding world is needed. CI can help provide a better understanding of the global world. However, to Søilen (2017) developments in new technology is also posing a serious threat to companies as today every individual is a potential spy. He further argues that corporate espionage has also become a big problem with its consequences still underestimated. The current information/knowledge generation has placed CI at the center stage of economic growth. Previously, factors such as capital, labor and natural resources were traditionally considered as the only factors which matter for economic growth. However, the technology explosion of the 1990s primarily stimulated the notion of CI as being something entirely new or even revolutionary (Maune, 2014b:100). Maune (2014b:100) further argues that, the emergence of the internet and online databases have offered an almost inexhaustible supply of information

that has caused information overload in many instances. This has resulted in the development of *social competitive intelligence* by intelligence practitioners. Calof and Skinner (1999) in Maune (2014d) argue that a country is likely to underperform without an appropriate CI infrastructure.

Trade Facilitation: As is to be expected, the definition of TF is a highly debated issue in World Trade Organization (WTO). Members have indicated several areas as the prime subject of TF. According to the Kelkar Committee Report,[8] TF revolves around the reduction of all the transaction costs associated with the enforcement of legislation, regulation, and administration of trade policies. It involves several agencies such as customs, airport authority, port authority, central bank and trade ministry. The main objective is to reduce the cost of doing business for all parties by eliminating unnecessary administrative burdens associated with bringing goods and services across borders. The means to achieve this objective is the modernization and automation of clearance procedures to established international standards. The EU`s submission[9] in 1996 defined TF as the simplification and harmonization of trade procedures and of documentation and as standards for computerization or standardized trade procedures. Zimbabwe, being a member of both COMESA and SADC, is therefore centrally located to be part of the on-going process with respect to TF. However, the country has a long history of hampering smooth trading across borders through non-tariff barriers. Its geo-economic centrality in Southern Africa becomes key to TF as well as transit trade along the North-South Corridor (NSC).

Trade Costs in Africa-Why is Trade Facilitation Critical: According to Economic Commission for Africa [ECA] (2013:3), "having a thorough understanding of the pattern and evolution of trade costs is critical to gauge the potential impact of any TF activity for at least four main reasons."ECA (2013:3) provides the reasons as follows, "first, as the existing literature unanimously argues that a decline in trade related costs can significantly boost trade performance, it is straightforward to see that the potential relevance of TF is greater the higher the scope to cut transaction costs. Secondly, and as a corollary of the first point, knowledge of the sources of trade costs is critical in determining which precise TF instrument is likely to have the highest payoff. Thirdly, given that one of the controversial aspects of the proposed Trade Facilitation Agreements is whether or not it would disproportionately facilitate imports, it is important to assess the extent to which imports and exports costs are correlated and why. Fourthly, the pattern of trade-related costs across countries of origin or destination can clearly affect the overall impact of TF on regional integration." CI can be the panacea that provides a better and thorough understanding of these patterns and the evolution of trade costs that is critical in determining the TF activity to be implemented. Without the necessary intelligentsia it becomes a mammoth task for countries to implement the appropriate TF measures.

Table 1: Transaction costs in international trade, regional averages in 2014

	Cost to export (US$ per container)	Cost to import (US$ per container)	Documents to export (number)	Documents to import (number)	Time to export (days)	Time to import (days)
Sub-Saharan Africa	2,201	2,931	8	9	31	38
East Asia & Pacific	868	902	5	6	19	20
Europe & Central Asia	1,663	1,822	5	6	18	18
Latin America & Caribbean	1,287	1,666	6	7	17	18
Middle East & North Africa	1,140	1,272	6	8	19	23
South Asia	1,923	2,118	7	8	33	34
World	1,560	1,877	6	7	22	24
OECD members	1,070	1,111	4	4	11	10
Zimbabwe	4,265	6,160	7	9	53	71

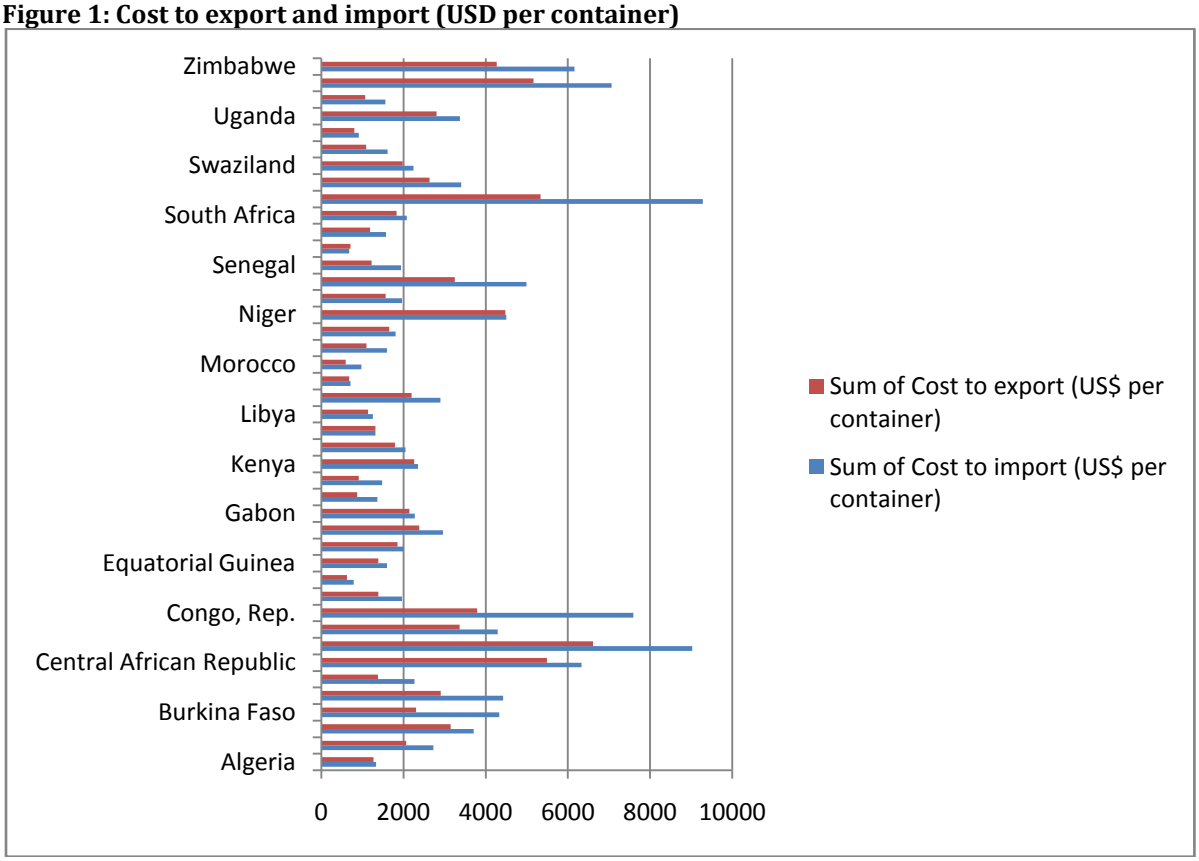
Source: Author (data collected from World Bank`s World Development Indicators)

[8]Chapter 2 of the Kelkar Committee Report.
[9]Elements of a WTO program on trade facilitation, G/C/W/67, 11 November 1996.

Table 1 above provides a comparative analysis of the six dimensions of transaction costs at regional level for 2014. The figures reveal that sub-Saharan Africa remain by far one of the region where international trade is most expensive followed by South Asia with Eastern Europe and Central Asia following suit. Zimbabwe proves to be an expensive trading partner with the cost of exporting and importing a standard container averages USD4, 265.00 and USD6, 160.00 respectively. The country`s average time to export and import a standard container of goods averages 53 days and 71 days respectively while, the regional averages are almost its half (31 days for export and 38 days for import). The problem lies in the long time to prepare documents, which takes 33 and 42 days. Therefore, internal border agency cooperation and formality of documents need to be improved.

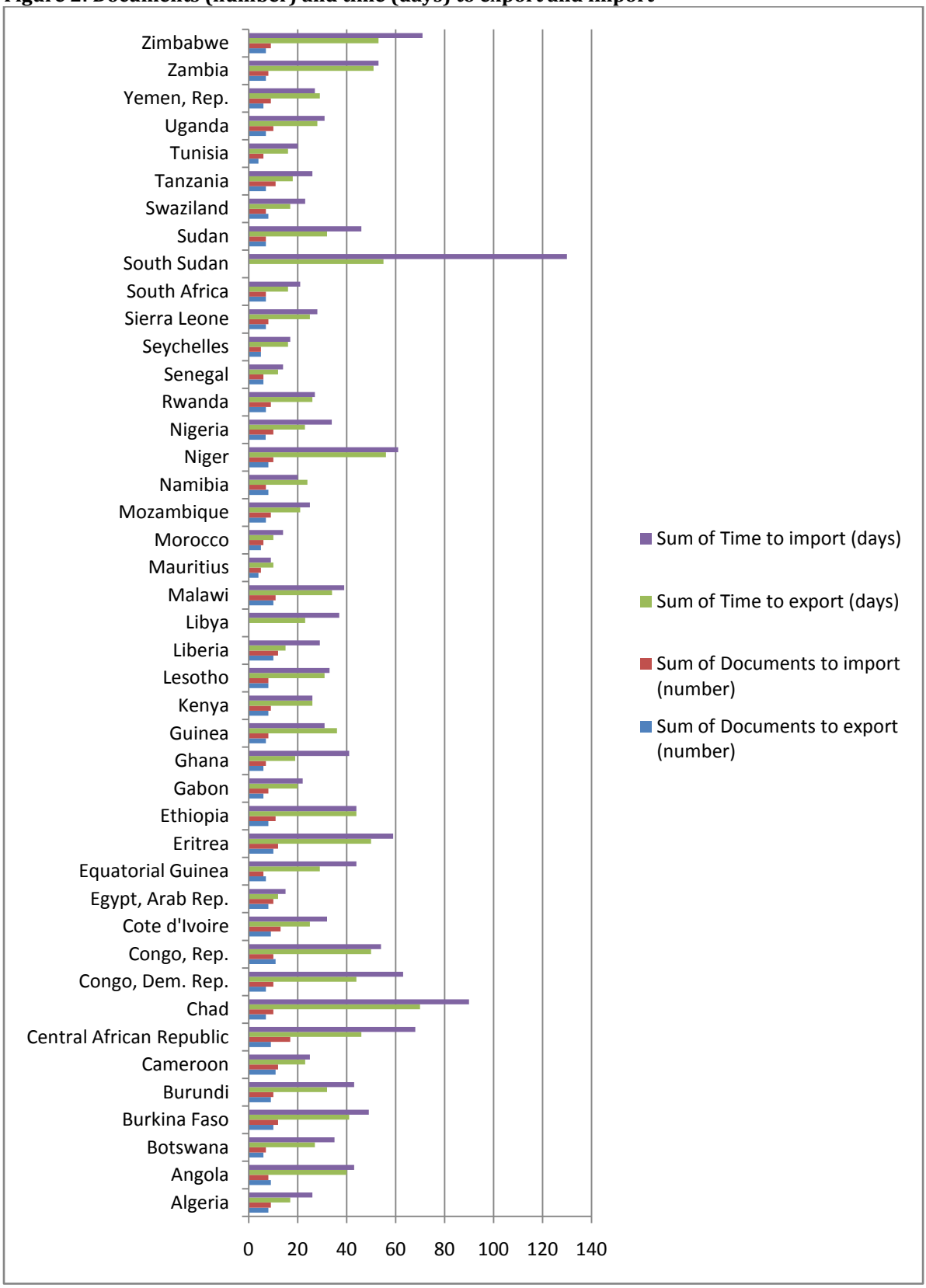
ECA (2013) argues that regional averages could mask, however, significant variability across country, especially in a continent as diverse as Africa; hence it is important to look at a more disaggregated picture. Figure 1, Figure 2 and Table 2 presents a country-by-country analysis of the sources of trade-related transactional costs for exports and imports in Africa for 2014. Starting from the cost to export and import a standard container of goods many African countries proved to be very expensive when compared to the World averages of USD1, 560.00 and USD1, 877.00 for cost to export and import a standard container of goods respectively. Overall, in 2014, 24 out of the 43 African countries shown in Figure 1, Figure 2 and Table 2 exceeded the world average in both the cost of exporting and importing a standard container of goods with Chad leading the list followed by South Sudan, Central African Republic, Zambia and then Zimbabwe. Morocco records the lowest cost to export a container at USD595.00 while Seychelles has the lowest cost to import a container (USD675.00) as of 2014.ECA (2013) states that in 2012 export costs exceeded the world average for 25 of the 51 African countries for which data was available, whilst the time necessary to export surpassed the corresponding world average for as many as 35 African countries. Figure 1, Figure 2 and Table 2 also shows that 10 out of the 43 African countries require less time to export and import as compared to the world averages and these countries are: Egypt, Gabon, Morocco, Mauritius, Senegal, Seychelles, South Africa, Swaziland, Tanzania and Tunisia.

Figure 1: Cost to export and import (USD per container)



Source: Author (data collected from World Bank`s World Development Indicators)

Figure 2: Documents (number) and time (days) to export and import



Source: Author (data collected from World Bank`s World Development Indicators)

Table 2: Transaction costs for exports and imports in African countries in 2014

Country	Cost to export (US$ per container)	Cost to import (US$ per container)	Documents to export (number)	Documents to import (number)	Time to export (days)	Time to import (days)
Algeria	1,270	1,330	8	9	17	26
Angola	2,060	2,725	9	8	40	43
Botswana	3,145	3,710	6	7	27	35
Cameroon	1,379	2,267	11	12	23	25
Burkina Faso	2,305	4,330	10	12	41	49
Burundi	2,905	4,420	9	10	32	43
Central African Rep.	5,490	6,335	9	17	46	68
Chad	6,615	9,025	7	10	70	90
Congo, Dem. Rep.	3,365	4,290	7	10	44	63
Congo, Rep.	3,795	7,590	11	10	50	54
Cote d'Ivoire	1,390	1,960	9	13	25	32
Egypt, Arab Rep.	625	790	8	10	12	15
Equatorial Guinea	1,390	1,600	7	6	29	44
Eritrea	1,850	2,000	10	12	50	59
Ethiopia	2,380	2,960	8	11	44	44
Gabon	2,145	2,275	6	8	20	22
Guinea	915	1,480	7	8	36	31
Ghana	875	1,360	6	7	19	41
Kenya	2,255	2,350	8	9	26	26
Lesotho	1,795	2,045	8	8	31	33
Libya	1,140	1,255	..	..	23	37
Liberia	1,320	1,320	10	12	15	29
Malawi	2,200	2,895	10	11	34	39
Morocco	595	970	5	6	10	14
Mozambique	1,100	1,600	7	9	21	25
Namibia	1,650	1,805	8	7	24	20
Mauritius	675	710	4	5	10	9
Nigeria	1,564	1,960	7	10	23	34
Niger	4,475	4,500	8	10	56	61
Rwanda	3,245	4,990	7	9	26	27
Senegal	1,225	1,940	6	6	12	14
Seychelles	705	675	5	5	16	17
Sierra Leone	1,185	1,575	7	8	25	28
South Africa	1,830	2,080	7	7	16	21
South Sudan	5,335	9,285	..	..	55	130
Sudan	2,630	3,400	7	7	32	46
Swaziland	1,980	2,245	8	7	17	23
Tanzania	1,090	1,615	7	11	18	26
Tunisia	805	910	4	6	16	20
Uganda	2,800	3,375	7	10	28	31
Zambia	5,165	7,060	7	8	51	53
Zimbabwe	4,265	6,160	7	9	53	71
Yemen, Rep.	1,065	1,560	6	9	29	27

Source: Author (data collected from World Bank`s World Development Indicators)

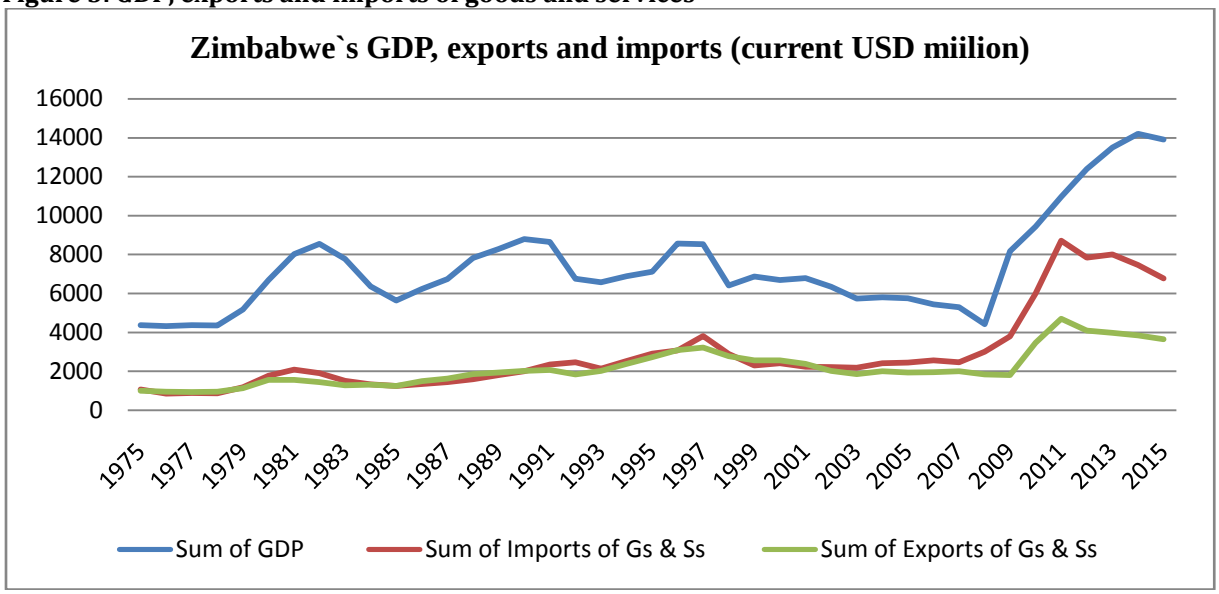
Table 1, Table 2, Figure 1 and Figure 2 above provides an interesting insight regarding transaction costs for exports and imports in Africa as well as regional averages. Africa`s performance against the world averages as of 2014 data shows that the continent is still very expensive to trade with thereby impacting international trade in a negative way. This situation calls for the incorporation of CI in the implementation of the most appropriate TF measures. CI becomes a critical component in TF and in international trade. Africa still trails behind its major trading partners in terms of costs, documents required as well as the time required to import and export. Policy-makers need to take these issues serious in order to place Africa on the global map as an influential global player and partner by 2063.

Benefits associated with Trade Facilitation measures: TF can provide important opportunities for Africa by increasing the benefits from open trade, and contributing to economic growth and poverty reduction (Rippel, 2011). Rippel(2011) argues that removing trade barriers has contributed to the expansion of global trade in the decade after the conclusion of the trade negotiations of the Uruguay Round in 1994 and the subsequent establishment of the World Trade Organization (WTO).There is a broad consensus that implementation of TFMs result in significant welfare and competitiveness gains in both developing and developed countries (Gregory, 2009). According to Gregory (2009), "reforming customs procedures, notably through automation, harmonization of information requirements, and risk-assessment methods, directly improves tax returns by enabling effective collection of import duties. Customs reform reduces levels of evasion, under declaration and fraud with customs officials, and allows correct and prompt tax collection. It is generally agreed that the introduction and implementation of most TFMs would entail some start-up costs for the government agencies." The following cost components are likely to be incurred; infrastructure/equipment costs, regulatory costs, human resource costs, institutional/operating costs and political costs (Gregory, 2009).

Rippel (2011) claims that, "the quest for more open trade is not an end in itself but driven by the experience that open trade provides more economic opportunities for people. Producers can offer their goods and services to more customers, and consumers have more choices, lower prices, and access to innovations. Open markets increase prospects of producing and selling new ideas and products locally, regionally and in global markets, which leads to more income opportunities and the improvement of living standards. However, most African countries face considerable challenges to achieving more open trade. One reason is that the costs of trading remain stubbornly high, which prevents potential African exporters competing in global and even in regional markets. Realizing this trend, policy-makers have started incorporating CI to address trade-discouraging non-tariff barriers."TF measures have become a key instrument to create a better trading environment (Rippel, 2011). Rippel (2011) further states that "the international community has acknowledged that for many lower income countries having better market access to industrial countries is insufficient unless the capabilities to trade are addressed as well."

**Zimbabwe`s GDP, export and import performance:** Zimbabwe`s GDP, export and import of goods and services performance from 1975 to 2015 is shown in figure 3 below. Zimbabwe`s trade performance since 1975 has not been that good with trade imbalances being recorded throughout with the exception of 1976 – 1978, 1985-1990, 1996, 1999-2001. Significant trade deficits were recorded in 2008 up to 2015 with the highest being recorded in 2013 at USD4.033 billion while 2008 recorded the lowest trade deficit of USD1.174 billion. The main component among the imports has been among other things the importation of second hand vehicles from Japan. The significant surge in trade deficit has been caused by the economic meltdown among other reasons. GDP has shown some fluctuations as well with the lowest being recorded in 1976 at USD4.318 billion while 2014 recorded a high of USD14.197 billion. Since 2009 Zimbabwe`s GDP has been on an upward trend due to some economic recovery measures that were implemented by government chief amongst them being the adoption of the multicurrency regime in 2009 that saw the economy stabilizing. Other reforms included the easy of doing business, monetary and fiscal reforms. Zimbabwe`s economy has shown some great potential of becoming one of the strongest economy in Africa and globally given its abundant natural and intellectual resources. However, a number of challenges have greatly affected the country`s economic recovery path chief among them being the politics of the day as well as corruption. These have greatly affected the country`s investment climate that saw international financiers such as the IMF and World Bank cutting credit lines due to unpleasant relationships.

Figure 3: GDP, exports and imports of goods and services



Source: Author (data collected from World Bank`s World Development Indicators)

3. Methodology

Research methodology refers to the philosophical framework and the fundamental assumptions of research (Kuhn, 1962). How do we study things and issues? This article was informed by both deductive and inductive approaches. An econometric model was developed first to analyse the relationship between economic growth (GDP) and trade. GDP was the dependent variable while exports and imports of goods and services being the independent variables. The use of a multiple regression model was justified due to its suitability in measuring the relationship between the variables. Secondary data was obtained from the World Bank`s Development indicators database for the period 1975 to 2015.This period was chosen as it covers various phases in the economic history of Zimbabwe, that is, before independence, after independence as well as the dollarization period. Data availability was also critical in choosing the period. All the variables were first transformed into natural logarithms before being regressed as the use of natural logarithms has become a standard in econometrics (Brooks, 2008). Brooks (2008:608) argues that, "there are at least three reasons why log transforms maybe useful. First, taking a logarithm can often help to rescale the data so that their variance is more constant, which overcomes a common statistical problem. Second, logarithmic transforms can help to make a positively skewed distribution closer to a normal distribution. Third, taking logarithms can also be a way to make a non-linear, multiplicative relationship between variables into a linear, additive one." The regression equation was expressed in 'double logarithmic form.' According to Brooks (2008), this means that both the dependent and the independent variables were transformed into natural logarithms, thereby rendering the coefficient estimates elasticities. This was done to avoid compromising the significance of the regression model.

A literature review was then conducted on some identified peer-reviewed, published articles and documents on CI and TF to necessitate the development of a conceptual framework of CI and TF as well as complementing the findings of the regression model. To identify relevant literature, academic databases and search engines were used. Keywords such as, 'competitive intelligence', and 'trade facilitation' were used in search engines to find relevant sources. Reviewing data of existing journal articles was necessary to enhance the generalizability of the findings (Morse, 1999). A qualitative approach was conducted to have a better understanding of the role of CI in TF in Zimbabwe (Du Plooy, 2006; Bless, Higson-Smith and Sithole, 2013; Babbie, 2013 and Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). Literature review was used for its suitability for this article (Light and Pillemer, 1984; Bem, 1995; and Mulrow, 1995). Although there are paradigm wars between purist and pluralist on combining research methods, researchers should forge ahead with what works, because truth is a normative concept – truth is what works (Du Plessis and Dzvimbo, 2014).

The econometric model takes the following form:

$\ln Y_t = \ln\beta_1 + \beta_2 \ln X_{2t} + \beta_3 \ln X_{3t} + u_t$, (1)

Now let $\beta_1 = \ln\beta_1$, $Y_t = \ln Y_t, X_{2t} = \ln X_{2t}$ *and* $X_{3t} = \ln X_{3t}$

$Y_t = \beta_1 + \beta_2 X_{2t} + \beta_3 X_{3t} + u_t$, (2)

$Y_t = \beta_1 + \beta_2$*Imports of goods & services* $+ \beta_3$Exports *of goods & services* $+ u_t$, (3)

4. Data Analysis and Interpretation

Table 4: Regression summary output

Regression Analysis						**Durbin-Watson Test**	
OVERALL FIT						Alpha	0.05
Multiple R	0.80450		AIC	-133.353			
R Square	0.64722		AICc	-132.242		D-stat	0.48503
Adjusted R^2	0.62865		SBC	-128.213		D-lower	1.39922
Standard Error	0.18986					D-upper	1.60307
Observations	41					sig	yes
ANOVA				Alpha	0.05		
	Df	*SS*	*MS*	*F*	*p-value*	*sig*	
Regression	2	2.51324	1.25662	34.8586	2.53E-09	yes	
Residual	38	1.36986	0.03605				
Total	40	3.88310					
	coeff	*std err*	*t stat*	*p-value*	*Lower*	*upper*	*vif*
Intercept	12.4912	1.826756	6.837939	4.08E-08	8.793171	16.18932	
Imports, Gs&Ss	0.29632	0.138632	2.137475	0.039055	0.015677	0.576969	7.836296
Exports, Gs&Ss	0.17711	0.199695	0.886905	0.380709	-0.22715	0.581371	7.836296

The model obtained thus:

GDP = 12.4912 + 0.29632Import of Gs&Ss + 0.17711Exports of Gs&Ss $+ u_t$(4)

"The purpose of regression models, also known as *explanatory* models, is to identify a functional relationship between the target variable and a subset of the remaining attributes contained in the dataset" (Vercellis, 2009:154). Vercellis (2009:153-154) further argues that, "thus, the goal of regression models is twofold. On one hand, regression models serve to highlight and interpret the dependency of the target variable on the other variables. On the other hand, they are used to predict the future value of the target attribute, based upon the functional relationship identified and the future value of the explanatory attributes." This regression model is more accurate, and therefore more useful from an application standpoint, as the deviation is close to 0 at 0.18986 as shown in table 4 above. The estimator of the standard deviation is, however, referred to as the *standard error* and it plays a critical role in the determination of the accuracy of a regression model, since it determines the dispersion of the data around the prediction line (Vercellis, 2009). The *Cook's distance*, was observed as it highlights the presence of abnormal and large values of the residuals. An observation with a *Cook's distance* greater than 1 is considered abnormal with respect to the regression model (Vercellis, 2009). According to Vercellis (2009), the *Cook's distance*, however, has a significant influence to the values of the regression coefficients. The results of this model shows the *Cook's distance* lower than 0.5 for all the observations. Table 4 also provides an *F*-value equal to 34.86, much greater than 1, suggesting that the hypothesis H_0 is false. This is also confirmed by the *p*-value which is less than 0.05 at 0.000000002526. The

coefficient of determination R^2, also known as *multiple R-squared*, expresses the proportion of total variance explained by the predictive variables and in this case an R^2 of 0.647224, shows that the model is able to explain approximately 64.72% of the variation embedded in the dependent variable. The coefficient estimate for imports of goods and services of 0.296323 shows that a rise in imports of goods and services of 1% leads on average, everything else being equal, to a rise in GDP of 0.30%. While the coefficient estimate for exports of goods and services of 0.17711 denotes that a 1% rise in exports of goods and services leads on average to a rise in GDP of 0.18%, holding all other things constant. Exports of goods and services are insignificant towards influencing the GDP as their p-value is greater than 0.05 at 0.38 while imports of goods and services significantly influences GDP as shown by a p-value of 0.039 that is less than 0.05 level of significance.

The results are in line with literature (Abdullahi et al., 2016) though these studies differ on the significance of imports and exports on GDP growth. However, the findings by Zahonogo (2016) suggest that the openness of African economies to international trade should be associated with growth, which is in line with other empirical works. Zahonogo (2016) however, confirms that the relation was not linear, confirming the fragility of the links between trade openness and economic growth for sub-Saharan African countries. To Zahonogo (2016), Sub-Saharan African countries must efficiently control trade openness; particularly import levels, when seeking to boost their economic growth through international trade. In conclusion Zahonogo (2016) suggests that trade openness must be accompanied by complementary policies aimed at encouraging the financing of new investment and enhancing the quality of institutions and the ability to adjust and learn new skills. The findings of this study are also in line with Mangir et al. (2017) `s findings which shows a long-run equilibrium link between international and economic growth in Niger. To Gwaindepi et al. (2014), the relationship between trade and economic growth is strengthened by the stability of the macroeconomic policy since negative macroeconomic drivers such as rising inflation can constrain economic growth. Openness to trade is also deemed to play a crucial role, where reduction and elimination of barriers to trade promote growth in trade and ultimately economic growth (Gwaindepi et al., 2014).

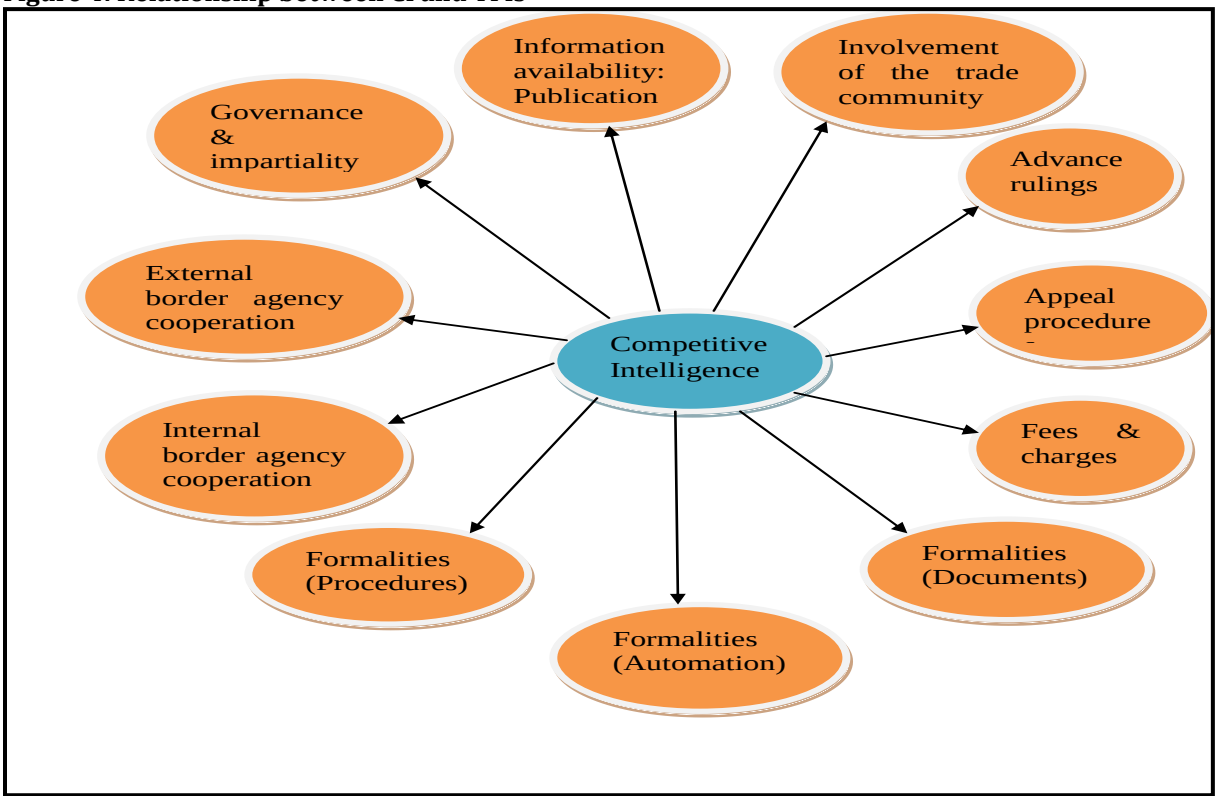
The information provided by the model is very critical for policy-makers as it provides grey areas and gaps that need special consideration and attention. In this case about 35.28% of the variation in GDP is not being explained by imports and exports hence policy-makers need to find the variables that will fill in the gap. There is therefore need to analyze the role played by CI in TF to enhance the contribution of exports and imports to GDP. Literature provides that imports and exports play a very critical role in economic growth and development hence the need to strengthen TF through incorporating CI which is basically the intent of this study. Keho (2017) finds that trade openness has positive effects on economic growth both in the short and long run. Furthermore, Keho (2017)`s results reveal a positive and strong complementary relationship between trade openness and capital formation in promoting economic growth. The results of the econometric model have been complemented by a review of related literature thatexamines the role of CI in strengthening TF in Zimbabwe. This section presents a discussion of some of the critical findings from literature. The discussion centers on a conceptual framework that was developed to portray the relationship that exists between CI and TF indicators in Zimbabwe.

Literature has shown that to ensure the strengthening of TF, the Government of Zimbabwe is investing in CI through Zim trade and other private players though at a slower pace. TF measures have become a key policy issue as it seeks to cut the costs of trade, reduces delays at the borders, and makes public agencies dealing with trade more efficient.CI has helped in strengthening TF through provision of intelligence that has helped in streamlining and simplifying exporting and importing procedures, eliminating customs delays and improving customs administration as a way to increase trade flows. Zimbabwe`s participation in a number of bilateral, regional (SADC and COMESA) and multilateral (WTO) trading arrangements where TF is a major outcome has also helped the country to realize the importance of CI in TF. International trade and globalization has called for CI in providing the much need intelligentsia for policy-makers to strengthen TF at both domestic and international arenas. Without the much needed intelligence it is difficult to implement TF measures. The non-availability of intelligent information has hampered TF the world over. Economic espionage has been at the center stage in international trade and international relations for some time with major economies benefiting much through this illegal activity. The coming in of CI in international trade has seen a lot of countries making use of their national intelligence to gather the much needed information for competitive advantage in a legal way.

Zimbabwe has come up with a number of brilliant initiatives to enhance TF but some of them have not been that successful due to lack intelligent information necessary before implementation. This is where CI is critically needed to provide the much needed intelligentsia so that these initiatives benefit the country. CI has benefited Zimbabwe`s trade through the adoption of the Spatial Development Initiatives (SDIs). SDIs play a critical role in addressing regional and international trade bottlenecks as well as promoting regional trade. The SDI concept relies heavily on information availability which is a key objective of CI. All this has been successful through the availability of intelligent information made possible through CI. The SDI concept encompasses the One Stop Border Post (OSBP). Initiatives such as the North South Corridor, Western Cluster Corridors and Eastern Cluster Corridors are critical for regional integration and trade but critical intelligentsia need to be gathered and analyzed first before implementation. In December of 2009, Zimbabwe and Zambia launched the OSBP at Chirundu Border Post with the assistance of COMESA and other Development Agencies. The Chirundu OSBP is the first of its kind in Africa. The country has also made significant strides in the elimination of Non-Tariff Barriers (NTBs) following the establishment of a Monitoring Committee (NMC) in April 2011. The NMC monitors progress on elimination of NTBs experienced at national and tripartite levels as well as reviewing outstanding complaints and other actions taken by line Ministries or Agencies responsible for the enforcement of identified barriers. CI has become very critical for NMC to meet its objectives and goals.

Authorities argue that the role of CI in TF will go a long way in improving Zimbabwe`s trade competitiveness. According to the OECD (2013) report, Zimbabwe matches or exceeds best performance across the sample as regards streamlining of procedures and external border agency cooperation. The country also matches/exceeds the average performance of low income countries in all TFI areas. Performance has improved between 2012 and 2015 in the areas of internal border agency cooperation. Taking into account the trade flow increase and costs reduction potential, Zimbabwe would benefit a lot from CI as it continue to improve TFIs as promulgated by the OECD. This relationship is depicted in Figure 4 below. In summary, the following conceptual framework in Figure 4 below was developed from literature review. This framework depicts the relationship between CI and TF measures/indicators.

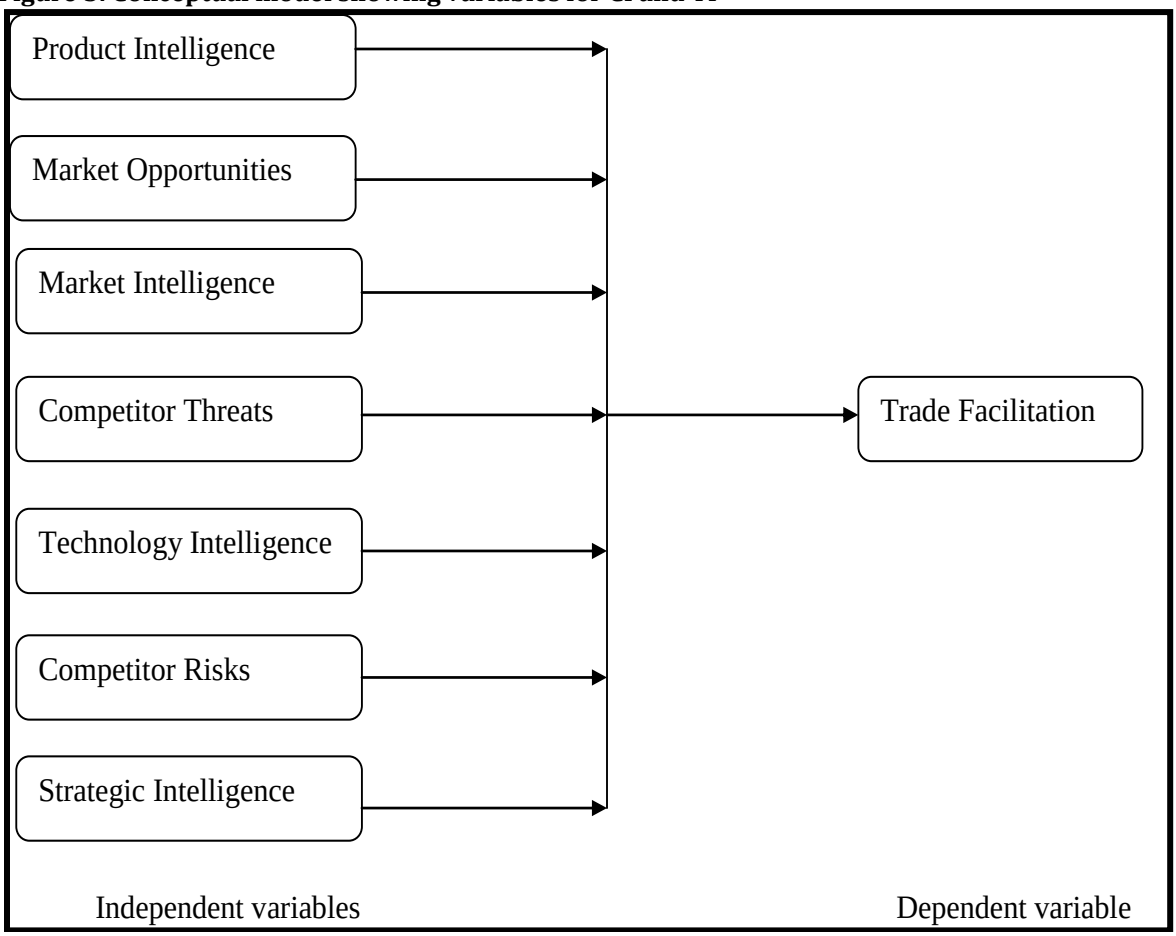
Figure 4: Relationship between CI and TFIs



Source: Author

The above conceptual framework can be summarized into a more workable conceptual model that can be further developed and analyzed statistically using a multiple linear regression analysis model. The role of CI can then be analyzed using a quantitative approach where data can be collected using questionnaires from Zimtrade, Zimbabwe National Chamber of Commerce, Confederation of Zimbabwe Industries and the Ministry of trade and commerce. The independent and dependent variables will be as summarized in the conceptual model in Figure 5 below.

Figure 5: Conceptual model showing variables for CI and TF



Source: Author

Hypothesis to be tested

H_1= *The model is best fit* *(p < 0.05)*
H_2= *The model is not best fit* *(p > 0.05)*

Alternative hypothesis about coefficient of regression of seven independent variables: Based on the foregoing and the operational conceptual model in Figure 5 above, it can be hypothesized thus,

H_1 = Product Intelligence influences TF.
H_2 = Market opportunities influence TF.
H_3 = Market Intelligence influences TF.
H_4 = Competitor threats influence TF.
H_5 = Technology Intelligence influences TF.
H_6 = Competitor risks influences TF.
H_7 = Strategic Intelligence influences TF.

Data collected through questionnaires will be analyzed by descriptive analysis. The regression equation will be as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon (5)$$

Whereby Y = TF, X_1 = market intelligence, X_2 = product intelligence, X_3 = technology intelligence, X_4 = strategic alliance intelligence, X_5 = market opportunities, X_6= Competitor threats, X_7= Competitor risks, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 \beta_6, \beta_7$= Coefficients of determination and **ε =** error term.

According to Stefanikova et al. (2015), a well-designed system of competitive intelligence can help businesses in the strategic planning process, as well as in determining of intent and ability of its competitors, and also determine the extent of the risks to which enterprise may be exposed. Gross (2000) cited by Stefanikova et al. (2015:210) "confirms that by stating that competitive intelligence in the enterprise serves as a catalyst in the decision making process." Stefanikova et al. (2015) based on the responses from both marketing surveys that had 384 respondents conclude that the enterprises in the Slovak Republic using CI have better competitive position compared to the competitive position of enterprises without CI system. Stefanikova et al. (2015) further found a statistically significant relationship between tendency of market share and duration of CI in the enterprises in the Slovak republic hence the conclusion that the implementation and use of CI affects the sustainable growth of the enterprises in the Slovak republic. Stefanikova et al. (2015) cite a large number of international researches and studies of CI that confirms its positive impact (benefit) to business (trade). To Mojarada et al. (2014), the application of CI in export companies can provide a complete picture of current and future competitive status for managers in addition to obtaining the most appropriate strategic decisions, which could ultimately lead to the improved exports in these companies. Mojarada et al. (2014) further argue that the importance of CI issue becomes enhanced when an organization intends to enter in the global and export markets because the slightest wrong decisions and actions in the international markets can lead the company to the failure. Thus, the CI can lead to making the accurate and timely decisions on the exports policies and ultimately the improvement and development of exports (Mojarada et al., 2014).

5. Conclusion

In conclusion, the assessment of the impact of TFMs, both on bilateral trade flows and on trade costs by the OECD in 2013, shows that reforms with the greatest benefit are in the areas of formalities (simplification and harmonization of documents, automation and streamlining of procedures) and information availability. Improving logistics performance and border management is at the core of policies to bolster competitiveness and to boost trade integration. The OECD (2013) reports that trade researches show that improving logistics is where developing countries have the most potential to reduce trade costs. In recent years CI has become an important aspect in TF and the Strategic and Competitive Intelligence Professionals (SCIPs) have been pushing for the integration of CI in international trade and other sectors. International trade relies much on intelligent information. This information can only be available through CI. CI plays a pivotal role in international trade and TF especially in developed countries. Theoretical debates have generally focused on the increasing roles and functions of CI in economic growth. CI plays an intermediation role between economic development and its factors. The role of CI in Zimbabwe cannot be overemphasized. Taking into account trade flow increase and costs reduction potential, Zimbabwe could draw considerable benefits in terms of trade volumes and trade costs from significant improvements in the areas of appeal procedures and internal border agency cooperation through CI. Continued efforts in the areas of harmonization and simplification of documents and governance and impartiality would also bring further benefits.

A comparative analysis of the six dimensions of transaction costs at regional level for 2014 provides interesting insights with figures revealing that sub-Saharan Africa remain by far one of the region where international trade is most expensive followed by South Asia with Eastern Europe and Central Asia following suit. Zimbabwe proves to be an expensive trading partner with the cost to export and import a container averages USD4, 265.00 and USD6, 160.00 respectively despite her being a landlocked country. The country`s average time to export and import averages 53 days and 71 days against world averages of 22 and 24 with

sub-Saharan Africa averages of 31 and 38 while the OECD averages 11 and 10 respectively. Documents required to export and import numbered 7 and 9 against world averages of 6 and 7 with OECD averages of 4 and 4 while sub-Saharan Africa averages 8 and 9 respectively. Policy-makers are therefore recommended to consider serious investment in CI activities so as to enhance trade competitiveness and ensuring meaningful participation in the global trade market. Why investment in CI is critical? As has been shown above CI is very critical in the provision of the much need intelligent information that is required in facilitating the implementation of TFMs which are critical in enhancing international trade. With the main objective of TF being the reduction of the cost of doing business, there is need by all parties involved to eliminate unnecessary administrative burdens associated with bringing goods and services across borders. This can be achieved through a number of measures that involves the simplification and harmonization of trade procedures and of documentation and standards for computerization or standardized trade procedures. This needs to be done a manner that will not pose risks to importing and exporting countries, hence the importance of incorporating CI in implementing these measures. Despite a positive correlation between economic growth and trade, as shown by the results of the model above, TF becomes very critical in enhancing the country`s trade competitiveness in the global arena.

However, international trade has become so complex that the incorporation of CI has taken center stage in international trade. CI has slowly replaced economic espionage that was considered illegal though a number of countries were using it to gain competitive advantage. Policy-makers need also to partner with the private sector and the academia when formulating and implementing policies of this nature and magnitude. It is also recommended that because of the complexity of TF, government departments or organs must be well coordinated to ensure best policies are crafted that enhances the country`s competitiveness globally. Ministries of justice, finance, information, security, trade and commerce, tax authorities, the private sector and the informal cross border traders as well as other interested parties must be well coordinated to ensure best policies are formulated and implemented for the benefit of the country as a whole. CI has been considered a critical component in international trade as it provides the much needed information both internally and externally. This can be done through the involvement of national intelligentsia considering the investment that has been done in these institutions as has become the trend in developed countries. The cooperation between government, private sector as well as the academia is also critical in ensuring the successful implementation of TF measures. This cooperation has become important given the technological developments in international trade as well as the threat that is being posed by cybercrime. All these developments need a coordinated effort from government, private sector as well as the academia for a country to realize the gains of trade.

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A Theoretical Model to Measure Managerial and Leadership Competence of Business School Managers

A. Shaikh, *C.A. Bisschoff, C.J. Botha
Regent Business School, Durban, South Africa
NWU School of Business and Governance, North-West University, South Africa
Christo.bisschoff@nwu.ac.za

Abstract: A theoretical model to measure managerial competence was developed by evaluating two previous models with similar aims. In addition to the original eight management competencies, another eight competencies were identified and applied to determine the management competencies needed in the Fourth Industrial Revolution with its fast-changing business environment. The article narrows down eleven management competencies and develops measuring criteria for each; in total 42 criteria. The eleven business competencies are leading change, cultural intelligence, team building, conflict management, communication skills, a global leader mindset, emotional intelligence, career awareness, personal value system, and external and ethical influences. The model is a theoretical model and presents management competencies relevant to the modern business environment. The value of this study resides in a strong theoretical basis for post-modern business environmental skills that managers need to maintain completeness of their organizations as well as providing a sound point of departure for other researchers of managerial competence.

Keywords: *Competence, skills, management, leadership, model*

1. Introduction

"The global economy stands on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society."
(Schwab, 2016).

Schwab (2016), in his address at the World Economic Forum Annual Meeting, refers to the influence of the Fourth Industrial Revolution on the global economy. This revolution is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres. The speed of current scientific breakthroughs has no historical precedent, and the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance (Manyika, 2017). Moreover, the Fourth Industrial Revolution has disrupting almost every industry in every country. Manyika (2017) goes on to argue that these technologies also raise difficult questions about the broader impact of automation of jobs, skills, wages, and the nature of work itself. The opportunities and challenges that originate from the technologies enabled development of automation, such as robotics and artificial engineering, brings the promise of higher productivity, increased efficiencies, safety and convenience. For policymakers, business leaders, managers and workers at large, these shifts create considerable uncertainty alongside with the potential benefits.

The Fourth Industrial Revolution has the potential to raise global income levels and improve the quality of life for populations around the world. In the future, technological innovation will also lead to a supply-side miracle, with long-term gains in efficiency and productivity. Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth (Brynjolfssen & McAfee, 2014:12). At the same time, however, these authors have pointed out that the revolution could yield greater inequality, because it has the potential to disrupt labor markets particularly. Here Schwab (2016) argues that in the future, talent, more than capital, will represent the critical factor of production. This will increasingly segregate the job market into clear segments where low-skills earn low pay, and high skills earn high pay. A key challenge, therefore, to most organizations today, both public and private, is the demand to deal with the acceleration of innovation and the velocity of disruption where management strategy becomes a continuous activity that also includes constant mission adjustments (Anderson, 2017). Here for those in leadership and management roles,

this translates into a need to upgrade their knowledge and skills constantly. In turn, this means that organizations must be able to target knowledge and skills training accurately, quickly and cost-effectively. In this context, it is imperative for organizations to develop a comprehensive framework that delineates a distinct hierarchy of skills and knowledge, or competencies, needed by managers in an organization.

Problem Statement: Business managers are faced with the globalization of business, rapid technological change, constant re-organizing and competence-based competition (Botes, 2014:145). These developments challenge their skills, competencies and capabilities. Here Daft and Marcic (2016:76) argue that the performance culture in a business largely depends on the effectiveness of its managers to establish a performance-driven attitude among employees within the challenging environment they operate in. Globalization has also created the demand for global leadership competencies among business leaders. This, in turn, has made the development of global leadership competencies a crucial measure of any business education program in the 21st century (Cumberland & Alagaraja, 2016). The modern global business environment, as described by Walker and Schmitz (in Katulwa, 2016:65), consists of a series of complex, interdependent developments which include unyielding competitive pressures, rapid market shifts, major acquisitions or mergers, the lowering of trade barriers, decreasing transport costs, heightened expectations on the part of customers and employees, advances in communication and information technology, global access to capital markets and inflation-driven staff reductions. Hitt and Ireland stated, back in 2005, that the knowledge economy was perceived as being complex, challenging and filled with competitive opportunities and threats (Katulwa, 2016:27). The turbulence and complexity carried forward from the 1980s and 1990s culminated into a "new competitive landscape" where the business environment was unpredictable and constantly changing. This changing business environment demands changing roles for business managers and leaders; hence the need for a new set of competitive capabilities.

In an attempt to gauge competencies, Tubbs and Schulz (2006:489) developed the taxonomy of global leadership competencies upon which leadership development efforts could be focused. This taxonomy of leadership and meta-competencies included teamwork and fellowship, understanding the big picture, attitude is everything, leadership as the driving force, innovation and creativity, communication of the leader's voice and, leading change. Just before these researchers, McCauley and Van Velsor (2004:13-15) identified and studied several leadership challenges that should be incorporated in management education and leadership development. Their challenges included leading diverse teams, being adaptable to the changing world of work, transferring knowledge and coaching subordinates, encouraging collaboration and communication, and dealing with complexity. This study was carried out by their Center for Creative Leadership (CCL) among African managers. Today, managerial challenges and required competencies are more under the microscope as a result of the rapidly shifting dynamics of the management and leadership environments across all sectors of the global economy coupled with profound diversity and complexity in the context of the Fourth Industrial Revolution (Manyika, 2017). This has framed the problematic of changing skills and competencies for modern managers and leaders. What skills do they really need in this fast-changing business environment to keep abreast of the challenges they face?

Objectives: The primary objective of this article is to develop a theoretical model to measure skills for managerial and leadership competence.

The following secondary objectives address the primary objective:

- Perform a theoretical study on existing model(s) to measure managerial competence;
- Identify the skills required for managerial and leadership competence;
- Identify the criteria required to measure each managerial or leadership skill from the literature study; and to
- Compile a questionnaire to measure each of the skills for managerial competence.

2. A Selected Theoretical Model to Measure the Skills For Managerial and Leadership Competence:

The theory builds on two existing studies performed by Thekiso (2011) and Shaikh (2013) who attempted to address managerial competence challenges at business schools. These authors developed skills models which are used here as a point of reference.

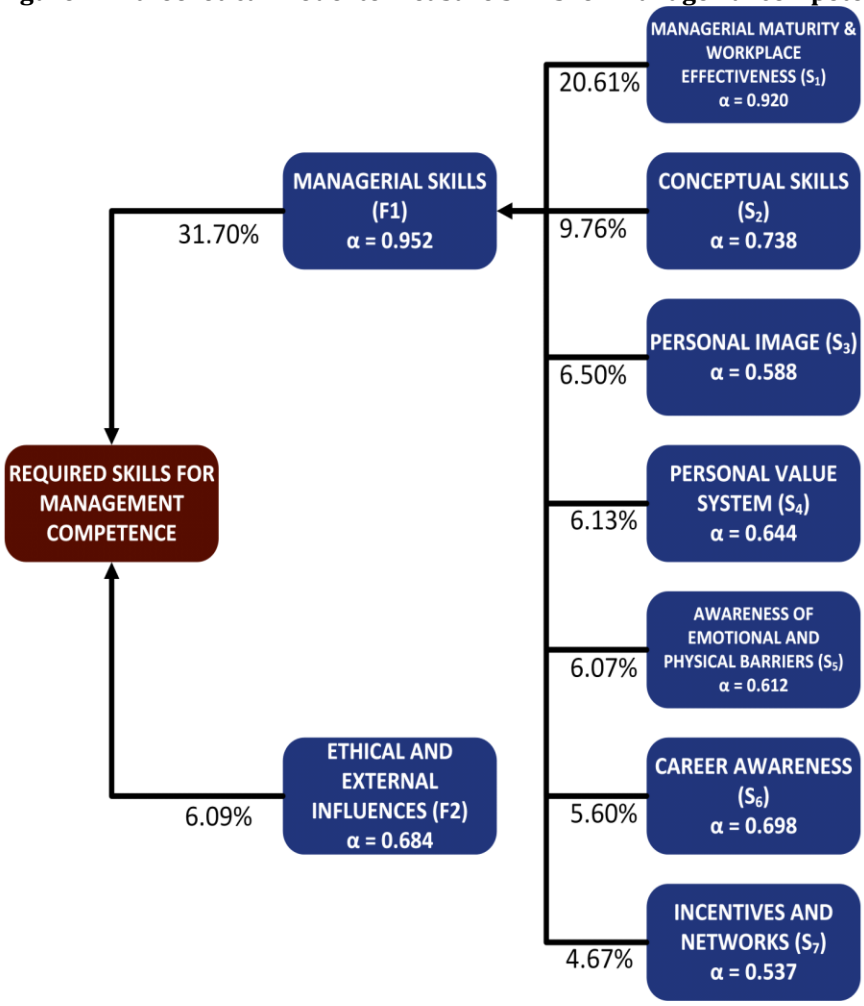
Overview: The selected model represents the results of a study to measure the skills for the managerial competence of MBA managers educated by private business schools in South Africa at their KwaZulu-Natal and Gauteng campuses. The original model pictured by Thekiso (2011) identified seven identified skills identified from a detailed literature review on managerial competence. After the theoretical construction of the model, Thekiso (2011) proceeded to empirically test his hypothesized model by gathering data from a sample of 395 part-time Master of Business Administration (MBA) students from three business school campuses of the North-West University (Mafikeng, Potchefstroom and Vanderbijlpark).The results indicated marginal success because the majority of the managerial skills were either borderline reliable or unreliable. Only two skills were reliable with a Cronbach Alpha coefficient exceeding 0.70 (excellent); three skills exceeded 0.57 (minimum reliability level for the study) but had Alpha coefficients below the desired 0.70, while two skills were unreliable (falling below the 0.57 lower margin of reliability) (Field, 2009:668). The two unreliable skills (*Leading skills* and *Organizing skills*) are, therefore, less likely to represent themselves in repetitive studies of a similar nature; this signifies a warning in the possible future applications of the model to measure managerial competence. In addition to the low reliability coefficients, a number of measuring criteria also had to be discarded due to low or dual-loading characteristics. The unsatisfactory results forced Thekiso (2011:174) to conclude that his model has failed.

Then in 2013, the model initially developed by Thekiso, was re-evaluated by Shaikh (2013) to determine if the strong theory of Thekiso does have promise and if the model can be amended and operationalized. Success would mean that the model (or parts of it) could be useful in another business school educated manager sample to measure their managerial competence. If Thekiso's existing model, or parts of it, could be validated it could be operationalised as a model to measure managerial competence. Shaikh (2013) then applied Thekiso's model to another sample of the business school educated managers. This time the population was geographically located in KwaZulu-Natal and Gauteng provinces of South Africa.

Factors measuring managerial and leadership competence: The results obtained by Shaikh (2013) identified two factors explaining 37.83% of the variance. These factors were identified as *Factor 1 (Managerial Skills)* which explains 31.73% of the total variance. It also consisted of the majority of measuring criteria. *Factor 2 (Ethical and External Influences)* explained only 6.09% of the variance. This meant that Factor 1 was of much greater significance. However, closer scrutiny revealed that the first factor is generalized and that it may consist of sub-factors. In further analysis, Shaikh succeeded to identify a further seven sub-factors within Factor 1. The Shaikh model is shown in Figure 1.Improving on Thekiso's results, Shaikh succeeded to obtain satisfactory reliability of his factors (see Figure 1). Only the Sub-factor 7 showed a low reliability with its coefficient below the secondary margin of 0.57 (Cortina, 1993:101; Field, 2009). It is also evident that the more important factors (according to the variance explained), namely Factor 1 and its two main sub-factors (1 and 2) have high reliability coefficients that exceed 0.70 with ease. The other sub-factors and Factor 2 also exceed the 0.57 secondary reliability margin with ease. The model is shown in Figure 1 where after each of the factors is discussed.

Factor 1-Skills for managerial competence: Sanchez and Heene (2004) state that competency-based theory is a relatively new way of thought about how organizations can improve and sustain high performance levels over time. This theory still holds as performance tool (Makulova et al., 2015:183; Takahashi et al., 2017). Established in the 1990s, competency-based strategic management theory explains how organizations can develop a sustainable competitive advantage in a systematic and structured way. The competency-based theory incorporates economic, organizational and behavioral concerns in a framework that is dynamic, systemic, cognitive and holistic. In the context of the present study, the term "*competence"* is viewed as the blend of knowledge, skills, abilities and behaviors needed to carry out tasks successfully. Managerial competence depends on both skills and knowledge based on understanding. Competence includes the capacity to transfer knowledge and skills to new tasks and situations. Here the *Competing Values Framework* (a framework of managerial competence developed by Evert, Lindquist and Macy (2014:182)) provides a foundation for developing managerial competencies and to guide managers to become "master managers". Here Kinghorn et al. (2015) expand the master manager concept, and state that the following eight roles are critical to becoming a master manager; that is to be a mentor, facilitator, monitor, coordinator, director, producer, broker and an innovator. On the other hand, Shaikh (2013) identified a subset of seven managerial skills that form the basis of his managerial competence model. These skills are discussed next.

Figure 1: A theoretical model to measure skills for managerial competence



Source: Shaikh (2013)

Figure 1 shows that two factors could be identified, but that Factor 1 consists of seven sub-factors. These two factors and seven sub-factors are discussed below.

Sub-factor 1-Managerial maturity and workplace effectiveness: Given the complexity that accompanies managerial roles generally, managers often find themselves in an invidious position where they may be offended personally, where blame may be placed on them for matters outside of their sphere of influence, or they may become parochial and avoid taking uncomfortable actions. In such instances, the manager gets into the intricacies of being a mature leader as well as being able to overcome these obstacles in the workplace (Plachy, 2015). Here interviews by Thomas et al. (2014) with numerous founders of large United States companies offer an insight into their modest expectations at the time of company start-up and their genuine surprise at the size their firms did ultimately grow to. These interviews commonly identified that different managerial skills are needed to maintain success as the company grows, and that company growth presents a wide range of challenges for its leaders. The point at which growth will outstrip management ability is not easily predicted because the threshold is different for each leader and each management team. The leader must be able to identify when company growth is outpacing their managerial maturity. Changing existing management practices is extremely difficult for some leaders. A delegation of authority for a leader has two key benefits: first, it builds the company's managerial maturity, and second, it lessens the workload that is placed on the leader.

Sub-factor 2-Conceptual skills: In his seminal study in 1955, Sydney Fine postulated the skills managers used and included the concept of conceptual skills (in Moore, 1999). Based on this work, research by Katz (1974:101) and the later works by Fine and Getake (2014:147), Wiley-Cordone (2016) attempted to define conceptual skills in management modernly as:
A skill that allows a manager to visualize the entire organization and work with ideas and the relationships between abstract concepts.

Katz's (1974:102) seminal study on the skills approach to leadership suggested that leadership is based on technical, human and conceptual skills. Additionally, Katz (1974:100) also points out that; top-level managers rely on and use conceptual skills strategic decision-making while lower level managers do so to supervise day-to-day operations. However, conceptual skills should be backed up by technical- and human skills to operationalize ideas and concepts in the workplace. Leaders with high levels of conceptual skills are good at thinking through the ideas that form an organization and its vision for the future, expressing these ideas in verbal and written forms and understanding and expressing the economic principles underlying their organization's effectiveness. These leaders are comfortable asking "what if" or other managerial based hypothetical questions and to work with abstract ideas. Here Northouse (2016) adds that conceptual skills allow leaders to give meaning to abstract ideas and to make sense of abstract ideas for their superiors, peers and subordinates.

In contrast to Katz (1974:101) and Wiley-Cordone (2016), Northouse (2016) state that conceptual skills are very important for top managers, less important for middle managers, and least important for supervisory managers. However, Yukl (2006) tends to disagree with Northouse's view (2016) and lean more towards the views held by Wiley-Cordone (2016) in this regard; that it is important to develop and demonstrate this skill at all levels of management. Even though conceptual skills are differently applied by the different levels of management, all need conceptual skills. Also, as managers get promoted to higher levels, early development of conceptual skills makes it easier for the manager to now operate on the higher level after the promotion. The modern economy also requires conceptual skills. Here a study by Abbatiello et al. (2017) points out that digital leadership is most relevant and that managers do need conceptual skills in the modern digitalized economy to make astute management decisions. These authors, in a collaborative study with the Business School at the Massachusetts Institute of Technology, concluded that for leadership capabilities to succeed in a digital world it must include conceptualizing possibilities in a virtual world, handling ever-increasing cognitive complexity, thinking divergently about new ways of doing things and making decisions quickly without all of the information.

Sub-factor 3-Personal image: The modern marketplace and competitive environment are strongly social media-based and increasingly driven by the value-proposition offered by organizations to its customers (Halzack, 2016). To a large extent, competitive disruption has shifted from the technological sphere to social and personal spheres of peoples' lives. Driven by a pervasive social media phenomenon, the personal image of leaders is often referred to as having a personal brand (Llopis, 2013). This personal brand is also transferred to the managerial position; hence the personal life and the employ become inter-connected on social media. A typical example in the South African political economy is when a prominent foreign business family (based in South Africa) was accused of being involved in large-scale corruption, they employed "spin-doctors" to improve and craft their personal image as wealthy businessmen committed to supporting Black Economic Empowerment in South Africa (Shaikh, Karodia and Soni, 2017:20). This example underscores, albeit negatively, how leaders may use their personal image to influence and gain favor among stakeholders in business and society.

Sub-factor 4-Personal value systems: Katulwa (2015:197) notes that "Leaders carry out this process by applying their leadership attributes such as beliefs, values, ethics, character, knowledge and skills". Though attributes are more difficult to develop than leadership behaviors (Tubbs & Schulz, 2006:497), management and leadership development efforts should focus on building a solid character as the foundation stone upon which to develop leadership behaviors. Some ethical lapses and corporate scandals are typical expressions of character flaws in the lives of senior business leaders (Katulwa, 2016). Here Volkswagen's Dieselgate, Sepp Blatter, the disgraced former head of soccer's international governing body, and Martin Shkreli the CEO of the drug company Turing who increased the price of an HIV drug by 5,000%, serve as examples where personal

values failed executives (Mathews & Gandall, 2015). Here Dillon and Bourke (2016) state that inclusive leaders should also align their personal values towards inclusion by treating all team members with fairness and respect, understanding the uniqueness of each team member, taking action to ensure each team member feels connected to the group/organization and proactively adapt their work practices to meet the needs of others.

Sub-factor 5-Awareness of emotional and physical barriers: This sub-factor deals with managerial barriers, more so the emotional and physical barriers managers' experience. Scrutiny of the literature provides very limited support for this factor, especially the model deals with managerial competencies and not with managerial barriers. Consultation of the original documentation where the model was developed, however, revealed that although the sub-factor seems not to befit the model, Shaikh has reported on it for completeness sake. The specific factor showed little promise hence it is omitted from the model. The individual criteria which loaded onto the sub-factor were retained though because they might add value (or not) in further model evaluation and development. If not, these criteria were deleted from the list.

Sub-factor 6-Career awareness: Carr (2008) seminally questioned the advancements in the digital age and its effect on human intelligence and detailed the fundamental shift in learning, reading and memorization that has taken place in recent years as a result of the digital proliferation. Additionally, he pointed out that "there are simply not enough highly specialized technical workers available for existing vacancies and needs". Nanterme (2016), in support, recognized this gap and indicated that the digital revolution is the main reason that more than 50% of the Fortune 500 companies have disappeared since the year 2000. This heeds a stern warning to career competence and keeping ones' career relevant to deal with challenges in a changing environment. Constant training, development and retraining are required to remain relevant and competitive in a career. Hence lifelong learning and a self-motivated pursuit of knowledge are defining features of the new knowledge economy. Changes brought by the Fourth Industrial Revolution are widening the global talent shortage; a gap that will only worsen as advances in technology further increase existing talent mismatches. Evidence from Accenture's research (2016) shows those technical jobs (at all the skills levels) require more than pure technical skills.

Sub-factor 7-Incentives and networks: Giles (2016) based on feedback from influential leaders worldwide, state that the most important leadership competency is to foster a strong sense of connection and belongingness. Her study also indicates that this sense of connection and belongingness is achieved by leaders who communicate often and openly, and create a team experience when achieving success or experience failure. Historical leader behavior, such as "heroship", is outdated. Here research by Abatiello et al. (2017) highlights that companies such as Google, Lyft, WL Gore, Mastercard, and Atlassian focus on team leadership and they recruit leaders who can work together as a team, complement one another, and function as a team. Abatiello et al. (2017) go on to argue that when older business models are no longer working, leaders need new competencies to redesign their organizations to be more dynamic, team-centric, and connected.

Factor 2-Ethical and external influences: Ethical responsibility is an increasingly key factor in determining a leader's success. Whetten and Cameron (2015:37) state that today's public has high standards for the behaviors of companies. Laws and lawsuits more frequently follow violations of formalized ethical standards, and competitors are quick to market how they are more ethical than other companies. Also, the behavior of managers is under greater scrutiny than ever before. Because the public has easier access to information, misdeed can almost instantly become widely known, damaging an organization's reputation and a manager's career. A survey conducted by Sulaiman and Mohezar (2009) on the students 'perception of the quality of MBA programs' established the need for MBA programs to consider ways of improving ethical awareness among MBA graduates. Leaders in businesses and other organizations are daily faced with ethical issues such as conflict of interest, communication, lack of fairness and equity in rendering services, opportunities to offer or accept bribery and kickbacks among many others. Leaders, therefore, need to be acquainted with the basic knowledge of ethical language and implications of their choices before they can be preferred to deal with temptations that come with leadership positions that they hold. Here Bisschoff (2017) performs longitudinal research spanning over nine countries and six continents to measure and compare ethical attitudes of MBA students. According to research by Giles (2016), leaders who demonstrate strong ethics and provide a sense

of safety are among the most highly rated attributes of the ten most important attributes of 195 leaders from 30 global organizations. Giles summarizes by stating that leaders with high ethical standards convey a commitment to fairness, and instilling confidence that both they and their employees will honor the rules of the game. In a safe environment, the employees can relax, invoking the brain's higher capacity for social engagement, innovation, creativity, and ambition.

Shortcomings of the model: The abovementioned model holds three significant shortcomings, namely that of recency, variance explained and an unsupported factor from theories studied in the literature.

- The model by Shaikh (2013) was developed from the theoretical framework by Thekiso (2011). This means that the fast-developing technological environment and the Fourth Industrial Revolution are not fully incorporated in the model. Also, human aspects such as constant career development, burnout and stress and emotional challenges in the work environment are not part of the original model variables. The model thus has to "modernize" to befit the new economic and technological environment managers operate in.
- The model results show a relatively low variance explained. The analysis identified two main factors explaining a cumulative variance of 37.83% (thus not achieving the desired 60% variance explained). This means that the model does consider the majority of the managerial competencies and that there are other managerial skills that can be gleaned from literature to improve the managerial competencies. In practice, this means that it is required to identify relevant managerial competencies further to add to the current model.
- One variable identified by the Shaikh model (*Awareness of emotional and physical barriers*) seems to be population specific as there is no supporting evidence from any of the theories studied in the literature. Lack of evidence from an extensive literature review suggests that this variable is not general and has therefore been discarded from the model.

Adapted literature constructs of the model: The model developed by Shaikh (2013) has a broad literature base. These supporting sources are listed in Table 1.

Table 1: Constructs from the original model

Constructs	Sources of Support
Managerial maturity and workplace effectiveness	Plachy (2015); Thomas et al. (2014)
Conceptual skills	Katz (1974); Yukl (2006); Northouse (2016); Wiley-Cordone (2016); Abatiello et al. (2017)
Personal image	Llopis (2013); (Halzack, 2016); Shaikh et al. (2017)
Personal value systems	Hernez-Broome &Hughes (2004); Tubbs &Schulz (2006); Satija (2009); Berger et al. (2012); Katulwa (2015); Katulwa (2016); Dillon and Bourke (2016)
Career awareness	Carr (2008); Hogan &Hogan (2001); Nanterme (2016); Accenture (2016)
Incentives and Networks	Giles (2016); Abatiello et al. (2017)
Ethical and External Influences	Sulaiman and Mohezar (2006; 2009); Whetten &Cameron (2015:37); Giles (2016); Bisschoff (2017)

Given the successes, the shortcomings and strong literature base of the current model, it seems worthwhile to attempt improvement of the model and expanding it to increase the variance explained by the managerial competencies. To do the model needs to expand the literature base, add more skills and also add more measuring criteria to peruse and analyze.

Expanding the Model: The literature study reveals that the following managerial and leadership competencies should be considered in addition to the ones already identified by both Shaikh (2013) and Thekiso (2011).

Emotional Intelligence: The most effective leaders are all alike in one crucial way: they all have a high degree of what has come to be known as emotional intelligence. This view does not purport to suggest that

the Intelligent quotient (IQ) and technical skills are irrelevant. While these skills do matter; they are the entry-level requirements for executive positions (Cherniss et al., 1998 cited in Ovans 2015). Emotional intelligence, as a theory of performance, reflects how an individual's potential to master the skills of *self-awareness, self-management, social awareness*, and *relationship management* translates into on-the-job success. Goleman's pioneering research, along with other recent studies (Abbatiello et al., 2017; Ovans, 2015; Stein, 2017), clearly shows that emotional intelligence is not a new skill that is *'sine qua non'* for leadership, but that it is needed now more than ever before. Without it, a person can have superior training, an incisive, analytical mind, and an endless supply of smart ideas, but this would not ensure great leadership (Cherniss et al., 1998). In the context of the modern digital economy, Abbatiello et al. (2017) argue that leadership is regarded as critical in transforming an organization "doing digital things" to one that is "becoming" digital. For both the organization and its leaders, this involves three different types of transformations

- Cognitive transformation: Leaders need to *think* differently;
- Behavioral transformation: Leaders need to *act* differently; and
- Emotional transformation: Leaders need to *react* differently.

According to Stein (2017), leadership research on emotional competencies is still in transition. This means that while many of the 'hierarchical and authoritarian' styles of leadership have become obsolete, and 'transactional' management styles have proven unproductive, new studies have encouraged the embrace of 'transformative styles' in which organizational leaders inspire their teams to achieve a collective purpose. Stein (2017) goes on to suggest that more leaders need to be equipped with the skills that combine interpersonal abilities, including empathy and trust, with the capacity to model creative problem solving when faced with tough situations. The managerial skill referred to as *emotional competence* has been identified by Goleman (and other EI theorists) as part of the skills set high-performing managers possess; a skill that will be more in demand in the Fourth Industrial Revolution.

Leading change: The customary, rather rigid corporate structures do not allow for agile change between the various leadership roles. Hoffmann (2016:12) indicates in this regard that, in the context of the Fourth Industrial Revolution, the multiple hierarchical levels in the conventional organizational model will become obsolete and eventually disappear. The typical silo-mentality associated with the hierarchical organizational design will fade, and this should unlock innovation in organizations that will, in addition to exploiting the current business environment, also allow leaders to incorporate experimentation of new ideas, innovate and to achieve a balance to secure long-term success. Here Truxillo, Bauer and Erdogan (2016:12) confirm that the organization has to learn continuously without any boundaries and adjusted organizational structures if necessary.

A defining feature of the Fourth Industrial Revolution is the digital change that comes along with it; digitalization requires constant strategic review and mission adaptation (Anderson, 2017). Here Eulitz (2016:13) adds that a leading proponent of the digital change phenomenon is that digitization has to be anchored deeply in the organization as an essential success factor for business growth. In this regard, companies are hiring Chief Digital Officers who lead interdisciplinary teams with special skills in the field of digitization, for example, e-commerce, and function as a start-up within an existing company (Eulitz, 2016:13). Sign (2016:14) highlights that, in contrast to a conventional executive, contemporary leaders are characterized by their openness to embrace change and innovation: He argues that although the traditional meaning of leadership should not change much, the concept of innovation management will. The question of managerial adaptability, ability to change and the recognition of opportunities and threats in a digitized fast-moving business environment surfaces as future managerial and leadership challenges.

Cultural intelligence: In the 21st century, cultural sensitivity and competence have been widely recognized as a critical factor to the success of the leadership process and organizational transformation (Sulaiman & Mohezar, 2006). Increased globalization has amplified cultural diversity in the workplace has made the ability to lead across cultures a critical managerial competence for effective managers. With increased advances in communication and technological convergence, the degree of cultural diversity is bound to increase, and that will continue to exert pressure upon organizational leaders to enhance their capacity to connect in nontechnical ways (Dunwood & Peters, 2016). Hitt, Black and Porter (2005:115) define culture as "A learnt set of assumptions, values, and behaviors that have been accepted as successful enough to be passed to

newcomers". The relevance of culture to business leadership lies in its impact on behavior. Consequently, business leaders with cultural understanding and sensitivity are better placed to leverage culture and use it to help accomplish organizational goals. The business leader of the 21st century is more likely to work with a more culturally diverse workforce than their predecessors of the 20th century. Walker et al. (2003:23) describe the knowledge-based economy as the era of global business where a "different level of awareness, competence and skill is required to navigate the relativity and complexity of the multicultural global work and marketplace". Further, they identify five interrelated aspects of cultural competence that they argue could be developed through continuous learning and development. These learnable interrelated aspects of cultural competence include; open attitude, self-awareness, other awareness, cultural knowledge and, cross-cultural skills (Walker et al., 2003; Fong et al., 2016); leadership and managerial competencies required in a fast-changing business environment.

Teambuilding: At the start of the century, MacMillan (2001) already depicted the 21st century business as a team-sport environment where new rules apply, and world-class competition is the order of the day. To succeed in this environment, businesses need to function like high-performance teams characterized by clear, common purpose, crystal clear roles, accepted leadership, effective team processes, solid relationships and, excellent communication. Campbell (2006) later further explored the concept of teams and identified three critical reasons for developing teambuilding competency among business leaders in the knowledge economy:

- Team performance is a major determinant of the overall organizational performance;
- Business leaders of the 21st century is going to spend a greater portion of their time working in teams; and
- Business leaders wishing to maximize their personal potential should develop their team leadership skills on a smaller scale before they can advance to leading multiple teams.

Here Maitland and Anderson-Terry (2017) confirm the importance of teams in business to cope with the disruptive changes the Fourth Industrial Revolution brings about. This is specifically relevant to South African managers and leaders because 68% do not understand the influence these disruptive changes have on managers while in 44% of South African organizations, the workforce strategy is not aligned with the innovation strategy (Hattingh, 2016). Hattingh also points out that virtual teams and its management is also a required competence in the postmodern business environment.

Strategic leadership: Strategic leadership has been identified as a source of competitive advantage (Day et al., 2009:14). Hitt, Ireland and Hoskisson (2012:63) defined strategic leaders regarding the manager's "ability to anticipate, envision, maintain flexibility, think strategically, and work with others to initiate changes that will create a viable future for the organization". Looked at it from that perspective, strategic leadership bears within it the potential to create a competitive advantage for an organization to the extent to which it is hard to be imitated by competitors. To function effectively in an interdependent, increasingly complex, and dynamic knowledge-based economy of the 21st century, managers and leaders need to enhance strategic leadership skills more than ever before (Hattingh, 2017). A point stressed by Anderson (2017) who indicates that the continued acceleration of innovation and the velocity of disruption demand that management strategy is continuously adjusted to remain competitive. Here Swartz and Potgieter (2017) point out that this accelerated change will increase stress; hence managers should be skilled in dealing with stress in the modern economy.

Conflict management: Conflict may be described as a struggle between at least two parties arising from incompatible goals, competition for scarce resources, different perception of given a situation or, perceived interference from the other party in achieving their goals (Campbell, 2006). In the knowledge economy of the 21st century, conflicts are a prominent feature in the workplace and require people skills, self-management skills, and also leading skills (Anon., 2017).Reese (2016), however, state that the manager or leader should be conscious of their ability, or lack thereof to manage conflict. He cites Maslow's views in this regard who categorized managers or leaders conflict competencies as:

- *Unconscious incompetence*: Here managers who are incompetent in one (or more) of the conflict management skills, doesn't know that they are incompetent; they blame others for their incompetence.

- *Conscious Incompetence*: These managers are incompetent in an (or more) conflict management skill(s), and they know it. They are aware that they need to learn these skills.
- *Conscious Competence*: These managers have learned specific conflict management skill(s) which they apply skill consciously.
- *Unconscious Competence: These managers have conflict resolving skills, and they* apply the skill consistently but "as part of their management skills", not as a conflict resolution skill.
- Here Reese (2016) points out that business leaders and managers should establish good communication links to be good at managing conflict.

Communication skills: Leadership is about influencing others to achieve agreed desired goals, and this is done through communication. Communication skills competence has been (Certo, 2000; Conrad & Newberry, 2011; Du Babcock, 2006) and still is widely regarded as a critical determinant of organizational success (Reese, 2016; Anon., 2017). Wiemann (1977) described communication skills regarding the ability to choose between different available communicative behaviors, in a way that successfully fulfils the users' interpersonal goals. Several studies have underscored the need for business education to include development of communication skills in the curriculum in order to address the apparent gap between the graduates' skills level and what is desired by the business industry (Lanier et al., 1997; Tanyel, Mitchell & McAlum, 1999; Roebuck, 2001; Kamal, 2015). Here Kamal (2015) points out that nine communication skills are required by managers, namely active listening skills, writing skills, verbal skills, interpersonal communication skills, teamwork skills, presentation skills, selling skills, negotiation skills and networking skills. Considering that, a leader's performance is closely tied to his/her communication competence (Frederickson, 2006) and that most leaders will spend close to 40% of their time communicating with their constituents (Simpson, 2006), communication is a core competency; managers should master. Giles (2016) also lists communication as key skill managers should possess. Generally, management researchers agree that both oral and written communication skills are key in communication competence (Reese, 2016; Giles, 2016; Anon., 2017).

Global leadership mindset- Rogers and Bloski, 2010:19) describe a global mindset as:
The capacity to engage in a boundaryless and synthesizing cognitive process that identifies opportunity and innovation in complexity.
Two modern definitions of the global mindset in business are offered by IGIGlobal (2017) as:
A meta-capability that permits an individual to function in the new and unknown situation and to integrate this new understanding with other existing skills and knowledge.
and
Managerial openness to and awareness of diversity across cultures and markets with an ability to see and seize the global opportunities, to adopt sustainable and ethical good managerial practices wherever they come from, cooperating globally to the benefit of all stakeholders accepting the philosophy of integrity in their actions.

Encompassed within the global mindset is the ability to see beyond national culture, organizational boundaries, corporate gain and functional responsibilities to the society as a whole. The global leadership mindset is essential for success in the 21st century because it enables leaders to embrace paradox and complexity which are indispensable skills in a dynamic first changing environment (Rogers & Blonski, 2010:2). Studies have recommended a multi-dimensional approach where the global mindset allows managers to expand beyond their limits of their existing behavior and incorporate ethnocentric thinking, diversity and differences in their management activities to function effectively on a global platform (Cohen, 2010; IGI Global, 2017).

3. Expanded Theoretical Model to Measure Managerial Competence

The managerial competencies identified by the original models and the extended literature study are combined in a new theoretical model to measure managerial competence. The relevant new competencies and their supporting theory are summarized in Table 2. The table includes the original competencies by Thekiso (as adopted and adapted by Shaikh) and also the newly added competencies from the literature study. However, overlapping competencies and skills resulted that from a possible sixteen competencies, a total of eleven core managerial and leadership competencies were identified. These competencies appear in

the table below. The relevant measuring criteria based on the theory to measure each of the competencies also appear in this table.

Table 2: Additional constructs supported by the literature

Global Leadership Competence	Measuring criteria	Origin
Leading change	• As a leader, I need to be prepared to help my organization to keep pace with change • I believe that there is a relatively high level of failure in strategic change efforts in organizations • As a leader, I need to drive the topic of change, be a change agent myself and promote diversity • MBA programs must include a course on managing strategic change in the core curriculum • I believe that most managers do not embrace the reality of regular change in their organizations	Hoffmann (2016); Truxillo et al. (2016); Eulitz (2016); Sinh (2016); Anderson (2017)
Cultural intelligence	• I believe that cultural intelligence is a critical success factor of the leadership process and organizational transformation • Leaders with cultural understanding and sensitivity are better placed to leverage culture and use it to help accomplish organizational goals • Increased advances in ICT, the degree of cultural diversity is bound to increase pressure on organizational leaders	Chin and Gaynier (2006); Sulaiman and Mohezar (2006); Walker et al. (2003); Hitt et a. (2005); Hitt et al. (2012); Fong (2016)
Team building	• Team performance is a major determinant of the overall organizational performance • Business leaders of the 21st century is going to spend a greater portion of their time working in teams • I believe that leaders who are collaborative are most successful in their leadership efforts • Collaborative leaders generate goodwill in the team, which in turn enhances team performance	MacMillan (2001); Campbell (2006); Hattingh (2016); Reese (2016); Maitland &Anderson-Terry (2017),
Strategic leadership	Strategic leadership focuses less on day-to-day events and more on underlying trends and patterns • Strategic leadership has the potential to create a competitive advantage for an organization which is hard for competitors to imitate • Strategic leaders envision the future and inspire others to work towards creating a viable future for the organization • Strategic leadership is directly connected to organizational renewal and strategic innovation	Day (2000); Oritz (2004); Hitt et al. (2012); Anderson (2017); Hattingh (2017)
Conflict management	• I must manage the gaps and tensions that emerge due to the diversity of my team members • A leader's conflict management ability is key to the current business environment of diversity, complexity and continuous change. • If I manage conflict poorly, business performance will suffer	Campbell (2006); Kamal (2015); Reese (2016); Anon. (2017)
Communication skills	• A leader's performance is closely tied to his/ her communication competence • MBA degrees and business education programs must include communication skills to improve graduates'	Dilenscneider (1992); Wiemann (1997); Lannier, Tanner, Zhu and Heady (1997);

	impact in the workplace. • Leaders spend a substantial part of their time communicating with their constituents. • Influencing others is central to leadership, and this is achieved through effective communication. • Communication will increasingly become networked and matrix-based across multidisciplinary teams	Tanyel et al. (1999); Fredrickson (2006); Du-Babcock (2006); Certo (2000); Simpson (2006); Conrad and Newbury (2011); Giles (2016); Reese (2016); Anon. (2017)
Global leadership mindset	• I understand the global mindset is the ability to see beyond national culture, organizational boundaries, and local business opportunities. • The global leadership mindset is essential for success in the 21st century because it enables leaders to embrace paradox and complexity	Rogers and Blonski (2010); Cohen (2010); IGIGlobal (2017)
Emotional Intelligence	• I understand self-awareness to be a key part of emotional intelligence • Emotional intelligence can result in an outstanding performance at work. An emotionally intelligent leader is aware of relationship management as well as task orientation • An emotionally intelligent leader is aware of relationship management as well as task orientation. • If I am emotionally intelligent, I understand the impact that my emotions and behavior would have on others around me.	Cherniss et al. (1998); Ovans (2015); Boyatzis, Goleman and Rhee (2000); Abatiello et al., (2017); Stein (2017)
Ethical and External influences	• The public has higher expectations these days for the ethical behavior of companies • MBA graduates are required to reflect greater ethical awareness – especially since the 2008 crisis • Leaders in business are regularly faced with ethical issues such as bribery, corruption, kickbacks for contracts among others • Leaders must have a basic knowledge of ethical language and behaviors in their daily interactions	Sulaiman and Mohezar (2006; 2009); Whetten &Cameron (2015:37); Giles (2016); Bisschoff (2017)
Career awareness	• I am aware that employees are required to have technical skills in the digital economy • Lifelong learning is an essential feature of career development in the knowledge economy • Career planning is part of my self-development – rather than my employer's responsibility • I am aware that even technical jobs require soft skills such as creativity, collaboration and business savvy	Carr (2008); Hogan &Hogan (2001); Nanterme (2016); Accenture (2016)
Personal value system	• I apply my own beliefs, values, ethics, knowledge and skills in my leadership style • Leadership behaviors are to be built on character as a foundation • Ethical lapses in business are partly a result of character flaws of leaders • The demonstration of solid character is going to be an indispensable quality of 21st century leaders	Hernez-Broome &Hughes (2004); Tubbs &Schulz (2006); Satija (2009); Berger et al. (2012); Katulwa (2015); Katulwa (2016); Dillon and Bourke (2016)

Table 2 is a summary table of the literature study on the managerial and leadership competencies. The table shows how each competency can be measured and where the specific measuring criteria originated from in the literature. Also, some criteria were also drafted from lines of thought of multiple studies, and could not specifically attribute to a specific study; these criteria were compiled and listed based on the general

literature. This table serves as the empirical structure of measuring instrument, a questionnaire, that will be used to measure managerial and leadership competence among South African business leaders. The adapted model to measure managerial and leadership competence appears in Figure 2.

Figure 2: The adapted model to measure managerial and leadership competence

The identified eleven managerial competencies are shown in the figure. These competencies represent the theoretical model, and further research needs to be done to substantiate these competencies as valid measures of managerial competence.

4. Conclusion

This article started with an existing theoretical model to measure managerial and leadership competencies of business school educated managers. The model presented by Shaikh (2013) was an adapted theoretical based on a conceptual model originally presented by Thekiso (2011). While the Shaikh model reflected a fundamentally different factor and sub-factor structure to the conceptual model by Thekiso (2011), it succeeded to progress in the right direction by overcoming failures experienced by Thekiso. However, the key shortcoming is the variance explained that falls dismally short of the desired 60%. At the current 37% of the variance explained, it means that 63% of the variance is not explained; this is unsatisfactory. This meant that the model had to be extended and 'modernized' to reflect the latest dynamics and factors of managerial and leadership competencies related to the current dynamic and complex global business environment. In extending the current model to measure managerial competence more comprehensively, seven competencies were retained from the existing Shaikh model. One competency was discarded because it showed a lack of supportive evidence for the theory. Also, and based on an extensive literature review, another nine competencies were added from an extensive literature study. These new competencies sought to accommodate the key elements of managerial and leadership skills that were missing from the original theoretical model by Shaikh (2013). Although there are 16 skills in total, the new set of competencies embeds some of the original competencies. This means the model now has eleven managerial competencies to measure, each with its unique set of measuring criteria.

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The Effect of Government Support on the Success of Small and Medium Enterprises: A Comparative Study between South Africa and China

Rankhumise EM, Masilo KH
Tshwane University of Technology, Pretoria, Republic of South Africa
rankhumiseem@tut.ac.za, masilokh@tut.ac.za

Abstract: The purpose of this article is to present evidence of a study conducted in two provinces of South Africa and one in China. The study investigated the effectiveness of the support mechanism for small and medium enterprises (SMEs) and how government support agencies are making strides in providing this support. Semi-structured interviews were conducted with branch managers, a project director and business advisors. It emerged from the findings that efforts are being made to provide valuable support to small businesses. It further emerged that small businesses still face challenges such as lack of access to funding, market to serve, lack of a one-stop office and the unwillingness of service providers to enter into contract with the Small Enterprise Development Agency (more relevant to the South African situation).It is recommended that financial service providers partner with SME support agencies.

Keywords: *China, South Africa, Small and medium enterprises, Small Enterprise Development Agency*

1. Introduction

Research worldwide shows that small and medium enterprises (SMEs) play an important role in the economy (Chittithaworn, Islam, Keawchana & Yusuf, 2011). SMEs are fundamental in overcoming socioeconomic challenges characterised by high unemployment, high poverty rates and income inequalities, especially in developing countries (Machirori & Fatoki, 2013). Despite the contributions made by SMEs to the economy, they still experience a high failure rate and reduced performance which does not translate into growth. The role of SMEs in the South African economy is outlined in the White Paper on National Strategy for the Development and Promotion of Small Business of 1995 as well as in the National Small Business Act (NSBA) of 1996. These two prescripts provide a clearer perspective on how SMEs should be promoted and supported. As a result of these prescripts, the South African government has established several business support agencies. One of these is the Small Enterprise Development Agency (SEDA). The National Small Business Act (NSBA) (102 of 1996) sets out the objectives of this agency, which are to design and implement development support programmes intended to be implemented in all provinces in the country. Other broad objectives of SEDA are to implement a service delivery network that increases the contribution of small enterprises to the economy, promote economic growth, job creation and equity, and finally strengthen the capacity of service providers to support small enterprises and for small enterprises to compete successfully in the domestic and international spheres. Based on the objectives as stipulated in the NSBA (1996), SEDA has formulated its specific objectives, namely (i) to enhance the competitiveness and capabilities of small enterprises through coordinated services, programmes and projects, (ii) to ensure equitable access for small enterprises to business support services through partnership and (iii) to strengthen the organisation to deliver on its set mission.

Similarly, the Chinese initiatives focus on productivity development centres which provide business support to SMEs. China has also introduced and adopted laws which are a more proactive policy to support the development of SMEs (Hussain, Millman & Matlay, 2006). For example, the SMEs Promotion Law aims to remove institutional barriers, encourage innovations and increase the competitiveness of SMEs (Chen, 2006).SMEs make a crucial contribution to the global economy and this has attracted governments worldwide. Despite efforts to improve and sustain small businesses, not much has changed in improving the performance of SMEs, particularly in South Africa. This sector is characterised by lack of growth and closure of small businesses in the early stages of operation. The success of small businesses depends on a number of factors, including managerial insight, finance and marketing skills of the owner-managers. According to Chen (2006), many SMEs in China are family-based businesses and the founders mostly do not possess management skills or financial expertise, which may limit the firm's further development in the future. Similarly, Hussain et al. (2006) found that most Chinese SMEs have limited growth potential as a result of their financial constraints. Zhao (2010:71) believes that SMEs are in need of funds in the early stage of

development and access to quick growth. However, due to financing difficulties, businesses are unable to acquire large amounts of funds needed for the development of their businesses.

The two countries provide SMEs support through various agencies. Scholars have posited that Chinese SMEs are succeeding in their Business endeavours and as such it becomes important to understand what strategies they are using to be more successful. Comparatively, the South African SMEs appear to be struggling in pursuing their businesses. This study is important as it intended to investigate the effect of SME support as implemented with the understanding that they would contribute to growth and prosperity. Despite the support provided, some of the SMEs still face some challenges in running their businesses. Notably, the challenges faced by SMEs appear to be generic, however, there could be circumstances across the two countries that might be different, and as such a comparative study was imminent to understand the differences in order to learn the best practices per country. Based on the above, it was important to understand what support is being provided by small business agencies to ensure that SMEs prosper in the two countries.

2. Literature Review

There has been a plethora of literature on the success factors, contribution and development of SMEs. In this context, various governments have embarked on the development of SMEs. Despite the noted contributions made, what has emerged as a concern is the rate at which SMEs are failing. Fatoki and Garwe (2010) posit that although SMEs show higher growth in percentage terms, most new firms do not grow because they were established out of desperation rather than from a choice to pursue an entrepreneurial career. In today's competitive world, with rapid international changes and development, entrepreneurship is seen to be the engine of economic development that can play an essential role in the country's economic growth, employment and social welfare (Lashgarara, Roshani & Najafabadi, 2011:5536).

South Africa is faced with a situation where many businesses fail during the first two years of their operation due to cash flow problems since no growth is realised (Nieman & Nieuwenhuizen, 2009:35). There are a number of challenges facing entrepreneurs in their first stage of business operations. The first is access to start-up and expansion finance – raising money in the capital market is seen as difficult and, as such, nascent entrepreneurs end up using their own money. Literature shows that the majority (80%) of start-ups are financed through personal savings (Nieman & Nieuwenhuizen, 2009). The rationale for the lack of access to finance is that banks regard SMEs as high-risk borrowers and require collateral security, which ordinarily the owners do not always have. The second challenge is access to markets – businesses are unable to sustain the markets for their products. If the business cannot sustain its market, it means a loss in client level, which will affect turnover. Business owners should formulate strategies to overcome this particular barrier. The third constraint is access to appropriate technology (Nieman & Nieuwenhuizen, 2009). Successful entrepreneurs make use of advanced and appropriate technology. This enables them to improve on their production processes and therefore efficiency. Without this advanced technology, the business is likely to fail (Rankhumise & Rugimbana, 2010). Labour is the fourth challenge and it is an imperative factor that could drive the business to greater heights. This essentially means that qualified personnel are required to perform the functions within the enterprise. Acquiring highly qualified staff is very expensive and sometimes if they are not satisfied, they will simply leave the enterprise for better opportunities.

From various studies, it has emerged that there are still challenges facing entrepreneurs in all sectors of the businesses. These are, among other things, the high failure rate of SMEs, lack of growth, poor level of entrepreneurial success, limited access to start-up and expansion finance, limited access to technology and markets, lack of financial management and lack of management skills (Kambwale, Chisoro & Karodia, 2015:85). All these factors hamper the development and success of small businesses in South Africa. Similar factors are at play in China. Within this context, government's aim is to encourage the development of small businesses and to ensure that they are sustainable by providing support mechanisms to all these businesses. Through its agencies, the government provides some training interventions to ensure that SMEs succeed in their endeavours. Kotey and Folker (2007) believe that training is the most prevalent driver to improve the competencies of SMEs, assist in their growth and also increase their profitability. It is therefore important for SME owner-managers to have access to training interventions that educate them and their staff on how they

can improve their business and acquire managerial skills which could assist them in running their businesses successfully. This aspect has been further emphasised by Kirsten (2013:826): financial functions such as investment, financial decisions, ensuring probability of the business and sound cash flows are key to managing small businesses. This further suggests that SME owners require financial management skills in order to manage the business and ensure its success.

In South Africa, the largest percentage of small businesses fails during the first two years of their existence or operation. They fail for various reasons ranging from lack of experience in running the business, entrepreneurial culture, lack of education and, more importantly, lack of access to finance (Rankhumise & Rugimbana, 2010). Scholars posit that there is a serious problem associated with small businesses in accessing finance and this impedes their success and growth. The reasons for lack of access to finance are inadequate funding proposals and business plans and risk aversion of the banking sector towards SMEs since they are seen as high-risk borrowers. In this context, it is important for SMEs to access finance with the intention of improving entrepreneurial performance, growth and sustainability. Comparatively, SMEs in China face similar challenges to South African small businesses. Liu (2008) identifies the following concerns associated with SMEs' operations in China: (i) inadequate financing – this is regarded as a major barrier to SME development in China and SMEs are disadvantaged through the poor credit guarantee system; and (ii) unable to obtain bank loans due to imperfect management. Taking cognisance of the high failure rate of new SMEs and the importance of their contribution to the economy of the country, it becomes imperative to explore how SMEs could overcome the hurdles that they face and also to learn from those that conduct businesses successfully. If the government's strategy is to use the SME sector as a vehicle for economic success, the focus should be on developing competent entrepreneurs (Peters & Naicker, 2013:13).Based on the background and the literature review, the aim of the study was to investigate the effectiveness of support mechanisms as implemented by SME support agencies.

3. Methodology

The design of the study was qualitative, explorative and contextual. According to Klopper (2008), the qualitative nature of a study offers the opportunity to uncover the key informants' experiences and perspectives, of which little is known. The purpose is to gain a richer understanding of the experiences of the key informants, in this case SEDA managers, the project director and business advisors as regards to SME support. A qualitative study is a study in which the phenomenon under investigation is studied in relation to its intrinsic and immediate contextual significance (Mouton, 1996). Leedy and Ormrod (2010) explain that the qualitative research method is appropriate when the researcher is trying to understand a new phenomenon rather than trying to establish a relationship between two or more variables. Furthermore, it often focuses on how individuals and groups view and understand the world and construct meaning out of their experiences. In this case, qualitative methods were deemed more appropriate since the researchers needed to first identify the variables that might later be tested quantitatively. Therefore, SEDA managers, business advisors as well as the Project Director of Xian Pioneering Development Centre were interviewed to share their experience of support towards the small businesses within their catchment areas, particularly what is working well and how to overcome any obstacles. Although the obstacles and opportunities of SMMEs are conceived to be more generic worldwide, there could be circumstances across the two countries that might be different, and therefore a comparative study was imminent to understand the differences.

Population: Nine (n = 9) participants took part in the study. This consisted of one (n = 1) provincial manager, two (n = 3) branch managers and four (n = 4) business advisors (BAs) selected from Limpopo and Mpumalanga and one (n = 1) project director at Xian Pioneering Development Centre. The participants were purposively selected with the understanding that they would contribute significantly to the study. The researchers took cognisance of the importance of sample adequacy. In this regard, information power was used as a guide to the adequacy of the sample. Malterud, Sierma and Guassora (2016) explain that information power indicates that the more information the sample holds, relevant for the actual study, the lower amount of participants is needed, hence only nine (n=9) were selected to participate. They had full insight into and an understanding of the SME support within their context that is SEDA in South Africa and Xian Pioneering Development Centre in Xian, China. Based on the fact that the branch managers, project director and BAs focused on the support of SMEs, one interview protocol was used.

Data collection: Data was collected by way of semi-structured interviews. This type of data collection technique allows the interviewee to talk about the main topics of interest and develop other questions during the interviews (Collis& Hussey, 2014:133). In South Africa, as the researchers, we made appointments with the SEDA provincial manager and branch managers, which then included their BAs. In China, we requested the collaborator from Chang'an University to make an appointment with the Director of Xian Pioneering Development Centre and also arranged for an interpreter to ensure that there was smooth communication with the participant. Each interview lasted between 45 and 120 minutes. Data collection was not guided by theoretical saturation because the study was more of a baseline study which will be followed by a survey. All interviews were guided by the use of an interview protocol (Creswell, 2012:206). This type of data collection method was used to determine the emphasis of the topic: to gather opinions, perceptions and background information on the topic (Patton, 1990:278). An audiotape recorder was also used to collect data in order to ensure that accurate data was collected. This is in line with what Lincoln and Guba (1985) state, namely that recording interviews has the advantage of capturing data more faithfully compared to quick written notes and enables the researcher to focus his or her attention on the interview itself.

Data analysis: In the analysis of data, the researchers and co-coder transcribed the audio taped interviews and the field notes independently using Tesch's data reduction method (Creswell, 2009) of open coding. In ensuring simplistic data management, the following steps guided the analysis :(i) Audiotapes were listened to once and repeated to capture the meaning. (ii) The field notes were read to understand the data properly and to get a sense of the whole. In this regard, the researchers tended to use inductive analysis of data, which means that critical themes emerged out of the data (Patton, 1990). (iii) Topics were abbreviated as codes and these were written next to the appropriate clusters of the text. (iv) Related topics were grouped with the intention of reducing sub-themes to a manageable number. (v) After the completion of data analysis, the researchers and co-coders met to discuss the final analysis of the data and agree on the emergence of themes. This last step is important as it helps to alleviate the researcher's possible biases and at times could eliminate instances where over-analysis of data has occurred.

4. Findings and Discussion

The purpose of this specific study was to investigate the effect of government support provided by SME support agencies. The discussion of the findings is presented in accordance with the themes that emerged during the analysis of the data. The guiding principle is the commonalities identified and any non-similarity themes are presented separately. This is aimed at providing an understanding of what the current practices and challenges are as experienced by SMEs in each country. The primary data depicts the findings of the participants interviewed in Limpopo and Mpumalanga, South Africa, and Shaanxi Province, China. The findings reveal that there are challenges in terms of the effectiveness of SME development in the three research sites as indicated by the participants. In the next section the themes that emerged are discussed and verbatim quotes are given.

SME support strategy: Quite importantly, the participants highlighted that an evaluative small business development initiative was used to ensure that there was synergy in the whole process. Of great importance is what Swanepoel, Strydom and Nieuwenhuizen (2010) indicated in their study that SMEs training in funding and mentoring ordinarily over an extent period to support them in the efforts to convert dreams and ideas into functioning and viable businesses. Gwija et al. (2014) concur with Swanepoel et al. (2010) above that lack of appropriate government support towards SMEs was found to be unsatisfactory; hence many small businesses fail to prosper. The strategy used in the SEDA branches is to secure partnerships with organised business, local municipalities, government departments and banks. This is what the participants had to say:
"*With coordinated strategy towards the support of SMEs, it is important to have working relations with the stakeholders in your environment. This assist in the provision of services to pre-start-ups and the existing businesses…"*
By using this strategy, the business development efforts create coordinated initiatives from all the parties. This ensures that there is a working relationship among stakeholders.

Diagnostic assessment and analysis: It was revealed that diagnostic assessment and analysis is used to assess the level of assistance that might be provided to the SMEs. Prior to the use of diagnostic tools, a pre-

screening exercise is done at the front desk before any referral can be made to the BAs. This is done to ensure that clients are advised accurately. Once a client qualifies for the next step, they are referred to the BA, who evaluates the business ideas for start-ups and existing businesses. Generally, the BAs use various diagnostic tools: (i) The pre-start-up tool evaluates the business readiness of the business. In this regard, if the business idea is feasible, the client will be assisted with the business plan development and other related compliance issues such as registration of the business. (ii) The critical planning exercise is an accounting tool used to test the viability of the idea or business. It assists in determining whether the business idea envisaged can be marketed and will generate a sustainable profit in the long run. (iii) The assessment of company operations entails the assessment of the weaknesses and strengths of the business in relation to the enterprise functions. This focuses more on finance, human resources, marketing and so forth. All these assessments are prevalent within SEDA in South Africa.

"*…Before we can provide any intervention, we need to understand the positions of the clients in relations to their weaknesses and strengths. In doing that we use three diagnostic tools which are Pre-start-up tool, Critical Planning Exercise and Assessment of Company Operations. These tools help us to identify the gaps from the clients before embarking on the actual interventions…"*
Notably, these tools could assist in identifying gaps of the assessed clients. Based on these, the BAs develop action plans and appropriate interventions recommended to assist the clients in their respective endeavours.

Successes resulting from the support provided: Taking into account the intention of government agencies, that is, to provide support to the SMEs in the country, the findings reveal that there has been some progress in the support provided by agencies from both countries. This is evident in the number of prospective and existing businesses being supported. Many businesses have taken off and have realised high turnovers. The existing businesses have been able to employ additional workers, which fulfil the government priority of encouraging business development with the view to overcoming unemployment. The following is what the participants had to say:
"*In our branch we supported many customers with businesses training interventions. We also supported one business from start to a situation where it yielded R 13 000 000.00 turnover. Another one which we also supported made a turnover of R 56 000 000.00. What I can further say is that almost 50% of the businesses succeeded in their respective business endeavours with great strides…"*
"We have supported over 800 small businesses in our centre. The businesses are progressing very well more especially with the interventions we implemented…"
Based on the participants' views, it is evident that the support provided is leading to success. It is important to note that the priority of the government to encourage people to start their own businesses is producing results considering the number of workers employed by these SMEs.

Regulatory framework: The participants from both countries indicated that the current framework for supporting SMEs was effective. However, they indicated that in the implementation of the framework, there was a need to have an integrated approach from all the stakeholders to work in collaboration. This finding was emphasised more by the South African participants. An example was provided where the local municipalities were pursuing SME development while SEDA is pursuing the same agenda. If all stakeholders worked together, duplication would be avoided. Though the framework is effective, it is notable that the whole process is too long and discourages small businesses, especially when they are waiting for their applications for funding.

Challenges experienced in the process of support: In the quest of government agencies to support SMEs, participants indicated that there are still challenges experienced in providing the interventions. The following challenges were identified during the interviews:

Access to finance: SEDA does not provide financial assistance. Although business support is provided to pre-start-ups through development of the business plans, it is noted that when recommendations are made for the SMEs to get the funding, they do not always get approvals. Reasons include lack of security and lack of identification of the market. This notion confirms what Yan (2015) who found that Chinese government implements favourable support to SMEs, however, it is not investing directly in SMEs as it does with large enterprises. Furthermore, the banks are sceptical to give loans to SMEs as they typically lack sufficient

financial history and stability of earnings. In some instances, where funding is provided, higher interest rates are charged due to the risk-averse nature of the banks. This is line with what Chittithaworn et al. (2011) and Rankhumise and Rugimbana (2010) found in their studies: that SMEs still have challenges in accessing finance from banks since they are regarded high-risk clients. Kersten, Harms, Liket and Maas (2017) also confirm that small firms still lack of access to finance and this could impact on the performance of SMEs. The following is what the participants articulated:

"As SEDA we are doing everything in our power to assist in the development of the business plans, the ultimate approval rest elsewhere that is with the banks and other financing authorities…"

"…SMEs do not always succeed in sourcing funds. They are risk averse and less than 20% of SMEs we recommend get funding…"

These findings are line with what Herrington et al. (2009) found, namely that access to finance is a major challenge particularly to South African small business owners. It can be noted that a lack of financial support is seen as a contributor to low new firm creation and high failure.

Access to market: The participants indicated that most of their clients did not have access to a market. This aspect creates challenges in the sense that if there is no possible market to serve; the business is unlikely to succeed. In this case, they assisted SMEs with the marketing strategy and promotional material initiatives. This finding is relevant to all sites investigated in South Africa and China and confirms what Doh and Kim (2014) found: market failures bring some bias against SMEs. As a and Prasad (2014) hold the same view that market presence gives the small business owners some closer proximity to customers which ensures that the business understand customers' needs. Rankhumise and Masilo (2016) in their study also found that access to market creates challenges because if there is no possible market to serve, the business is unlikely to succeed.

Lack of one-stop office: It emerged that the process of providing support is disintegrated. This is because there are different role players involved, for instance the Small Enterprise Finance Agency (SEFA) and Independent Development Corporate (IDC). SEDA works with these agencies through referrals. Similarly, Xian Pioneering Development Centre does not provide financial support either, but rather makes referrals to financial institutions to assist with finance.

"*We are working as SEDA; however, there are agencies that we are working in conjunction with, for SEFA and IDC. We assist and make referrals to these agencies for possible funding of the clients…"*

"These agencies are located far from us and it is also difficult for our clients to go to them …"

"It could have been better if we had everything under one roof, just one stop office…"

It is evident from the participants that there is a need to have all these agencies in one setting, which would ensure that there is synergy in the entrepreneurship developmental efforts and turnaround time could be improved. The Chinese system is similar; the development centres do not provide financial support but instead rely on commercial banks such Bank of China, China Construction Bank and other banks to grant financial assistance.

Service providers: The participants revealed that service providers in specialist areas such as quality management systems are unwilling to enter into contracts with SEDA. The service providers felt that the amount paid is too little and as such the type of work does not correlate with their specialised areas. However, the Chinese centres do not encounter this problem as regards the service providers for technical training.

Lack of focused industry incubators: The participants from China indicated that they lacked focused industry incubators. This made it difficult to provide industry-specific training interventions. Therefore, the clients in those specific industries might not be assisted and/or such requests could be referred to another province where such a service was available.

Limitations of the study: No study can be conducted without limitations. In South Africa, the study was conducted in only three branches of SEDA and in China in only one development centre. No generalizability of the findings can therefore be claimed. Since there was a language barrier in China, the services of an interpreter were used to ensure that the interview was conducted without hurdles.

5. Conclusion and Recommendations

The purpose of the study was to investigate the effect of government support mechanisms provided by SME support agencies and valuable conclusions can be drawn. It can be concluded that SME support agencies have made efforts to support SMEs. This is based on the number of SMEs that they have supported and that have prospered in their respective endeavours. It can be concluded that SME support agencies and other relevant structures should work together ensure that there are more coordination efforts in supporting the SMEs. It further emerged that diagnostic assessment tools used by BAs are helpful in determining what training interventions might be required for the SMEs. In following this tool, a more customised support will be done. The study identified that the support provided to SMEs is bearing some fruits and this is evident with many businesses have taken off and some have realised high turnovers. Though the framework is effective, it is notable that the whole process is too long and discourages small businesses, especially when they are waiting for their applications for funding.

Despite the strides made, it is notable that there are challenges that the SMEs are still facing in the two countries. It is notable that lack of access to finance is regarded as a challenge for SMEs to flourish in the business endeavours. Without finance, the small businesses would not be able to growth and expand their operations. Though support agencies are doing their best to assist SMEs with their funding applications, there is less success whereby funders need collaterals as the applicants in many instances they do not have historical records for the financial matters. It is also noted that access to market is challenge for the SMEs and this is due to the fact that there is less put on marketing and if you do not have sustainable market avail, the business venture will not be able to supply the products or services. It can further be concluded that South African participants the services provided by the agencies are not integrated and they strongly feel that there is a need for One stop office where all the government agencies are situated in one location. Based on the conclusions made, the following recommendations are suggested: it is recommended that all agencies providing support to SMEs should work together to ensure that the envisaged support mechanisms are well aligned to all the stakeholders. It is further suggested that financial service providers such as SEFA and IDC work closely, preferably under one roof, and for SEDA to speed up the process. Government support agencies should focus more on assisting SMEs with marketing strategy to ensure that they understand the market access. Taking this research further, a quantitative approach is suggested which would involve SMEs that run their businesses in South Africa and China.

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Inflation Dynamics in Algeria

Samer Mehibel*, Yacine Belarbi
Centre de Recherche en Economie Appliquée pour le Développement, Algeria
samer.mehibel@gmail.com*, belarbiyacine@yahoo.fr

Abstract: In thispaper, we analyze Inflation Dynamics in Algeria between 2002 and 2016. We use a Vector Auto Regressive model (VAR), impulse response functions (IRF) and variance error decomposition (VDC) to uncover possible links between public spending component sand inflation. Wetest for the sources and dynamics of inflation in Algeria by focusing on public spending, since they are expected to exert a strong influence on the aggregate demand and hence inflation. According to the results we found, inflation in Algeria is persistent; shocks are lasting longer and having impact on the future inflation path. Social transfers and equipment spending are found to be the most contributing components of public spending in explaining inflation in Algeria.

Keywords: *Inflation dynamics, Inflation persistence, The Algerian economy, Demand-pull inflation*

1. Introduction

In the first decade of this century, inflation has known a stabilized situation. In 2005, the inflation rate dropped to 1.6% after hitting an unprecedented level Algeria never experienced since its independence estimated at 0.34% in 2000. Between 2005 and 2011 inflation rate in Algeria registered a slight increase to reach 4.5% in 2011 but in 2012 a very important hike was recorded of about 11% which was explained by the increase in food prices (+19.6 percent for fresh food) and manufactured goods prices. Higher prices were spurred by the excess liquidity resulting from the surge in current public spending and large hydrocarbon income (IMF, 2012). In 2013 inflation rate reached 4.5% which was the rate targeted by the bank of Algeria. While it retreated in 2014 to average 2.9 percent, average year-on-year inflation exceeded the 4 percent target of the Bank of Algeria in 2015. It was partly driven by higher import price inflation, suggesting some degree of exchange rate pass-through as the dinar depreciated significantly against major currencies in 2015.In fact starting from mid-2014, inflation started accelerating again gradually to reach 6.9 percent average year-on-year by December 2016 as a consequence of a sustained rise in manufactured goods prices, which represented 55% on average to overall inflation. In 2016, a significant fluctuation in food prices was the origin of the peak of inflation registered in July of about 8.1 percent before decreasing for a while, then increased once again toward the end of the year.

An IMF study on the causes of inflation in Algeria, IMF (2013)[10] pointed out that a decrease of loans to the public sector by more than 20% in 2012, contributed to increase the inflationary pressures, while loans growth to the private sector decreased by 10% in 2012. The monetary authorities raised the mandatory reserve on deposits in the banking system from 9 to 11% by expanding the absorption of liquidity estimated at 250 billion AD (23%). This study was preceded by another study, Koranchelian, (2004) found that both real and monetary factors have an impact on inflation. Inflation is associated in the long term positively with money supply and the exchange rate and negatively with income. Thus, the rising incomes of the families do not have a positive impact on the high rate of Inflation. The author suggested that the monetary authorities must continue a prudent monetary policy to cope the inflationary pressures. Ben Naceur (2012) by studying the short and the long-run determinants of inflation in Algeria for the period from 2002 to 2011 found that only non-oil GDP gap explains inflation in the short run and in the long run he found money supply and real GDP to be the most important determinants of inflation.

An important aspect of fiscal policy in Algeria is its procyclical character (Menna & Mehibel, 2017; Chibi et al., 2014) and its impact on inflation (Menna & Mehibel, 2017). The aspect of cyclicality has the potential of putting pressures of instability in the economy[11], such as rising inflation. Among the first reasons cited by the

[11]"SiklikalitasKebijakanFiskal di Indonesia", Research Note No.11/15/DKM/BRE/CR, Bank Indonesia.

Bank of Algeria in an analytical note on inflation in Algeria (Bank of Algeria, 2013)[12] and that could be among the causes of this increase in the rate of inflation that needs to be investigated, is the increase in wages of public sector jobs and the economic public sector, which had an effect on expectations of other economic agents that the potential consumers have a surplus liquidity will therefore inevitably consume it, so it will be applied on the prices of fresh goods. Since the high level of these prices plays an important role in the formation of inflationary expectations.

In this sense, government spending can have a significant cyclical influence on economies' fundamental variables, including consumption and investment. Government spending (as a ratio of GDP), after the oil windfall of the early 2000s registered an important increase starting from 1963 with 22 percent of GDP to reach 27.1 percent of GDP in 2005 before peaking at 44.6 percent of GDP in 2012. Despite some consolidation in 2013, public spending in Algeria remains one of the highest in the region, and far above the average in the other MENA oil exporters (IMF, 2014). Government spending after the oil windfall was characterized by a very expansionary fiscal policy starting from (2001-2004) investment program called the Economic Recovery Program which was followed by a series of public investment programs (2005-2009 "Complementary Plan for Growth Support" and 2010-2014). In order to face the crisis and maintain social peace, the government changed the structure of spending in favor of wages, salaries, subsidies, and transfers but as consequence fueled inflation and introduced expenditure rigidities.

The aim of this paper is twofold. Firstly, analysing inflation persistence by studying the structure of the consumer price index (CPI) and secondly, to examine the effects of fiscal spending on inflation by focusing only on the components of the public spending. To do so,the paper is organized as follows: Following this introduction we go through a relevant literature on inflation in section 2; Section 3 passes in view of the composition and the structure of the consumer price index (CPI) in Algeria; Section 4, is devoted to the econometric study of inflation persistence and through a VAR approach we try to understand which inflation component is leading the others and at the end of this section we examine the role of demand factors in explaining inflation in Algeria; We end our paper by a conclusion.

2. Literature Review

The main inflation determinantscan be put into three groups: (i) Demand pull inflation ;(ii) Cost push inflation and (iii) Inflation driven by inflation expectations. Their relative importance is varying from country to another and changing over time according to five main economic factors[13]starting from the utilization of economic resources which determines the level of output gap and hence the demand pull inflation and on the cost push inflation side, it can be caused by the supply side shocks of major commodities like food and energy. Besides, the changes in exchange rate can affect the general price level through the "pass through effect". Finally, the other important factor is the credibility of the monetary policy and its ability to target inflation expectations about which an appropriate proxy must be chosen. The focus of most of the recent economic studies in the last century was on the relationship between inflation and unemployment (Phelps, 1967); the recent economic literature is mainly concerned about the analysis of Inflation Dynamics (Barnett et al., 2012). We define inflation dynamics as "a non transitory change in the value, trend and the continuity of inflation over time due to changes in the relative importance of the factors motivating the inflationary process"[14].

Basher and Elsamadisy (2012) investigates the main sources the sources and transmission of inflation in GCC countries over the period 1980-2008 and suggested that inflation in trading partners, money and the nominal effective exchange rate are affecting inflation in the short run and only money is affecting inflation in the long run. Kandil and Morsy (2009) examined the determinants of inflation in GCC countries for the period between 1970 and 2007 and found that inflation in trading partners is very important in affecting inflation, while in the long run public capital spending helps easing inflationary pressures and excess demand is an important

[12]Banqued'Algérie. 2013. Inflation accelerates in 2012 in the context of currency deceleration: the need to stem the inflationary phenomenon in 2013

[13]Davis, Joseph H. "Evolving Inflation Dynamics: Expectations and Investment Implications", Vanguard Investment consulting & Research, 2007.

[14]It is worth mentioning that there is no common or agreed upon definition for this phenomenon, Therefore, the study attempted to draw a precise definition of the phenomenon through reviewing various studies available in this regard.

determinant in the short run. The empirical literature on the impact of fiscal policy determinants focuses on the evaluation of the macroeconomic impact of large reductions in the budget deficit, the stabilizing capability of fiscal policy variables and the dynamic effects of discretionary fiscal policy on macroeconomic variables that has recently been revived within the framework of vector auto regressions in the work of Blanchard and Perotti (2002). Our paper focuses in its last part on the relationship between fiscal policy and inflation dynamics, by analyzing whether fiscal spending contraction can really help reducing inflation in Algeria.

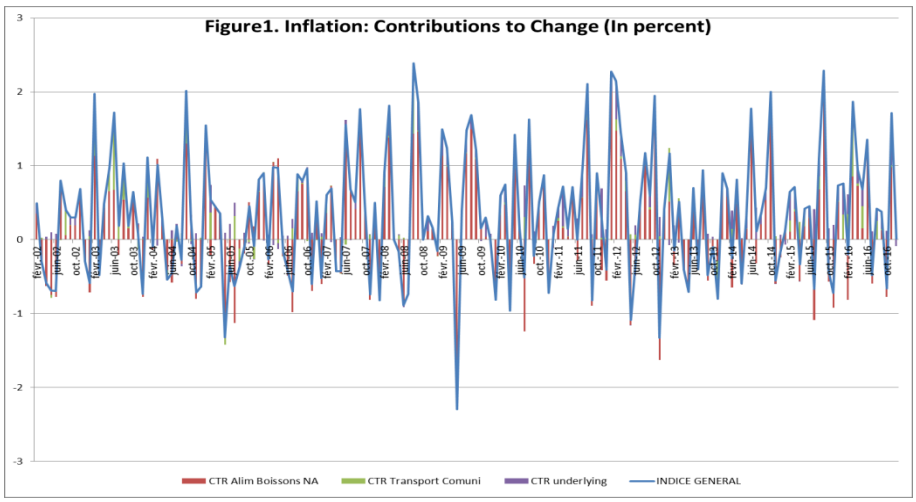
It is well known that the transmission of fiscal policy to inflation can be through the aggregate demand, spillovers of public wages to private sector, as well as the effect of taxes on private sector marginal costs and consumption. By using quarterly data for a sample of 17 industrial economies, Kandil (2006) studied the asymmetry in effects of monetary shocks and government spending shocks and found a negative correlation between government spending and price inflation in most countries of the sample. Similar results were found in the works of Cukierman (1992) and Becker and Mulligan (2003).An empirical application of the Ruge-Murcia's 1999 work on Brazilian monthly data for a period spanning from 1980 to 1989 showed that inflation and money growth rates are associated with government spending regimes. Ezirim et al. (2008) by investigating the relationship between the growth rate of public spending and the inflation rate for the United States of America, for the period 1970-2002, found a positive correlation between the two variables and also a bi-causational relationship between them. It was widely recognized that public expenditure growth can aggravate inflationary pressures in many studied cases. However, some works as in Magazzino (2011) for the case of Mediterranean countries did not find clear results of whether government spending influences prices dynamics. The first contribution of this paper is to examine the persistence of the sub components of inflation in Algeria by analyzing the structure of the consumer price index (CPI) and to determine which sub component of the consumer price index (CPI) leads the others. The second contribution is to investigate which component of government spending affect inflation and its sub components.

Composition and Structure of the Consumer Price Index (CPI): The Algerian consumer price index (CPI) is released monthly by the National Office of Statistics and is composed of a sample of 260 goods and services. Every basket is weighted basing on the 1988 National Household Consumption Survey, and the reference year is 2001. The CPI is calculated according to the Laspeyres formula.

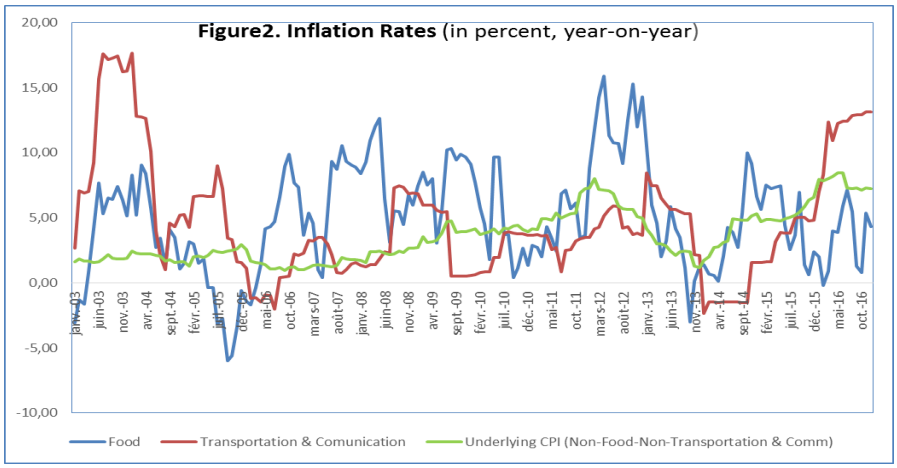
Table1: Descriptive Statistics of the Overall Inflation Rate and the Main Subcomponents

Sample: Feb2002-Dec2016	Weights	Mean (in Percent)		Standard Deviation		Coefficient of Variation	
		Year-on-Year	(Seasonnaly Adjusted) Month-on-Month	Year-on-Year	(Seasonnaly Adjusted) Month-on-Month	Year-on-Year	(Seasonnaly Adjusted) Month-on-Month
Overall CPI	1000	**4,4**	**0,3**	**2,3**	**0,8**	**0,5**	**2,4**
Food Prices	430,9	5	0,4	4,1	1,8	0,8	4,5
Clothing and Footwear	74,5	3,7	0,3	4,2	0,5	1,1	1,6
Housing and Utilities	92,9	3,1	0,2	2,3	0,6	0,7	2,5
Furnishing and Household Equipment	49,6	2,5	0,2	1,7	0,5	0,7	2,2
Health	62	3,2	0,3	1,9	0,5	0,6	1,8
Transportation & Comunication	158,5	4,7	0,4	4,5	1	1	2,7
Recreation and culture Education	45,2	2,1	0,2	3,7	1,8	1,8	9,9
Others	86,4	5,6	0,4	5,5	1,1	1	2,4
Underlying CPI	410,6	3,6	0,3	2	0,3	0,6	1,1

Source: National Office of Statistics& our estimates



Source: National Office of Statistics & our estimates.



Source: National Office of Statistics & our estimates.

In order to better understand the inflation dynamics in Algeria we split the consumer price index into its components. We distinguish hence eight sub-indices (as mentioned in the table above). According to Table1, Food and Beverages account for 43 percent of the consumption basket and are considered as a key driver of changes in inflation and of inflation volatility. Food prices constitute the largest bucket in the CPI and are more volatile than other components and its volatility is confirmed in Figure 1 and 2 comparing to underlying prices that appears to be less volatile than food prices and transportation and also the contribution of food inflation to the overall inflation is clearly apparent and we have in the second position transportation which account for 16 percent of all the basket. Underlying inflation which does not include food and transportation, shed light on the aggregate demand-driven inflationary pressures than overall inflation. The measure of underlying inflation accounts for less than half of the CPI basket which makes it a fairly weak measure

3. Econometric Analysis

We explore here the time series properties of inflation and its subcomponents to determine how long does it take inflation to return to its equilibrium after being hit by a shock; that is, how quickly do inflation shocks dissipate? Do shocks have a permanent impact on inflation? Which sub-components of inflation lead the others? We use in first a simple autoregressive model to capture inflation persistence (Jeffrey, 2010). At a second step we use Vector Auto-Regression (VAR) analysis to illustrate how shocks propagate and to understand which structural shocks help explaining variance in forecast errors.

Inflation Persistence: Inflation shocks in Algeria are almost long-lived as they take merely a year and a half to dissipate. A simple autoregressive model for the overall inflation yields a coefficient of about0.58 on its first lag, which means that one third of the inflationary impact of a shock has already dissipated after one period (Table 2). In other words, if a shock increases inflation by 10 percentage points on impact, in the following quarter would be 5.8 percentage points higher, and by the fourth quarter, 89 percent of the inflationary impact of the shock would have dissipated. If we base only on expectations to determine the current inflation rate, so inflation would be expected to return to its average rate within a year and a half. Underlying inflation is less persistent than overall inflation, but even shocks to underlying inflation do not last too long. After one year only less than 8 percent of the inflationary impact of a shock would persist (Figure 3).Food inflation, however, shows the least persistence comparing to overall inflation and underlying inflation. After one year about 2 percent of the inflationary impact of a shock would persist (Figure 3). These results about food inflation are quite logical given its high volatility. Almost 64 percent of a shock dissipates each period.

Table 2: Algeria-Persistence in CPI and its Subcomponents
(Seasonally adjusted, average quarter-on-quarter inflation rates)

	Constant	1st Lag	Adjusted R-Squared	Durbin-Watson	Akaike Info	Schwartz Info
Overall Prices	0.436588*** (0.131684)	0.584499*** (0.109527)	0.337112	1.773372	1.603732	1.674782
Food Prices	0.766301*** (0.222078)	0.341177*** (0.125607)	0.100632	1.849764	3.358569	3.429619
Underlying CPI	0.451948*** (0.132764)	0.534988*** (0.113819)	0.282908	2.046342	1.842971	1.914021

Source: Our estimates
Note: Coefficient on own lag, Standard deviation in parentheses.
*Indicates 10 percent, **indicates 5 percent, and ***indicates 1 percent significance, respectively.

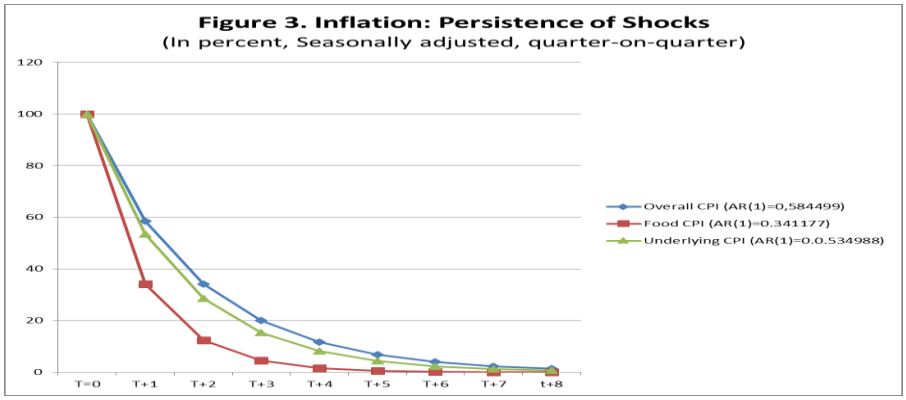
In order to measure persistence we can use also the method of "Sum of Autoregressive Coefficients" or SARC first proposed with some modifications in Andrews and Chen (1994) as a better measure of single-number estimate of long-run dynamics than unit root test.

Vector Auto-Regression Analysis: In view of the results presented so far we can assume that inflation represents different properties. These findings make us conclude that different elements are pushing and pulling inflation which must be taken into consideration. That does not mean that there are no common factors, but the evidence confirms the existence of some distinct shocks to food prices as well as to underlying inflation. In the following we use a multivariate approach to model this clearly. We estimate a VAR on the quarter-on-quarter seasonally adjusted underlying (UDR) and food (ABN) inflation rates. The unit root test (Augmented Dickey-Fuller) we run gave us a confirmation that both inflation series are stationary. The selection criterion suggests using one lag in modeling (Table 3).

Table 3: VAR estimation results

	ABNSM	UDRSM
ABNSM(-1)	0.322869 (0.12524) [2.57809]	0.021667 (0.05966) [0.36318]
UDRSM(-1)	0.338557 (0.24212) [1.39829]	0.530608 (0.11534) [4.60024]
C	0.469079 (0.30606) [1.53263]	0.430913 (0.14580) [2.95545]

The results indicate that for the two variables each lagged variable of them is significant which means that underlying inflation is explained only by its lagged variable and food inflation is explained only by its lagged variable. For identification purposes, we say that underlying inflation is largely hit by aggregate demand shocks, while food prices, in contrast, are subject to both aggregate demand and supply shocks. These supply shocks will also affect underlying inflation through higher food prices but with a lag. This assumption is implemented through a Cholesky decomposition. Granger-causality tests suggest that there is some, albeit weak, evidence of food price inflation leading underlying inflation, supporting our identifying assumption.



The impulse response function presented below (Figure 4) shows that a shock of food inflation lasts between 6 to 7 periods before fading and has an impact estimated atabout0.018846 in the second period on underlying inflation and an impact of 1.264849 on itself starting from the first period. Regarding the impulse response function of underlying inflation's shock, we can observe that it lasts between 7 to 8 periods to dissipate with an impact of -0.016132 on food inflation which represents the highest levels of impact and 0.602338 on itself from the beginning.

Figure 4: The Impulse Response Functions

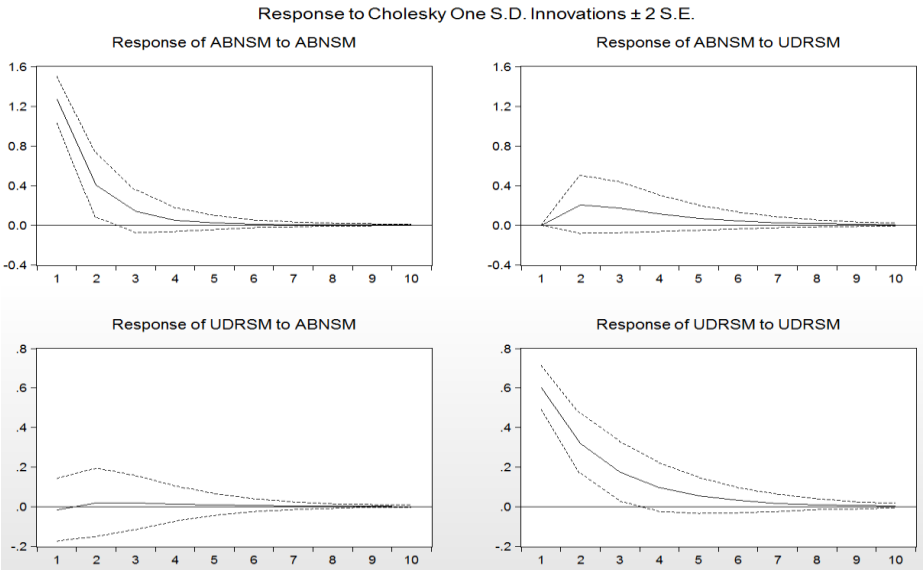


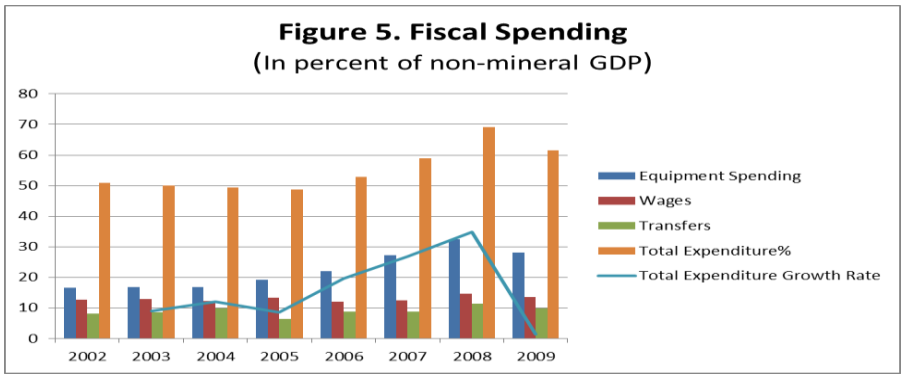
Table 4: Variance decomposition

Response of ABNSM: Period	ABNSM	UDRSM
1	1.264849	0.000000
	(0.11744)	(0.00000)
2	0.402919	0.203926
	(0.16539)	(0.14706)
3	0.136470	0.174046
	(0.10707)	(0.12705)
4	0.054093	0.115104
	(0.06036)	(0.09138)
5	0.020639	0.069698
	(0.03490)	(0.06245)
6	0.009350	0.040611
	(0.02076)	(0.04165)
7	0.004596	0.023231
	(0.01242)	(0.02732)
8	0.002389	0.013168
	(0.00740)	(0.01767)
9	0.001285	0.007429
	(0.00438)	(0.01129)
10	0.000705	0.004181
	(0.00258)	(0.00714)
Response of UDRSM: Period	**ABNSM**	**UDRSM**
1	-0.016132	0.602338
	(0.07911)	(0.05593)
2	0.018846	0.319605
	(0.08655)	(0.07555)
3	0.018730	0.174004
	(0.06795)	(0.07520)
4	0.012895	0.096099
	(0.04442)	(0.06101)
5	0.007934	0.053485
	(0.02721)	(0.04505)
6	0.004657	0.029890
	(0.01624)	(0.03147)
7	0.002674	0.016740
	(0.00958)	(0.02117)
8	0.001518	0.009386
	(0.00563)	(0.01387)
9	0.000857	0.005265
	(0.00330)	(0.00891)
10	0.000483	0.002955
	(0.00193)	(0.00563)
Cholesky Ordering: ABNSM UDRSM		
Standard Errors: Analytic		

Variance decomposition (Table 4) indicates that about 74 percent of the forecast errors of food inflation can be explained by its own innovations and the 25 percent left of the forecast errors are explained by the innovations of underlying inflation. When we put it differently, we can say that the aggregate demand explains 25 percent of food prices and supply shocks explain 75 percent of food prices. On the other hand, 96 percent of the forecast errors of underlying inflation are explained by its own innovations and the 4 percent left are explained by food inflation's innovations. Economically speaking, 4 percent of the forecast errors are explained by the supply shocks and 96 percent are explained through the aggregate demand.

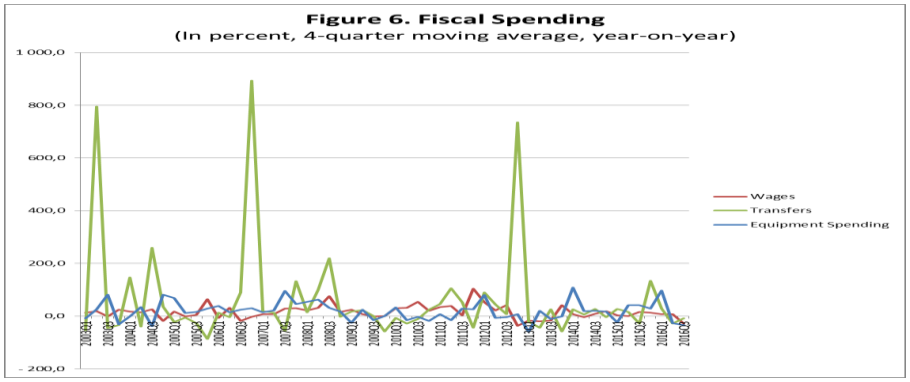
According to the results of impulse response function and variance decomposition we can assume with weak evidence that underlying inflation leads food inflation. This means that underlying inflation is hit by aggregate demand and it shows that supply shocks seem powerless to affect underlying inflation in return. In other words, any supply shock has no impact or the least we can say a really very low impact on food inflation even through high food prices. Aggregate demand shock affects both underlying and food inflation, with a slightly larger impact on underlying inflation (Figure 4). A one standard-deviation aggregate demand shock increases underlying inflation by about 60 percentage points in the first period and food inflation by20 percentage points in the second period. Looking now at the supply shock side, a one-standard deviation supply shock, which by construction affects only food inflation pushes it up by 13 percentage points in the first period and increases underlying inflation by 2 percentage points in the first period which is considered as weak. All the shocks here for the two sides demand and supply dissipate after 7 or 8 periods and have no statistically significant effect afterwards.

The Role of Fiscal Spending: We explore in this subsection how government spending variations can explain inflation dynamics. Government spending has greatly increased in the last years (Figures 5, 6 and 7) because of the economic recovery programs that encourage an expansionary public spending policy from 2002 and could be expected to drive the aggregate demand and consequently inflation. We are interested here in three measures of government spending: (i) Equipment spending; (ii) Wages; (iii) Transfers.

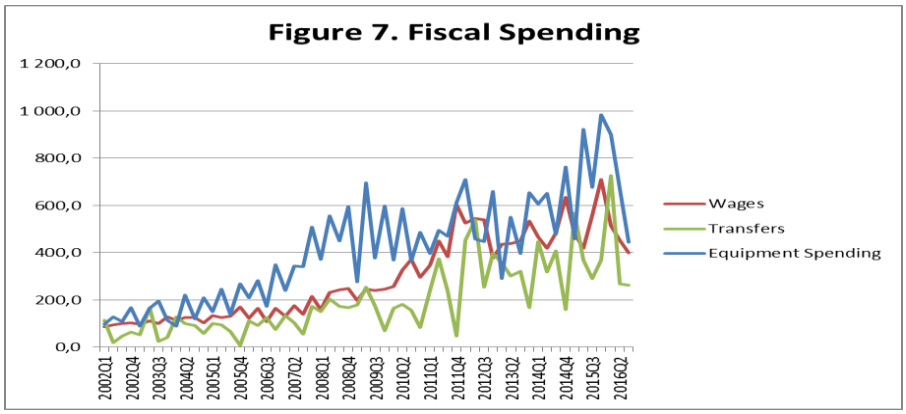


We assume that transfers and equipment spending to have a strong impact on inflation. The reason why we think so is that the country has experienced many social, political and economic major events that required the appeal of fiscal spending, some was economically justified and others not. As it is known in the last fifteen years Algeria has known a very large projects in its history since the independence, most of them were classified in the column of great public works such as the east west highway, the metro, the tramway, dams, tunnels, ports...etc and for the achievement of all of these, great financial resources were needed and fiscal spending was the only source to account on basing on high oil revenues, the problem with these projects is that many of them are now destined for public service without any return on these big investments.

Many major events have been the cause of the spectacular increase in the last decade of transfers which are mainly composed of expenditures regarding price support fund, social development fund, fund of natural calamities, subsidy interest in housing and the national fund to support youth employment. The major events we mentioned before were manifested in terms of social pressures like the uprising occurred in the early of 2011 as a consequence of the rise in food prices and that pushed the government to enlarge and increase the support of prices of goods of first necessities, also the protests regarding housing made an additional burden on the public treasury by launching several projects to satisfy the demand and calm down the social front and by supplying the fund of subsidy interest to help people buying houses at a very low interest rates. Moreover, the devices for the creation of jobs created by the government has taken a very great part of the treasury to attenuate the protests by giving the youths loans to create micro enterprises at a zero interest rate which are unfortunately in many cases not reimbursed.



Besides, Algeria has historically been prone to many natural disasters (Floods and Earthquakes), the most known in the recent years are: the earthquake of Boumerdes and Algiers in 2003, the floods of Ghardaia in 2010 and Algiers in 2013. We have to mention here that the insurance system in Algeria is weak and the insurance culture does not exist, which means that most of the properties in Algeria are not insured making the government responsible for rebuilding and reimbursing the losses.



Source: Ministry of Finance and our estimate

It is obvious that transfers increase push up food inflation (Tables 6 to 10), the impact estimated at around 0.07 suggesting that 10 percent increase in transfers would increase food inflation by about 0.7percentage points. We can notice that transfers are statistically significant in all specifications in which it is included and the parameter estimate is merely stable. Transfers are the only contributing component of government expenditure to food inflation in terms of statistical significance. As a conclusion for food inflation, transfers are statistically significant at around 5 percent level where it is specified with or without the other components. We can conclude also by observing the R-squared registered in columns 2, 4, 6 and 7 (0.513296/ 0.516035/ 0.526546/ 0.530244 respectively) that the information contained in wage bill and equipment spending help explaining the specification but we have to say that the help is not that significant because the presence only of transfers gave us an R-squared of 0.513296. The presence of wage bill with transfers gave us an R-squared of 0.516035 while the R-squared in the presence of equipment spending with transfers is 0.526546 and when we have wage bill and equipment spending with transfers we get an R-squared equal 0.530244which means that the component wage bill has less explanatory power for food inflation comparing to transfers and equipment spending which have both and respectively the power in explaining food inflation despite their statistical significance. However, food inflation is not persistent. Another part of the analysis regarding food inflation can be attributed to the organization of market at wholesale and retail sale level. These markets are characterized by its poor organization and its random feature especially for agricultural goods. It is not known how the prices are set, and advertisement on the goods is absent, and have less control and less application of regulations if we do not say inexistent. These factors contribute to the excessive rise of prices with the note on the presence of monopoly on the market.

On the other hand, underlying inflation presents different results comparing to food inflation and is seen to be explained by wage bill, transfers and equipment spending at a threshold of 10% (Tables5.3 & 5.4), the impact of equipment spending is estimated at around 0.018280 indicating that a 10 percentage increase in equipment spending would increase underlying inflation by 0.1828 percentage points. The same way, a 10% increase in wage bill would increase underlying inflation by 0.28964 and a 10% increase in transfers would increase underlying inflation by 0.13757. Most of the regressions for the case of underlying inflation indicate that two components are found to be significant at the threshold of 5%. The model that was chosen to be the best model is the one which has the smallest AIC and SC where all the components are significant (regression 70).

In the overall inflation regressions it turns out that wage bill is not significant and therefore does not explain overall inflation, in all the regressions transfers is the only contribution factor in explaining overall inflation at the threshold of 10%and 5% with or without the other components of government spending. The other contributing factor in explaining overall inflation is equipment spending, but this component is significant in some regressions only especially in the regressions where the constant is absent. The best model for overall inflation is the regression 90 that gives the smallest AIC and SC and in this model the impact of transfers is estimated at around 0.035315 making clear that an increase of 10 percentage in transfers would increase

overall inflation by 0.35315 percentage points and an increase of 10 % in equipment spending would increase overall inflation by 0.30367 percentage points.

The below results (Tables 6 to 10) indicate that government spending is inflationary. However the quantitative impact is small. To look deep into the relationship, we looked at the results using lagged government spending and we found that lagged terms were always statistically significant which suggest the contemporaneous of the impact of government spending on inflation in general. We can rely on two points in order to interpret the results we got in this paper: (i) The first point is the character of fiscal policy in Algeria which is procyclical (Menna & Mehibel, 2017; Chibi et al., 2014). (ii) The second, which goes in the same direction, about it we can find a huge literature is the problem of fiscal policy synchronization with the business cycle economy. For fiscal policy and in order to play the role of *automatic stabilizer*, a period of economic expansion should be faced by the government by reducing its spending or increasing its tax revenue. On the contrary, when the economy is contracting, fiscal policy should be expansionary through rising spending or reducing tax revenue. What we notice for the case of Algeria is that there is no synchronization of fiscal policy in Algeria with the business cycle, and instead of being synchronized with business cycle government spending was strongly moving with hydrocarbon revenues registering then a coefficient of correlation equal to 0.75[15].

Table 5: Inflationary impact of Government Spending

	Food Inflation																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Constant	0.008120	0.006573	0.006007	0.007062	0.006611	0.005152	0.005667	0.017761	0.013861	0.016593	0.014335	0.017304	0.013505	0.013970			
Std error	0.002742	0.002535	0.002850	0.002713	0.002978	0.002796	0.002933	0.004581	0.004220	0.004657	0.004540	0.004919	0.004566	0.004844			
Pval	0.0046	0.0124	0.0400	0.0121	0.0310	0.0713	0.0591	0.0003	0.0018	0.0008	0.0027	0.0009	0.0047	0.0058			
Lagged Dependant	0.663577	0.639729	0.688345	0.639186	0.687988	0.662477	0.662715								0.765944	0.701653	0.758840
Std error	0.098044	0,095277	0.098947	0.095960	0.099398	0.096835	0.097436								0.093462	0.090917	0.089090
Pval	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000								0.0000	0.0000	0.0000
Trend								0.000137	0.000173	0.000148	0.000169	0.000143	0.000178	0.000174	0.000141	0.000141	0.000111
Std error								0.000138	0.000130	0.000139	0.000132	0.000141	0.000133	0.000134	7.83E-05	7.27E-05	7.58E-05
Pval								0.3260	0.1878	0.2930	0.2036	0.3159	0.1862	0.2007	0.0770	0.0589	0.1475
Dummy																	
Std error																	
Pval																	
Wage Bill	-0.037073			-0.029769	-0.042116		-0.034683	-0.037920			-0.023075	-0.039206		-0.024148	0.001837		
Std error	0.057520			0.055967	0.057333		0.055845	0.080691			0.076749	0.081557		0.077609	0.057772		
Pval	0.5221			0.5971	0.4660		0.5374	0.6404			0.7649	0.6328		0.7570	0.9748		
Transfers		0.072112		0.070910		0.070722	0.069268		0.122145		0.121109		0.121980	0.120882		0.088072	
Std error		0.034728		0.035048		0.034613	0.034906		0.045921		0.046456		0.046354	0.046903		0.035070	
Pval		0.0429		0.0484		0.0463	0.0528		0.0104		0.0119		0.0112	0.0130		0.0152	
Equipment Spending			0.038184		0.039808	0.036069	0.037449			0.010797		0.012033	0.009001	0.009779			0.058668
Std error			0.031408		0.031628	0.030491	0.030761			0.043899		0.044302	0.041599	0.042047			0.029397
Pval			0.2297		0.2140	0.2424	0.2293			0.8067		0.7870	0.8296	0.8170			0.0513
R-squared	0.476413	0.513296	0.487015	0.516035	0.492492	0.526546	0.530244	0.024355	0.137555	0.021350	0.139081	0.025764	0.138346	0.140011	0.423237	0.486701	0.465005
Observations	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
AIC	-6.024632	-6.097680	-6.045089	-6.066286	-6.018786	-6.088244	-6.059048	-5.356303	-5.479631	-5.353228	-5.445038	-5.321385	-5.444185	-5.409756	-5.927903	-6.044477	-6.003078
SC	-5.914133	-5.987181	-5.934590	-5.918953	-5.871454	-5.940912	-5.874883	-5.246813	-5.370140	-5.243737	-5.299050	-5.175398	-5.298197	-5.227271	-5.817404	-5.933977	-5.892579

Source: Our estimates

[15]IMF Country report No : 05/50 (2005,6).

Table 6: Inflationary impact of Government Spending

	Food Inflation																	
	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Constant												0.009090	0.006472	0.006698	0.006729	0.006935	0.004353	0.004587
Std error												0.004225	0.004210	0.004527	0.004281	0.004572	0.004546	0.004598
Pval												0.0364	0.1306	0.1454	0.1226	0.1358	0.3430	0.3236
Lagged Dependant	0.701203	0.763071	0.700152	0.703939	0.751866	0.686743	0.751522	0.687664	0.753310	0.692092	0.693945	0.667092	0.637033	0.688143	0.636724	0.688153	0.657392	0.657745
Std error	0.092775	0.090826	0.088962	0.090730	0.096375	0.094464	0.093068	0.095431	0.093862	0.092755	0.093591	0.101058	0.098652	0.101465	0.099458	0.102113	0.099655	0.100383
Pval	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trend	0.000140	0.000115	0.000114	0.000117	0.000219	0.000201	0.000142	0.000216	0.000170	0.000148	0.000173	-6.20E-05	-1.02E-05	-5.60E-05	8.29E-06	-2.83E-05	1.84E-05	4.17E-05
Std error	7.46E-05	7.72E-05	7.27E-05	7.40E-05	0.000142	0.000121	0.000128	0.000135	0.000141	0.000122	0.000135	0.000189	0.000182	0.000184	0.000188	0.000191	0.000182	0.000189
Pval	0.0661	0.1430	0.1222	0.1199	0.1287	0.1017	0.2694	0.1168	0.2324	0.2321	0.2046	0.7447	0.9553	0.7624	0.9649	0.8825	0.9202	0.8258
Dummy					-0.003946	-0.003230	-0.001615	-0.003834	-0.002756	-0.001757	-0.002808	0.001689	0.001233	0.002445	0.000316	0.001150	0.000898	-0.000218
Std error					0.005980	0.005120	0.005320	0.005698	0.005857	0.005098	0.005615	0.006341	0.005827	0.005931	0.006204	0.006328	0.005807	0.006186
Pval					0.5123	0.5311	0.7626	0.5041	0.6400	0.7319	0.6193	0.7911	0.8332	0.6819	0.9595	0.8566	0.8777	0.9720
Wage Bill	0.001868	-0.018482		-0.015890	-0.015936			-0.015400	-0.030385		-0.028013	-0.032624			-0.027851	-0.038339		-0.033549
Std error	0.055042	0.057043		0.054703	0.064033			0.061004	0.062810		0.060222	0.062314			0.060628	0.062214		0.060480
Pval	0.9731	0.7473		0.7727	0.8045			0.8018	0.6307		0.6439	0.6030			0.6480	0.5406		0.5817
Transfers	0.088072		0.081140	0.080934		0.087913		0.087881		0.081282	0.081003		0.072387		0.071713		0.072402	0.071590
Std error	0.035418		0.034527	0.034855		0.035280		0.035615		0.034838	0.035125		0.036244		0.036569		0.036080	0.036372
Pval	0.0163		0.0228	0.0244		0.0161		0.0171		0.0238	0.0255		0.0514		0.0557		0.0504	0.0550
Equipment Spending		0.060404	0.051273	0.052784			0.057125		0.058889	0.049582	0.051234			0.037869		0.039411	0.037891	0.039240
Std error		0.030139	0.028350	0.029082			0.030095		0.030546	0.029021	0.029471			0.032466		0.032769	0.031507	0.031830
Pval		0.0505	0.0765	0.0756			0.0635		0.0597	0.0939	0.0885			0.2491		0.2350	0.2350	0.2238
R-squared	0.486713	0.466126	0.518219	0.519047	0.428217	0.490752	0.465990	0.491414	0.468528	0.519383	0.521540	0.477558	0.514184	0.488829	0.516311	0.492841	0.528394	0.531461
Observations	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
AIC	-6.007463	-5.968139	-6.070808	-6.035492	-5.899538	-6.015364	-5.967884	-5.979627	-5.935612	-6.036191	-6.003651	-5.952748	-6.025432	-5.974557	-5.992782	-5.945400	-6.018080	-5.987569
SC	-5.860130	-5.820807	-5.923476	-5.851326	-5.752206	-5.868032	-5.820552	-5.795461	-5.751446	-5.852025	-5.782653	-5.768583	-5.841267	-5.790392	-5.771784	-5.724402	-5.797082	-5.729737

Source: Our estimates

Table 7: Inflationary impact of Government Spending

	Underlying Inflation																
	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Constant	-0.000245	0.000762	-0.000245	0.000239	-0.000589	-0.000421	-0.000806	0.003558	0.004312	0.005494	0.002968	0.004316	0.005031	0.003727			
Std error	0.000922	0.000855	0.000922	0.000842	0.000898	0.000948	0.000922	0.001722	0.001741	0.001800	0.001794	0.001824	0.001863	0.001886			
Pval	0.7913	0.3770	0.7913	0.7773	0.5150	0.6586	0.3862	0.0438	0.0165	0.0036	0.1042	0.0218	0.0094	0.0537			
Lagged Dependant	1.010447	0.968859	1.010447	0.965931	1.004176	1.011949	1.005758								0.868476	0.891385	0.923863
Std error	0.049562	0.048759	0.049562	0.046506	0.047681	0.049737	0.047676								0.058504	0.061713	0.058816
Pval	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000								0.0000	0.0000	0.0000
Trend								0.000391	0.000385	0.000372	0.000396	0.000381	0.000376	0.000386	6.79E-05	6.60E-05	4.49E-05
Std error								5.19E-05	5.35E-05	5.39E-05	5.20E-05	5.23E-05	5.41E-05	5.23E-05	3.06E-05	3.25E-05	3.23E-05
Pval								0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0313	0.0480	0.1709
Dummy																	
Std error																	
Pval																	
Wage Bill	0.034326			0.035250	0.031507		0.032430	0.062885			0.065445	0.065017		0.067677	0.037725		
Std error	0.014241			0.014275	0.013705		0.013726	0.030331			0.030330	0.030245		0.030223	0.013251		
Pval	0.0196			0.0170	0.0257		0.0222	0.0431			0.0357	0.0363		0.0296	0.0063		
Transfers		0.007342		0.008775		0.007451	0.008761		0.017940		0.020880		0.018272	0.021352		0.010528	
Std error		0.009284		0.008871		0.008859	0.008497		0.018940		0.018358		0.018917	0.018265		0.008723	
Pval		0.4327		0.3273		0.4043	0.3076		0.3479		0.2607		0.3386	0.2480		0.2330	
Equipment Spending			0.020170		0.018571	0.020204	0.018565			-0.017891		-0.019942	-0.018160	-0.020340			0.016587
Std error			0.008218		0.007924	0.008242	0.007919			0.016963		0.016429	0.016976	0.016374			0.007112
Pval			0.0176		0.0231	0.0178	0.0232			0.2964		0.2304	0.2898	0.2200			0.0237
R-squared	0.896047	0.885608	0.896436	0.898043	0.906336	0.897881	0.908325	0.529865	0.499635	0.501663	0.541494	0.543065	0.510616	0.555221	0.904577	0.892484	0.900072
Observations	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
AIC	-8.817056	-8.721360	-8.820806	-8.799400	-8.884244	-8.797817	-8.868668	-7.313201	-7.250882	-7.254944	-7.301884	-7.305316	-7.236710	-7.295916	-8.902676	-8.783352	-8.856547
SC	-8.706557	-8.610861	-8.710307	-8.652068	-8.736912	-8.650484	-8.684502	-7.203710	-7.141392	-7.145453	-7.155896	-7.159328	-7.090722	-7.113431	-8.792177	-8.672853	-8.746048

Source: Our estimates

Table 8: Inflationary impact of Government Spending

	Underlying Inflation																	
	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
Constant												-0.000840	-0.001131	-0.001860	-0.001353	-0.001901	-0.002325	-0.002402
Std error												0.000944	0.001018	0.001031	0.000981	0.001002	0.001062	0.001027
Pval												0.3778	0.2722	0.0775	0.1741	0.0640	0.0335	0.0237
Lagged Dependant	0.853617	0.887616	0.911920	0.873983	0.861924	0.869272	0.901714	0.848073	0.881071	0.890322	0.868062	0.877549	0.887082	0.946538	0.868063	0.926466	0.938413	0.916822
Std error	0.059233	0.058089	0.060338	0.059462	0.058623	0.060667	0.058993	0.059364	0.058588	0.060426	0.059944	0.061312	0.062614	0.062834	0.060582	0.061911	0.062224	0.061008
Pval	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trend	7.03E-05	5.28E-05	4.78E-05	5.60E-05	9.74E-05	0.000118	9.16E-05	9.80E-05	7.77E-05	9.40E-05	7.99E-05	0.000122	0.000152	0.000136	0.000138	0.000122	0.000151	0.000138
Std error	3.05E-05	3.10E-05	3.25E-05	3.12E-05	4.01E-05	4.02E-05	4.13E-05	3.99E-05	4.10E-05	4.15E-05	4.10E-05	4.86E-05	5.05E-05	4.72E-05	4.88E-05	4.64E-05	4.77E-05	4.65E-05
Pval	0.0254	0.0953	0.1481	0.0782	0.0188	0.0049	0.0311	0.0176	0.0640	0.0278	0.0572	0.0157	0.0040	0.0060	0.0070	0.0112	0.0027	0.0046
Dummy					-0.001492	-0.002587	-0.002161	-0.001408	-0.001210	-0.002143	-0.001166	-0.002086	-0.003422	-0.003350	-0.002333	-0.002406	-0.003617	-0.002649
Std error					0.001313	0.001232	0.001226	0.001308	0.001299	0.001229	0.001299	0.001476	0.001441	0.001369	0.001459	0.001414	0.001362	0.001395
Pval					0.2613	0.0408	0.0842	0.2870	0.3560	0.0875	0.3737	0.1638	0.0215	0.0180	0.1164	0.0953	0.0107	0.0637
Wage Bill	0.037772	0.032357		0.032864	0.030852			0.031284	0.027126		0.027809	0.031963			0.033234	0.027684		0.028964
Std error	0.013163	0.013268		0.013263	0.014533			0.014459	0.014423		0.014433	0.014616			0.014397	0.014058		0.013813
Pval	0.0060	0.0183		0.0167	0.0387			0.0354	0.0659		0.0599	0.0336			0.0253	0.0547		0.0414
Transfers	0.010592		0.007794	0.008526		0.009712		0.010137		0.007555	0.008283		0.012846		0.013914		0.012824	0.013757
Std error	0.008163		0.008517	0.008115		0.008454		0.008161		0.008349	0.008136		0.008894		0.008538		0.008396	0.008126
Pval	0.2004		0.3645	0.2986		0.2561		0.2201		0.3699	0.3137		0.1550		0.1097		0.1332	0.0971
Equipment Spending		0.012878	0.015611	0.011752			0.014039		0.012051	0.013114	0.010987			0.020271		0.018379	0.020259	0.018280
Std error		0.006958	0.007202	0.007033			0.007118		0.007024	0.007203	0.007098			0.007773		0.007615	0.007669	0.007471
Pval		0.0701	0.0350	0.1011			0.0541		0.0925	0.0748	0.1283			0.0120		0.0197	0.0111	0.0182
R-squared	0.907686	0.910695	0.901718	0.912663	0.906979	0.901202	0.905915	0.909818	0.912250	0.907462	0.914105	0.908458	0.903628	0.911770	0.913258	0.918365	0.915860	0.923057
Observations	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
AIC	-8.898760	-8.931902	-8.836120	-8.917139	-8.891125	-8.830878	-8.879757	-8.885093	-8.912428	-8.859295	-8.896757	-8.870122	-8.818699	-8.906971	-8.886943	-8.947625	-8.917394	-8.969782
SC	-8.751428	-8.784570	-8.688787	-8.732974	-8.743793	-8.683545	-8.732425	-8.700927	-8.728263	-8.675130	-8.675759	-8.685957	-8.634534	-8.722806	-8.665944	-8.726627	-8.696396	-8.711951

Source: Our estimates

Table 9: Inflationary impact of Government Spending

	Overall Inflation																
	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87
Constant	0.004932	0.004367	0.003284	0.004451	0.003439	0.002932	0.003045	0.013642	0.012056	0.014165	0.012052	0.014255	0.012734	0.012694			
Std error	0.001848	0.001751	0.002044	0.001838	0.002104	0.002019	0.002082	0.002538	0.002381	0.002565	0.002564	0.002715	0.002564	0.002723			
Pval	0.0102	0.0159	0.1143	0.0191	0.1084	0.1526	0.1500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
Lagged Dependant	0.760359	0.750133	0.809256	0.749768	0.809122	0.796535	0.796576								0.853954	0.809104	0.858709
Std error	0.088120	0.085919	0.092773	0.086777	0.093570	0.091455	0.092318								0.077004	0.075543	0.071829
Pval	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000								0.0000	0.0000	0.0000
Trend								0.000175	0.000190	0.000167	0.000190	0.000167	0.000181	0.000181	8.59E-05	9.51E-05	6.69E-05
Std error								7.65E-05	7.32E-05	7.68E-05	7.43E-05	7.78E-05	7.45E-05	7.55E-05	4.84E-05	4.63E-05	4.68E-05
Pval								0.0264	0.0124	0.0338	0.0136	0.0369	0.0186	0.0200	0.0818	0.0450	0.1587
Dummy																	
Std error																	
Pval																	
Wage Bill	-0.007977			-0.004834	-0.010733		-0.007567	-0.006685			0.000204	-0.004960		0.002092	0.009787		
Std error	0.029304			0.028842	0.029065		0.028643	0.044694			0.043347	0.045014		0.043625	0.029310		
Pval	0.7866			0.8676	0.7135		0.7927	0.8817			0.9963	0.9127		0.9620	0.7398		
Transfers		0.030595		0.030401		0.029671	0.029356		0.056194		0.056203		0.056507	0.056602		0.039900	
Std error		0.017752		0.017961		0.017604	0.017810		0.025912		0.026237		0.026032	0.026365		0.017944	
Pval		0.0909		0.0967		0.0981	0.1057		0.0347		0.0370		0.0346	0.0367		0.0306	
Equipment Spending			0.023855		0.024266	0.022811	0.023112			-0.016300		-0.016143	-0.017131	-0.017199			0.033923
Std error			0.016692		0.016872	0.016411	0.016605			0.024178		0.024452	0.023361	0.023635			0.014595
Pval			0.1591		0.1566	0.1707	0.1702			0.5032		0.5121	0.4667	0.4702			0.0241
R-squared	0.594387	0.616154	0.609438	0.616370	0.610500	0.630435	0.630961	0.093281	0.168126	0.100750	0.168126	0.100964	0.176806	0.176844	0.564659	0.602267	0.605496
Observations	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
AIC	-7.373963	-7.429123	-7.411777	-7.392647	-7.377463	-7.430001	-7.394387	-6.537891	-6.624043	-6.546163	-6.587680	-6.510037	-6.598168	-6.561851	-7.303233	-7.393583	-7.401734
SC	-7.263464	-7.318624	-7.301277	-7.245315	-7.230131	-7.282668	-7.210222	-6.428400	-6.514552	-6.436672	-6.441692	-6.364050	-6.452180	-6.379366	-7.192734	-7.283084	-7.291235

Source: Our estimates

Table 10: Inflationary impact of Government Spending

	Overall Inflation																	
	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
Constant												0.004564	0.003494	0.002676	0.003505	0.002702	0.001668	0.001691
Std error					2,23							0.002394	0.002378	0.002661	0.002415	0.002689	0.002659	0.002689
Pval												0.0625	0.1481	0.3197	0.1531	0.3200	0.5334	0.5326
Lagged Dependant	0.803201	0.859913	0.814509	0.814475	0.844053	0.794525	0.852288	0.793749	0.853947	0.807033	0.808275	0.743379	0.724596	0.790559	0.724715	0.791902	0.771576	0.772582
Std error	0.077689	0.074074	0.073108	0.075464	0.079191	0.078559	0.075339	0.079713	0.076451	0.076539	0.077755	0.093526	0.091082	0.097187	0.092063	0.098268	0.095532	0.096674
Pval	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Trend	9.41E-05	6.70E-05	7.63E-05	7.63E-05	0.000123	0.000133	8.39E-05	0.000130	8.93E-05	9.58E-05	9.93E-05	1.19E-05	4.26E-05	2.61E-05	4.35E-05	3.18E-05	5.89E-05	6.27E-05
Std error	4.68E-05	4.72E-05	4.56E-05	4.61E-05	7.83E-05	6.99E-05	7.22E-05	7.55E-05	7.70E-05	7.04E-05	7.50E-05	9.60E-05	9.24E-05	9.23E-05	9.55E-05	9.59E-05	9.20E-05	9.53E-05
Pval	0.0496	0.1624	0.1007	0.1043	0.1224	0.0635	0.2507	0.0915	0.2518	0.1798	0.1913	0.9018	0.6466	0.7788	0.6507	0.7416	0.5250	0.5140
Dummy					-0.001817	-0.001879	-0.000828	-0.001758	-0.001074	-0.000941	-0.001106	0.000811	0.000296	0.000575	0.000250	0.000299	-5.94E-05	-0.000245
Std error					0.002999	0.002611	0.002654	0.002891	0.002909	0.002578	0.002826	0.003231	0.002975	0.002998	0.003176	0.003214	0.002950	0.003157
Pval					0.5474	0.4751	0.7564	0.5459	0.7137	0.7165	0.6972	0.8030	0.9212	0.8488	0.9375	0.9263	0.9840	0.9384
Wage Bill	0.010947	-0.002301		6.21E-05	0.001762			0.003177	-0.006814		-0.004585	-0.003866			-0.001379	-0.008033		-0.005501
Std error	0.028257	0.028673		0.027878	0.032332			0.031174	0.031402		0.030525	0.031651			0.030987	0.031423		0.030753
Pval	0.7001	0.9364		0.9982	0.9568			0.9193	0.8291		0.8812	0.9033			0.9647	0.7993		0.8588
Transfers	0.040030		0.035315	0.035317		0.039889		0.039928		0.035457	0.035358		0.033383		0.033346		0.033089	0.032938
Std error	0.018098		0.017488	0.017682		0.018029		0.018214		0.017646	0.017837		0.018365		0.018574		0.018153	0.018358
Pval	0.0316		0.0488	0.0514		0.0315		0.0331		0.0500	0.0532		0.0752		0.0789		0.0746	0.0792
Equipment Spending		0.034146	0.030367	0.030361			0.033083		0.033493	0.029397	0.029684			0.024841		0.025243	0.024506	0.024782
Std error		0.014999	0.014283	0.014692			0.014970		0.015233	0.014651	0.014921			0.017067		0.017304	0.016677	0.016919
Pval		0.0271	0.0385	0.0441			0.0317		0.0326	0.0503	0.0524			0.1519		0.1511	0.1483	0.1496
R-squared	0.603458	0.605547	0.635245	0.635245	0.567831	0.606346	0.606262	0.606429	0.606640	0.636235	0.636406	0.597663	0.622964	0.614219	0.622979	0.614743	0.639193	0.639439
Observations	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
AIC	-7.359544	-7.364826	-7.443101	-7.406064	-7.273510	-7.366853	-7.366641	-7.330028	-7.330564	-7.408782	-7.372215	-7.307999	-7.372948	-7.350018	-7.335952	-7.314342	-7.379910	-7.343553
SC	-7.212211	-7.217493	-7.295769	-7.221899	-7.126178	-7.219521	-7.219309	-7.145863	-7.146399	-7.224617	-7.151216	-7.123833	-7.188783	-7.165853	-7.114954	-7.093344	-7.158911	-7.085722

Source: Our estimates

Wage bill has no effect on overall inflation even that wages in Algeria has remarkably increased in the last years as a response by the government to social movements protesting the rise of prices. However, we find that wage bill does have an effect on food and underlying inflation.

4. Conclusion

The existing literature on the effect of public spending or the effect of fiscal policy can be divided into two groups: the demand side and the supply side, in this paper we have focused on the demand side of the fiscal policy effects. In other word, the transmission of public spending to inflation through aggregate demand. The regressions of food inflation, underlying inflation and overall inflation gave us proof of the significant role of government expenditure especially transfers and equipment spending in explaining the variations in inflation. Indeed, our empirical results suggest that government spending shocks have positive effect on inflation and consequently yield significant effects on the aggregate demand.

It was expected that in the long run, government spending on infrastructure can improve the distribution of goods and services and help reducing the cost of production, thereby contributing to reduce inflation. In the short run, we found a positive effect of a positive equipment spending shock on inflation; this can be explained by the possibility of greater multiplier effect of government spending on investment especially on infrastructures than routine expenditure. The estimations through the VAR approach suggest the existence of evidence pointing that underlying inflation leads food inflation and the study of the persistence indicated that shocks of food inflation are less persistent than shocks of underlying inflation.

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The Effect of Job Satisfaction on the Organisational Commitment of Administrators

L J Thabane, PQ Radebe, M Dhurup
Vaal University of Technology, South Africa
leratok@vut.ac.za, patrick@vut.ac.za, manilalld@vut.ac.za

Abstract: Administrators are an important human resource in Higher Education because they perform various duties that are critical to the daily operations of universities. In light of this, organisational commitment and job satisfaction of administrators are essential for the efficiency and effectiveness of universities. Notwithstanding the critical relevance and necessity of organisational commitment and job satisfaction, there is evidence of paucity of research on these areas among administrative staff in the South African higher education sector. The objective of this study was to examine the relationship between organisational commitment and overall job satisfaction on the organisational commitment of administrators at a university in Gauteng. To achieve the aforementioned objective, a quantitative survey approach was used to examine the relationship between overall job satisfaction and organisational commitment. The self-administered structured questionnaires were issued to 383 administrative staff members. Descriptive statistics was utilised to assess the levels of both organisational commitment and job satisfaction, results of which revealed that administrators were satisfied with and committed to the university. Spearman's rho correlation analysis showed that there was a strong correlation between affective commitment and job satisfaction; and moderate correlations between job satisfaction and moral imperative. Similar strong correlation was observed between indebted obligation and job satisfaction. Conversely, a weak correlation occurred between job satisfaction and continuance commitment. Regression coefficients indicated that job satisfaction contributed positively to the prediction of affective commitment, moral imperative, indebted obligation and continuance commitment. Based on these findings, the recommendations and future research opportunities were suggested.

Keywords: *Job satisfaction, organisational commitment, higher education, university, and administrators*

1. Introduction

The dynamic changes in the higher education (HE) sector have ignited the interest in organisational commitment and job satisfaction among researchers, as HE institutions battle to retain and satisfy employees (Kipkebut, 2010, p. 1). Some of the challenges that must be considered by the management of these institutions include the availability and subsequent management of human resources (Strydom, 2011, p. 15). Administrative staff members of HE institutions face the challenge of withstanding and surviving changes in the modern office. These changes and challenges can be seen in innovation and invention pertaining to equipment, furniture, form designs, nomenclature, environment, technology, attitudes, dress, responsibilities, training, skill, ability and knowledge (Onifade, 2010, p. 39). All these changes and challenges pose an enormous threat to the job satisfaction and organisational commitment of administrative staff. Notwithstanding the substantial amount of research in the areas of job satisfaction and organisational commitment in the HE sector (Martin & Roodt, 2008, p. 23-31; Masemola, 2011, p. 104-111; Ismail, 2012, p. 44-51; Verret, 2012, p. 57-74), scant research has been conducted in these areas among administrative staff in this sector. It is, therefore, the prime objective of this study to fill the void by establishing linkage between organisational commitment and job satisfaction among administrative staff at a university in Gauteng. Empirical evidence supports the view that there has certainly been an exodus of administrative staff at South African HE institutions in the past decade or so (Netswera, Rankhumise & Mavundla, 2005, p. 37). At the university under study, the Human Resource Department and Institutional Planning Unit attested that, between 2005 and 2013, the turnover rate of administrative staff has steadily been increasing with dire repercussions of replacement costs and work disruption.

2. Literature Review

Theoretical Framework of Job Satisfaction and Organisational Commitment: Various competing motivation theories are used to unravel the essence of job satisfaction. These theories attempt to explain the behaviour of people; how they feel and how they think (Booysen, 2008, p. 12). Many studies have used

Maslow's hierarchy of needs theory; Alderfer's modified need hierarchy theory, McClelland's achievement motivation theory and the social exchange theory to explain job satisfaction and organisational commitment (Bernerth & Walker, 2009, p. 217; Kipkebut, 2010, p. 61; Mullins, 2010, p. 260; Wikhamn & Hall, 2012, p. 57). The current study utilises the less frequently used theories such as the Herzberg theory (job satisfaction) and side-bet theory (organisational commitment) to explicate the phenomena of job satisfaction and organisational commitment. Herzberg's two-factor theory forms the foundation for understanding the nature of job satisfaction in this study. Grobler, Warnich, Carell, Elbert and Hatfield (2009, p. 219) posit that hygiene factors reflect the context of the job. These factors are external to the employee and to the job. For this reason, they are perceived to be extrinsic in nature. These factors include salary, supervision, working conditions, job security and consistent management policies and rules. In contrast to hygiene factors, Grobler et al. (2009, p. 220) postulate that motivators are intrinsic in nature and they reflect the content of the job. These factors represent higher-level needs and encapsulate achievement, responsibility, growth, the work itself and recognition (Hyun, 2009, p. 8). Ncube and Samuel (2014) consider them factors in the work environment that are pertinent to the gratification of the need for personal growth (Ncube & Samuel, 2014, p. 270). Unlike hygiene factors, motivators are not manipulated externally but are innate to employees (Grobler et al., 2009, p. 220). Developed in 1960, Becker's side-bet theory posits that commitment, in general, is a disposition to engage in consistent lines of activity as a result of the accumulation of side-bets that would be lost if the activity was discontinued (Becker, 1960, p. 33). Meyer and Allen (1984, p. 373) describe side-bets as important things in which an employee has invested, that include money, effort and time that would be forfeited if the employee were to leave the organisation. It is the perceived threat of loss that commits a person to the organisation and is aggravated by a perceived lack of alternatives to replace or make up for the lost investments (Meyer & Allen, 1984, p. 373).

Job Satisfaction: Job satisfaction has been researched extensively and researchers have varying ways of defining the concept (Al-Aameri, 2000, p. 532). Spector (1997, p. 2) defines job satisfaction as "how people feel about their jobs and different aspects of their jobs". Put differently, job satisfaction is considered as the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs. The literature on job satisfaction shows that it can be studied from two slightly different perspectives. First, job satisfaction may be perceived as a feeling an employee has and is directed to his/her own job. Alternatively, it may be observed as a multidimensional construct, where researchers focus on the different aspects that impact upon a job (Luthans, 2011, p. 141; Ravari, Mirzaei, Kazemi, Jamalizadeh, 2012, p. 97). Ample research has confined research to the use of multidimensional scale of job satisfaction (Allen, Lambert, Pasupuleti, Cluse-Tolar& Ventura, 2004, p. 177; Radebe & Dhurup, 2015, p. 716). In this study, a single-dimensional approach of job satisfaction was followed because the purpose of the study was to examine the relationship between job satisfaction as an overall concept and the various components of organisational commitment.

Notwithstanding the approach followed in this study, job satisfaction, as a multidimensional construct comprise three generally accepted dimensions. The first dimension is an emotional reaction to a job environment, which implies that job satisfaction cannot be seen, but can only be inferred. The second dimension relates to the determination how well outcomes meet or exceed expectations (Luthans, 2011, p. 141). The last dimension represents several related attitudes, which are the most important characteristics of a job about which people have affective responses. The job characteristics include the work itself, pay, promotion opportunities, supervision and co-workers' relationships (Luthans, 2011, p. 141). Oshagbemi (2013, p. 3) classifies sources of job satisfaction into two categories, namely intrinsic and extrinsic. The author explains that intrinsic sources originate from within the individual and have psychological value, whereas extrinsic sources originate from outside the individual, for example, the environment. Aziri (2011, p. 78) advances that job satisfaction is a worker's sense of achievement and success on the job. The author opines that job satisfaction implies doing a job one enjoys, doing it well and being rewarded for one's efforts. It also implies enthusiasm and happiness with one's work.

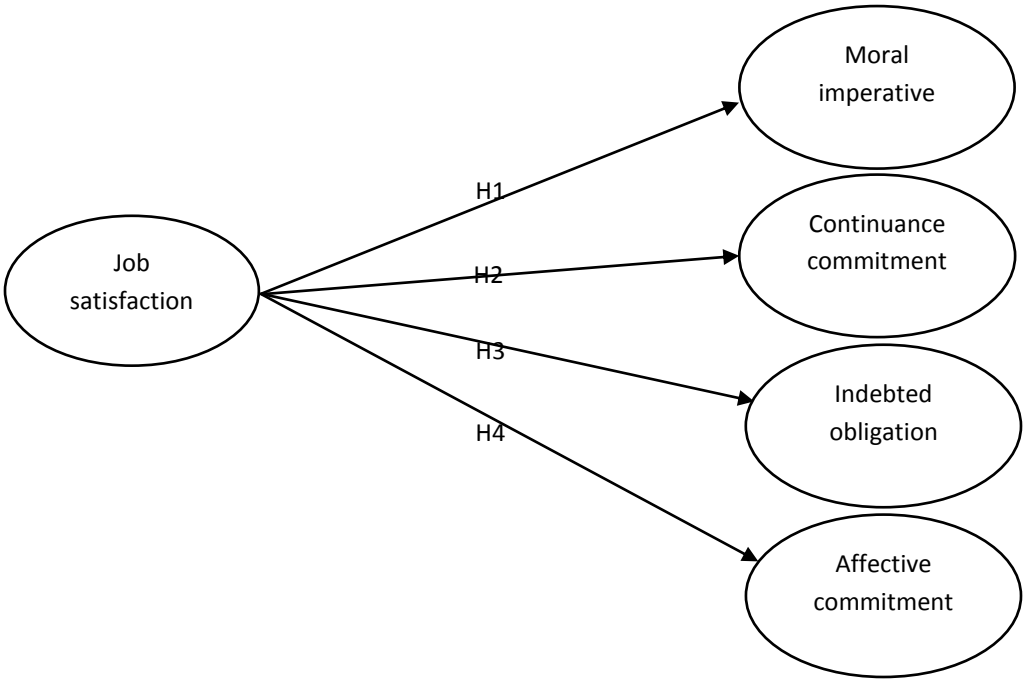
Organisational Commitment: The significance of organisational commitment lies in its potential to engender withdrawal behaviours and employee performance (Döckel, 2003, p. 34). Robbins (2001, p. 69) defines organisational commitment as "the extent to which an individual identifies with an organisation and is committed to that organisation, the attainment of its goals and wishes to maintain membership in the organisation". Meyer and Allen (1991, p. 67) define organisational commitment as "a psychological state that

characterises the employee's relationship with the organisation and that has implications for the decision to continue membership in the organisation". Luthans (2011, p. 147) amplifies that employees with organisational commitment have a fervent aspiration to retain membership of an organisation, expend tremendous effort to attain organisational objectives and espouse the organisation's values and goals.

Meyer and Allen have enhanced insight into organisational commitment literature by professing a three-component model of organisational commitment, which encompasses the following components: normative commitment, affective commitment and continuance commitment (Jaros, 2007, p. 7). The normative commitment connotes an employee's feeling of moral obligation to stay with an organisation whereas affective commitment intimates an employee's emotional attachment to an organisation. Lastly, continuance commitment relates to the benefits that an employee would forfeit if he/she deserted an organisation (Meyer & Allen, 1997). Current research indicates that the concept of normative commitment and its measurement using the normative commitment scale of Meyer and Allen has been problematic (Jaros, 2007, p. 12; Klein, Becker & Meyer 2009:355). Several researchers postulate that normative commitment has a dual nature, namely it can be experienced as either a moral duty or a sense of indebtedness, each having different implications for work behaviour (Markovits, Ullrich, Van Dick & Davis, 2008, p. 485; Meyer & Parfyonova, 2010, p. 283). Based on the above, Jaros (2007, p. 23) revised the original commitment scale of Allen and Meyer (1990) to reflect the indebted obligation and moral imperative dimensions of normative commitment. In view of this finding moral imperative and moral obligation were utilised in this study to assess the level of normative commitment.

Conceptual Model: The conceptual model in Figure 1 presupposes that a positive significant relationship exists between job satisfaction and organisational commitment (affective commitment, continuance commitment, indebted obligation and moral imperative). In view of the conceptual model, the following hypotheses were postulated:
H1: A positive association exists between moral imperative and job satisfaction.
H2: A positive link between continuance commitment and job satisfaction exists.
H3: Indebted obligations are positively related with job satisfaction.
H4: Affective commitment is positively associated with job satisfaction.

Figure 1: Conceptual model



3. Methodology

Research Design: The research design utilised in this study was a quantitative survey approach, which made use of a structured questionnaire. The quantitative research approach was selected for this study to determine the relationship between the two variables, namely job satisfaction and organisational commitment.

Target Population and Sampling: The target population consisted of administrative staff of the university in Gauteng whose name cannot be disclosed for ethical reasons. The number of administrative staff at this university was 765 and the sample elements were drawn by using the convenience sampling method. A sample of 383 (n= 383) was selected using Leedy and Ormrod's (2013, p. 216) guideline of sample size selection. Leedy and Ormrod (2013, p. 216) advise that if the population is around 1 500, 20 percent of the respondents should be sampled. Following Leedy and Ormrod's advice, a sample size of 383 respondents (20% x 765) was extracted out of a target population of 765 administrative staff members.

Method of Data Collection and Measuring Instrument: Data were collected through a structured questionnaire comprising three sections. Section A of the questionnaire focused on obtaining demographic information of the respondents. Section B was adapted from the overall job satisfaction scale designed by Brayfieldand Rothe in 1951. This scale was adapted because the emphasis in this study was to examine overall job satisfaction and not the facets of job satisfaction. Section C consisted of the organisational commitment questionnaire propounded by Meyer and Allen (1997) to assess the participants' attachment to their institution (Brown, 2003, p. 40). The adopted version was drawn from Jaros (2007, p. 23) and consisted of 20 items divided into sub-scales that measure the four factors of organisational commitment, namely affective commitment, continuance commitment, indebted obligation and moral imperative.

Reliability and Validity: The results of the reliability analysis of the measuring instrument indicated that the overall job satisfaction scale, Section B of the measuring instrument, consisted of five items and yielded a satisfactory reliability value of 0.884. The value of Cronbach's alpha for the organisational commitment scale, Section C, was .863 indicating a high degree of internal consistency. The organisational commitment scale initially consisted of 20 items and during the factor analysis process; six items with a low or negative inter-item correlation were deleted from the scale. The overall Cronbach alpha for the entire scale yielded an acceptable reliability value of .874. Face validity was established through the pilot study. A total of 50 administrative staff members who were employed by the university were used for the pilot study. The respondents assessed the questionnaire in terms of its clarity, understandability, flow and construction. No changes were made to the questionnaire and the questionnaire was adopted for the main study. Content validity was achieved by evaluating if the statements in the questionnaire were relevant for the measurement of job satisfaction and organisational commitment. In this respect, five academics in the field of organisational behaviour confirmed that the items in the research instruments were relevant to the measurement of job satisfaction and organisational commitment. Construct validity was ascertained through exploratory factor analysis. Through factor analysis, four factors of organisational commitment were identified from the original 20 items of the organisational commitment scale.

4. Results and Discussion

Table 1: Eigenvalues, percentage of variance explained and cumulative percentage of organisational commitment

Dimension description	No of items	Eigenvalues	% of variance	Cumulative %
Moral imperative	4	5.275	37.675	37.675
Continuance commitment	4	2.111	15.076	52.751
Indebted obligation	3	1.114	7.960	60.711
Affective commitment	3	1.038	7.415	68.126

Factor Analysis: Factor analysis was utilised to extract the pertinent factors that accounted for the inter-correlations among the 20 items of organisational commitment and to determine how strongly each item was

related to the factors. The results of the factor analysis for organisational commitment with their attendant eigenvalues, the percentages of variance and the cumulative percentages are presented in Table 1. Using the Kaiser-Guttman rule, also referred to as the Kaiser criterion or the eigenvalues >1.0 rule, only factors with eigenvalues equal to or greater than 1.0 were considered significant. Brown (2015, p. 23) stipulates that the logic of the Kaiser-Guttman rule is that when an eigenvalue is less than 1.0, the variance explained by a factor is less than the variance of a single indicator and is thus insignificant. The extraction method utilised during factor analysis was the principal component analysis (PCA) through varimax with Kaiser Normalization. Using these methods and guidelines resulted in the extraction of four factors. Previous studies (Kipkebut, 2010, p. 155; Celik, 2011, p. 144, Daneshfard & Ekvaniyan, 2012, p. 176; Lumley, Coetzee, Tladinyane & Ferreira, 2012, p. 110) had the proclivity to extract only three factors (affective commitment, normative commitment and continuance commitment). The extraction of four factors in this study is consistent with an empirical observation on discriminant validity in respect of normative commitment (Jaros, 2007, p. 12). This issue has been propounded upon in Section 2 of this paper.

Table 2: Factor loading matrix of organisational commitment

Scale description	Factor 1	Factor 2	Factor 3	Factor 4
C16. "My organisation deserves my loyalty because of its treatment towards me"	.832	.237	.091	.129
C18. "I am loyal to this organisation because my values are largely its values"	.730	.254	.186	.262
C19. "This organisation has a mission that I believe in and am committed to"	.745	.101	.187	.340
C20. "I feel it is 'morally correct' to dedicate myself to this organization"	.765	.219	.174	.195
C10. "If I wasn't a member of this organisation, I would be sad because my life would be disrupted"	.245	.638	.109	.021
C12. "I often feel anxious about what I have to lose with this organization"	.100	.725	-.070	.210
C13. "Sometimes I worry about what might happen if something was to happen to this organisation and I was no longer a member"	.068	.746	.000	.236
C14. "I am dedicated to this organisation because I fear what I have to lose in it"	.278	.785	-.044	.009
C5. "I do not feel like 'part of the family' at my organization"	.146	-.130	.830	.135
C6. "I do not feel 'emotionally attached' to this organization"	.086	.056	.787	.245
C8. "I do not feel a 'strong' sense of belonging to my organization"	.218	.056	.819	.024
C1. "I am very happy being a member of this organization"	.300	.200	.187	.747
C2. "I enjoy discussing about my organisation with people outside it"	.146	.144	.104	.837
C7. "This organisation has a great deal of personal meaning for me"	.313	.122	.163	.705

Extraction method: PCA with varimax with Kaiser Normalisation. Rotation converged in six iterations.

Factor Loading Matrix of Organisational Commitment: Table 2 displays the factor-loading matrix of the measuring instrument, which represents the summary of the final factor structure of organisational commitment. The principal component analysis (PCA) is a factor extraction method introduced by Karl Pearson in the early 1900s, used to discover and interpret the dependencies that exist among variables and to examine relationships that occur among variables (Timm, 2002, p. 445.). An item was considered if its factor loading was equal to or greater than 0.50. For this scale, items C3, C4, C9, C11, C15 and C17 were omitted from further analysis using the varimax with Kaiser normalisation method. These items were removed because their values for factor loading were low (< 0.50). Varimax minimises the number of variables that have high loadings on each factor with the goal of making small loadings even smaller, but maximises the number of high loadings on each variable.

Factor 1, labelled moral imperative, comprised four items, which were responsible for 38 percent of the variance explained by the factor. Employees that have high levels of moral imperative strive to meet valued outcomes (Jaros, 2007, p. 12). Previous empirical evidence supports the conception that employees with moral imperative tend to have stronger intentions to stay in the organisation and enact greater discretionary performance (Barling & Cooper, 2008, p. 44). Another study has demonstrated that a moral indebtednessis commonly associated with positive beliefs such as inspiration, meaningfulness, inherent goodness and optimism (Meyer & Parfyonova, 2010, p. 287). The second factor was labelled continuance commitment and comprised four variables. The variables accounted for 15 percent of the variance explained. In respect of continuance commitment, empirical evidence suggests that, "employees with a strong continuance commitment remain with the organisation because they feel they need to" (Allen & Meyer, 1990, p. 3). Other studies have similarly supported that continuancecommitment is likely to develop in response to conditions that increase the costs of cutting ties with the organisation (side-bets) (Powell & Meyer, 2004, p. 159). In collaboration, Daneshfard and Ekvaniyan (2012, p. 169) observed that employees commit to the organisation because the costs of leaving are too high.

Factor 3 was labelled indebted obligation, comprising three items, which were responsible for 8 percent of the variance explained. The study of Jaros (2007, p. 12) illustrated that employees with this kind of commitment reflect the perceived need to meet others' expectations. In support, Meyer and Parfyonova (2010, p. 287) reflect that employees with indebted obligation tend to advance the interests of an organisation to avoid betrayal stigma for failing to do so. Failure to advance the interests of own organisation make employees develop negative feelings such as frustration, inconvenience and guilt. In contrast, the basic argument of Markovits et al. (2008, p. 6) maintains that different from the moral imperative dimension of commitment, when affective commitment is low and continuance commitment is high, normative commitment might be experienced as an indebted obligation, that is, 'something one has to do to meet obligations and/or save face'.

Finally, the fourth factor, labelled affective commitment, comprised three variables that accounted for 7 percent of the variance explained. The study of Jaros (2007, p. 12) provided evidence that employees who are affectively committed are emotionally attached to their organisations. This study is consistent with empirical evidence in the seminal work of Meyer and Allen (1991, p. 67), which suggested that employees with a strong affective commitment identify with the organisation and continue employment with the organisation because they want to do so. Powell and Meyer (2004, p. 159) concur that affective commitment is expected to have the strongest positive effect on desirable work behaviours such as attendance, performance and organisational citizenship behaviour. Greenberg and Baron (2003, p. 162) pursue the similar line of thought to the effect that employees who have affective commitment to their organisations persist to work for an organisation because they agree with its goals and values and desire to remain members of that organisation. Beck and Wilson cited in Mguqulwa (2008, p. 30) further amplify that employees who have high levels of affective commitment intend to stay with the organisation because they espouse the goals and values of the organisation. The four factors of organisational commitment accounted for 68 percent of the total variance explained.

Correlation Analysis: In this study, correlation was used to analyse the relationship, positive or negative, between the two variables, namely job satisfaction and organisational commitment. The method used to analyse and test the nature of the relationship between these variables was the Spearman's rho correlation coefficient test. The correlation results in Table 3 reveal a significantly strong relationship (r= .504**; p< .000) between job satisfaction and affective commitment. This indicated that as the job satisfaction of the administrative staff members increased, they were inclined to develop an emotional attachment to the university. On the relationship between job satisfaction and moral imperative, there seemed to be a moderately significant and positive correlation among the variables (r= .442**; p< .000). These results showed that as the job satisfaction of the administrators continued to improve, the more they felt morally obliged to continue employment with the university. The results of the correlation analysis also revealed a moderately significant relationship between job satisfaction and indebted obligation (r= .309**; p< .000). These results indicated that an increased level of indebted obligation among administrative staff at the university was associated with job satisfaction. A weak relationship was observed between job satisfaction and continuance commitment (r=.133; p< .000). This indicated that the continuance commitment of the administrative staff members to the university was not associated with the job satisfaction of the administrators.

Table 3: Correlations-JS, moral imperative, continuance commitment, indebted obligation and affective commitment

Spearman's rho	Moral Imperative	Continuance Commitment	Indebted Obligation	Affective Commitment	Job Satisfaction
Moral imperative	1.000				
Continuance commitment	.455**	1.000			
Indebted obligation	.374**	.061	1.000		
Affective commitment	.589**	.334**	.378**	1.000	
Job satisfaction	.442**	.133	.309**	.504**	1.000

Other than the positive relationships between the four factors of organisational commitment and job satisfaction, correlations also were observed between the factors of organisational commitment. In this regard, a significantly strong relationship was found between moral imperative and affective commitment (r= .589**; p< .000). The results also reflected a significant moderate relationship between continuance commitment and moral imperative (r= .455**; p< .000). Meyer and Parfyonova (2010, p. 286) reported similar findings, which suggest a modest correlation between continuance commitment and normative commitment. On the association between indebted obligation and moral imperative, there seemed to be a statistically significant but moderate correlation (r= .374**; p< .000). This implied that the administrators remained committed to the university not only because of feelings of indebtedness, but also because they felt it was a morally right thing to do. Similar significant but moderate correlations were observed between affective commitment and continuance commitment (r= .334**; p< .000). A further implication is that the administrative staff members that were committed to the university because of their emotional attachment were also likely to remain in the employment of the university because the costs associated with leaving were too high. Lastly, the relationship between affective commitment and indebted obligation (normative commitment experienced as a sense of indebtedness) also revealed statistically significant but moderate correlations (r= .378**; p< .000).

Regression analysis: In this study regression, analysis was used to establish the predictive relationships between job satisfaction and the four factors of organisational commitment, namely moral imperative, continuance commitment, indebted obligation and affective commitment. The results of the regression analysis are presented in Table 4. Model 1 represents the regression analysis results of job satisfaction as a predictor of the moral imperative factor. In the examination of the coefficients of Model 1 displayed in Table 5, the beta coefficient (β= .488; p <0.000) indicates that job satisfaction had played a significant role in the occurrence of moral imperative. As a result, the hypothesis that presupposed a significant positive relationship between job satisfaction and moral imperative (H1), was accepted. These results indicated that job satisfaction of the administrators contributed significantly to the prediction of moral imperative. This suggested that the administrators were content with their jobs and stayed committed to the university because they felt they ought to. Administrative staff members who were morally committed would strive to meet the objectives of the university. The results of the regression analysis in Model 1 also showed that 23 percent (R2= .234) of the variation in the moral imperative dimension of organisational commitment could be attributed to job satisfaction. This suggested that if the job satisfaction of the administrators were to change, then the moral imperative factor of organisational commitment would change accordingly. This finding is supported by the study of Aydogdu and Asikgil (2011, p. 51) who found that job satisfaction contributed significantly in the prediction of organisational commitment, which is based on a strong belief that being a member of an organisation is the right and moral thing to do. The study attributed this predictive relationship to internal job satisfaction factors such as the use of skills, job variety, experience and performing things for others and external job satisfaction factors such as working condition, supervision, promotion and pay.

Table 4: Regression analysis of job satisfaction as a predictor of the four factors of organisational commitment

Model 1	**Dependent variable: Factor 1 – Moral imperative**				
Independent variable: Job satisfaction	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	t	Sig
	.551	.069	.488	7.984	.000
R = .488a; R^2 = .238; Adjusted R^2 = .234; Std. Error = .81412; F =63.739					
Model 2	**Dependent variable: Factor 2 – Continuance commitment**				
Independent variable: Job satisfaction	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	t	Sig
	.232	.069	.231	3.385	.001
R = .231[a]; R^2 = .053; Adjusted R^2 = .049; Std. Error = .81013;F = 11.456					
Model 3	**Dependent variable: Factor 3 – Indebted obligation**				
Independent variable: Job satisfaction	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	t	Sig
	.347	.076	.306	4.589	.000
R = .306[a]; R^2 = .094; Adjusted R^2 = .089; Std. Error = .89387; F = 21.063					
Model 4	**Dependent variable: Factor 4 – Affective commitment**				
Independent variable: Job satisfaction	Unstandardised coefficients		Standardised coefficients		
	B	Std. error	Beta	t	Sig
	.566	.061	.543	9.228	.000
R = .543[a]; R^2 = .294; Adjusted R^2 = .291; Std. Error = .72460; F = 85.149					

In Model 2, the regression coefficients reveal job satisfaction as a predictor of continuance commitment. The results in Table 4 pointed out that job satisfaction contributed positively to the prediction of continuance commitment (β= .231; p <0.001). Based on this finding, the hypothesis that suggested job satisfaction was positively related to continuance commitment was similarly supported. The implication was that the job satisfaction of the administrators at the university contributed to the incidence of continuance commitment. The more satisfied the administrators were with their jobs, the more committed they would be to their university due to the huge benefits they would forfeit if they were to sever ties with their organisation. The results of the second regression model analysis revealed that job satisfaction accounted for 5 percent (R^2= .049) of the variation in continuance commitment. This finding is consistent with the results of observations of Imam, Raza, Shah and Raza (2013, p. 274) who also found a significant predictive relationship between job satisfaction and continuance commitment. The results of the study established that an increase in the level of job satisfaction of employees would increase the continuance commitment of those employees. Employees, who were satisfied with their jobs, tended to display high levels of continuance commitment, thus they continued working for the organisation. Continued membership of an organisation could be ascribed to amicable employee relationships, non-transferable funds and investments like allowance, retirement fund or retirement remuneration, all of which have been found to be sources of job satisfaction (Imam et al., 2013, p. 272).

Model 3 reflects the regression values, which suggest that job satisfaction is a predictor of indebted obligation. The results, presented in Table 4, indicated that job satisfaction contributed positively to the prediction of indebted obligation with a beta coefficient of .306 at a significant level of p <0.000. The third hypothesis postulated that job satisfaction had a significant positive association with indebted obligation was accepted. This inferred that an increase in the level of job satisfaction of the administrators contributed significantly to the prediction of indebted obligation. Administrative staff members who were satisfied with their jobs would remain committed to the university because they felt they were obliged to. Model 3 suggests that the job satisfaction of the administrative staff members at the university accounted for 9 percent (R^2= .089) of the variation in the prediction of indebted obligation. These results are in line with the findings of Lumley, Coetzee, Tladinyane and Ferreira (2011, p. 113) who also reported that there was a positive

predictive relationship that existed between the normative commitment and job satisfaction. This indicates that job satisfaction induces moral indebtedness to retain membership of an organisation because of the need to comply with workplace social norms. These norms are epitomised by a sense of moral indebtedness to psychological contract between an employee and an employer. The obligations involve both objective economic exchanges (high performance-based pay, contingent pay, giving notice and working overtime) and subjective social exchanges (co-worker relationships, job security and employee loyalty). Meyer *et al.* cited in Bergman, Benzer, Kabins, Bhupatkar and Panina (2012, p. 155) concur that indebted obligations are exchange-based commitments, which last as long as situational signs are present.

Model 4 displays that job satisfaction has a predictive association with affective commitment. The regression results in Table 5 revealed that job satisfaction displayed significant predictive relationship with the affective commitment dimension of organisational commitment (β= .543; p <0.000). The fourth hypothesis, there is a positive relationship between job satisfaction and affective commitment, was accepted. A previous study conducted reported that affective commitment was positively associated with job satisfaction (Lumley *et al.,* 2011, p. 112). According to the authors, the prevalence of a positive association between affective commitment and job satisfaction confirms that job satisfaction among employees tends to make them form strong emotional bonds with the organisation to an extent that they prefer to be highly involved in its activities. The coefficients of the regression analysis in Model 4 also demonstrated that job satisfaction accounted for 29 percent (R^2= .291) of the variation in the affective commitment of the administrative staff members at the university. These findings are consistent with those of Rhoades, Eseinberger and Armeli (2001, p. 825) who asserted that employees who had high levels of commitment were perceived to have considerable amounts of identification and belonging to the organisation and were more inclined to be involved in the activities of the organisation. They also expressed the desire to achieve the organisation's goals and showed intention to retain its membership. Finally, Meyer *et al.* (2002, p. 38) state that job satisfaction and affective commitment should both be considered in efforts to understand and manage employee behaviour because of the strength of the correlation between the two constructs.

5. Conclusion

The results reveal the existence of a positive association between job satisfaction and organisational commitment. Therefore, it was concluded that the more satisfied the administrative staff members were with their current jobs, the higher the level of commitment to the university. Finally, the findings were also very informative in exploring and explaining problems associated with behavioural aspects in organisations, particularly factors that contributed toward the organisational commitment and job satisfaction of administrators at the university.

Recommendations: The weak correlation and insignificant predictive association between continuance commitment and job satisfaction informed the recommendation that equitable salaries should be offered to the administrators. In essence, equitable salaries and benefits should be made competitive and market-related. Job satisfaction could also be improved through the provision of opportunities for career advancement and promotion opportunities. The university should invest in ongoing career advancement initiatives such as seminars, workshops, short courses, coaching and mentoring programs, aimed at improving the skills and competencies of administrative staff members. The university should also consider the development and consistent implementation of fair institutional policies and rules as a measure to ameliorate job satisfaction and organizational commitment. This could be achieved by allowing participation of administrative staff in the development of policies in areas that affect their work life. The conversion of administrative staff on contract positions to permanent positions is another option that should be pursued. Lastly, the moderate correlation between job satisfaction and indebted obligation necessitated the recommendation that the university should provide conducive working conditions in accordance with the Basic Conditions of Employment Act (75 of 1997) (BCEA). This could be done through the regulation of working hours and compensating the administrative staff members for overtime worked. Such favorable working conditions would enhance the job satisfaction of the administrators and increase their levels of commitment to the university. It is clear that a high degree of job satisfaction among administrators generates high levels of commitment to the university. Thus, the importance of job satisfaction cannot be overlooked if the university intends to improve the level of commitment of its administrative staff members.

Future Research Opportunities: The main objective of this study was to investigate the effect of job satisfaction on the organisational commitment of administrators at a university in Gauteng. While the objectives of this study were, successfully realised, future research could explore the mediating role of demographic factors such as gender, marital status, age, education level, income category, length of time in the workplace and current job status, in the relationship between job satisfaction and organisational commitment. The moral imperative and indebted obligation dimensions of normative commitment are new in the organisational commitment literature. As organisational commitment continues to evolve, future studies could also consider exploring and researching these dimensions of normative commitment extensively.

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Comparative Analysis of Monetary Policy Shocks and Exchange Rate Fluctuations in Nigeria and South Africa

Sulaiman L. A.[1], Lawal, N. A.[2], Migiro, S. O.[1]
[1]University of Kwazulu-Natal, Durban, South Africa
[2]Ekiti State University, Ado-Ekiti, Nigeria
Sulaimanluq01@gmail.com, bodiatic@gmail.com, migiro@ukzn.ac.za

Abstract: The study examined a comparative analysis of monetary policy shocks and exchange rate fluctuations based on evidence from the two largest economies in Africa (Nigeria and South Africa) – from 1985 to 2015. Data were derived from various sources which include the National Bureau of Statistics, the Central Banks reports and the World Bank database. Vector Autoregressive (VAR) Analysis was used as the estimation technique. The results indicated that the foreign interest rate in South Africa had higher variations in the short-run. While in the long-run, foreign interest rate has higher percentage variations to exchange rate. In Nigeria the world oil price has the higher influence on exchange rate both in the short-run and long-run periods. Based on these results, the study then recommended that the monetary authorities and policy-makers in both countries encourage external currency inflows into the economy.

Keywords: *Exchange Rate, Monetary Policy, Vector Autoregressive, Nigeria, South Africa*

1. Introduction

There is general consensus that domestic price fluctuation undermines the role of money as a store of value, and frustrates investments and growth. In the move towards stabilization and growth, countries – especially African federations shifted their attention to monetary union and exchange-rate regimes. As a monetary instrument, exchange rate movement is a concern for investors, analysts, managers, governments and policy-makers due to its fluctuations Atsin (2010). According to Sulaiman (2006), monetary policy deals with inducing the availability and cost of credit to the economy with a view towards achieving the macro-economic goals of the nation. However, Simeon-Oke and Aribisala (2010)viewed that exchange rate is the price of one currency in terms of another currency. This rate is an exceptional price which government is interested in. The exchange rate of an economy has a crucial role to play, as it directly affects all the macroeconomic variables like domestic price indicator, profitability of traded goods and services, and allocation of resources and investment decisions which explains why the monetary authorities and private sector seek stability in these variables Ajakaiye (2001). The exchange rate is also seen as an essential macroeconomic variable which helps with the formulation of economic policies and reforming programs in which these policies accelerate the achievement of set macroeconomic goals. These goals include achieving and uploading price stability, the balance of payment equilibrium, full employment, even distribution of income, economic growth, and development.

Monetary variables and exchange rate are seen as macroeconomic variables that contribute to the growth and development of an economy. Monetary policy managers have paid collective attention to exchange rate instability and monetary policy shocks in the pasts. Despite manipulations by monetary authorities in terms of stabilizing the exchange rate fluctuation and the shocks on the monetary variables, there has been no consensus on the outcome. Empirical research on this has been concerned, especially on the monetary policy shocks and exchange rate fluctuations. This study undertakes a comparative analysis of monetary policy variables and the exchange rate in Nigeria and South Africa. The remaining part of the paper is structured as follows: section II reviews the literature; the method of analysis is presented in section III; results and discussion are presented in section IV; while summary, conclusion and recommendations are made in section V.

2. Literature Review

Monetary Policy: Nnanna (2001) opines monetary policy refers to a combination of measures designed to regulate the value, supply and cost of money in an economy – in consonance with the expected level of economic activity. Shaw (1973) expresses monetary policy as "any conscious action undertaken by the

monetary authorities to change the quantity, availability or cost of money." Monetary policy is a method of economic management that stimulates economic growth and economic development by using its instruments, and can either be expansionary or restrictive. An expansionary monetary policy aims to sustain the growth of aggregate demand through an increase in the rate of money supply and lowering interest rates, while restrictive monetary policy is designed to reduce money supply and increase interest rates. Monetary policy targets to control money supply in order to ameliorate the various economic problems which include balance of payment (BOP) imbalances, inflation and unemployment etc (Gbosi, 2002). Thus, macroeconomic objectives like sustainability in the growth of the economy, stability in price level, BOP equilibrium along with full employment can be achieved through monetary policy by the monetary authorities. Monetary authorities are responsible for using monetary policy to grow their economies.

Exchange Rate: Exchange rate is defined as the rate at which one country's currency can be exchanged for another, and thus it is the price of one currency in terms of another (Anyawu & Oaikhena, 1995). Exchange rate measures the value of a nation's currency against other countries' currency and reflects the economic situation of the country compared to other countries. In an open economy, the exchange rate is an important variable due to its interaction with other internal and external variables. Domestic and foreign economic policies as well as economic development greatly affect the exchange rate. In addition, the exchange rate is a variable that affects the economic performance of the country. It is an economic indicator (Havva, Mohammad & Teimour, 2012). The importance of the exchange rate is derived from the fact that it connects the price system of two different currencies making it possible for international traders to make a direct comparison of the prices of traded goods. The exchange rate can be bilateral or multilateral. A bilateral exchange rate is described as the exchange rate of one currency like the Nigerian Naira, in terms of another, for example the US dollar (USD). On the other hand, a multilateral exchange rate also referred to as the nominal exchange rate – is the rate of one currency against a weighted composite basket of the currencies of that country's trading partners.

Empirical Literature: Mehmet and Zekeriya (2013) investigated monetary policy shocks and macroeconomic variable evidence from fast-growing emerging economies. The study used Vector Autoregressive (VAR) Analysis as an estimation technique. The results showed that a contractionary monetary policy appreciates the domestic currency, increases interest rates, effectively controls inflation rates, and reduces output. The study did not find any evidence of the price, output, exchange rate and trade puzzles that are usually found in VAR studies. It was also found that the exchange rate was the only transmission mechanism in developed countries. Zandweghe (2015) examined the relationship between monetary policy shocks and aggregate supply in the United Kingdom between 1970 and 2014. The VAR method was employed as an estimation technique. The result showed that accommodative productivity or loose monetary policy shocks temporarily boost labor by increasing work effort and the work week of capital. This study is country-specific, however, and omitted some important variables. Anzuici, Marco and Patrizio (2013) investigated the empirical relationship between monetary policy and commodity prices in the USA by means of a standard VAR model. The results suggested that expansionary US monetary policy shocks drove up the broad commodity price index and all of its components.

Alain (2007) examined the effect of monetary policy shocks on the Philippine economy. VAR was employed and the results of the monetary shock impulse responses showed that the inflation rate, world oil price, and narrow money supply significantly impacted on the Philippine economy. Asad, Ahmad and Hussain (2012) studied the impact of the real effective exchange rate on inflation in Pakistan using the time-series data of real GDP, nominal GDP, real effective exchange rate, prices and money supply – for the period 1973 to 2007. The findings showed that the real effective exchange rate had an impact on inflation in Pakistan and that a positive and significant relationship was found between the real effective exchange rate and inflation. Paul and Muazu (2016) investigated causes and effects of exchange-rate volatility on economic growth in Ghana using ARCH, GARCH and VECM. The results showed that shocks to the exchange rate are mean reverting – with painful consequences in the short run. It was also found that almost three-quarters of shocks to the real exchange rate are self-driven, while the remaining one-quarter is attributed to factors like government expenditure and money-supply growth, terms of trade, and output shocks. Furthermore, excessive volatility was found to be detrimental to economic growth – however, only up to a point, as a growth-enhancing effect can also emanate from innovation and more efficient resource allocation.

Babatunde and Olufemi (2014) studied monetary policy shocks and exchange-rate volatility in Nigeria from 1980-2009. In the study, the classical ordinary least square and Error correlation models were employed. The results showed that both real and nominal exchange rates in Nigeria have been unstable. It was equally found that the variation in the monetary-policy variable explains the movement of the exchange rate through a self-correcting mechanism process – with little or no intervention from the monetary authority. Results from the causality tests showed that there is a causal link between the past values of monetary-policy variables and the exchange rate. Ade and Philip, (2014) examined exchange-rate fluctuations and microeconomic performance in sub-Saharan Africa, and employed a dynamic panel co-integration analysis. The tentative results showed that a long-run relationship and a bidirectional relationship existed between exchange-rate volatility and macroeconomic performance. Muhammad and Eatzaz (2009) examined the relationship between monetary variables and nominal exchange rates in Pakistan. Generalized Method of Moments (GMM) estimates provide considerate support for the flexible price monetary model on the basis of country-by-country analysis. Therefore, the study concludes that monetary variables confirmed results for the determination of nominal exchange rates and validated monetary models as long-run equilibrium conditions.

Ncube and Ndou (2013) investigated contractionary monetary policy and exchange rate shock on the South African trade balance by using a structural vector regressive model – specifically the recursive and sign restrictive SVAR models. The interest rate was used as a monetary variable among other variables. The findings showed that the real effect of exchange-rate appreciation and contractionary monetary policy worsened the trade balance as a percentage of GDP in the long-run periods. The shock of the exchange rate on trade balance was greater than contractionary monetary policy shocks. The contractionary monetary policy operated in the expenditure-switching channel rather than the income channel in the short-run – which deteriorated the trade balance. Annari and Renee (2012) examined monetary policy and inflation in South Africa: a VECM augmented with foreign variables. The study employed co-integrated vector autoregressive (VAR) model. The study discovered three significant long-run economic relations: the augmented purchasing power parity, the uncovered interest parity, and the Fisher parity. These long-run relations were imposed on the VECM to investigate the effect of a monetary-policy shock on inflation. The results suggested an effective functioning of the monetary-transmission mechanism in South Africa. From the above literature review, it is clear that there are inconsistencies in the findings of many studies; some variables are omitted in some studies which gave room for further study and also to extend the study period covered by previous researchers. This study is also comparative, thereby providing better insight than the country-specific studies.

3. Methodology

Model Specification and Estimation Technique: In order to arrive at the model of this study, theoretical and empirical specifications of past researchers were considered. The modified model is in line with Fatai and Akinbobola (2015) and Babatunde and Olufemi (2014).The following variables: exchange rate, money supply, interest rate, foreign interest rate, world oil price and Consumer Price Index were used in the study. The econometric forms of the variables were presented in vector autoregressive estimation below

Vector Autoregressive (VAR): In this research, the VAR model was employed. Sims (1980)opined that, if there is simultaneity among a number of variables, then all these variables should be treated in the same way. In other words, these should be no distinction between endogenous and exogenous variables.

$$EXR_t = \beta_0 + \beta_1 M2_{t-1} + \beta_2 INT_{t-1} + \beta_3 FIR_{t-1} + \beta_4 WOP_{t-1} + \beta_5 CPI_{t-1} + \sum EXR_{t-1} \quad 1$$

$$M2_t = \mu_0 + \mu_1 EXR_{t-1} + \mu_2 INT_{t-1} + \mu_3 FIR_{t-1} + \mu_4 WOP_{t-1} + \mu_5 CPI_{t-1} + \sum M2_{t-1} \quad 2$$

$$INT_t = \theta_0 + \theta_1 EXR_{t-1} + \theta_2 M2_{t-1} + \theta_3 FIR_{t-1} + \theta_4 WOP_{t-1} + \theta_5 CPI_{t-1} + \sum INT_{t-1} \quad 3$$

$$FIR_t = \gamma_0 + \gamma_1 EXR_{t-1} + \gamma_2 M2_{it-1} + \gamma_3 INT_{t-1} + \gamma_4 WOP_{t-1} + \gamma_5 CPI_{t-1} + \sum FIR_{it-1} \quad 4$$

$$WOP_t = k_0 + k_1 EXR_{t-1} + k_2 M2_{t-1} + k_3 INT_{t-1} + k_4 FIR_{t-1} + k_5 CPI_{t-1} \sum WOP_{t-1} \quad 5$$

$$CPI_t = k_0 + k_1 EXR_{t-1} + k_2 M2_{t-1} + k_3 INT_{t-1} + k_4 FIR_{t-1} + k_5 WOP_{t-1} \sum CPI_{t-1} \quad 6$$

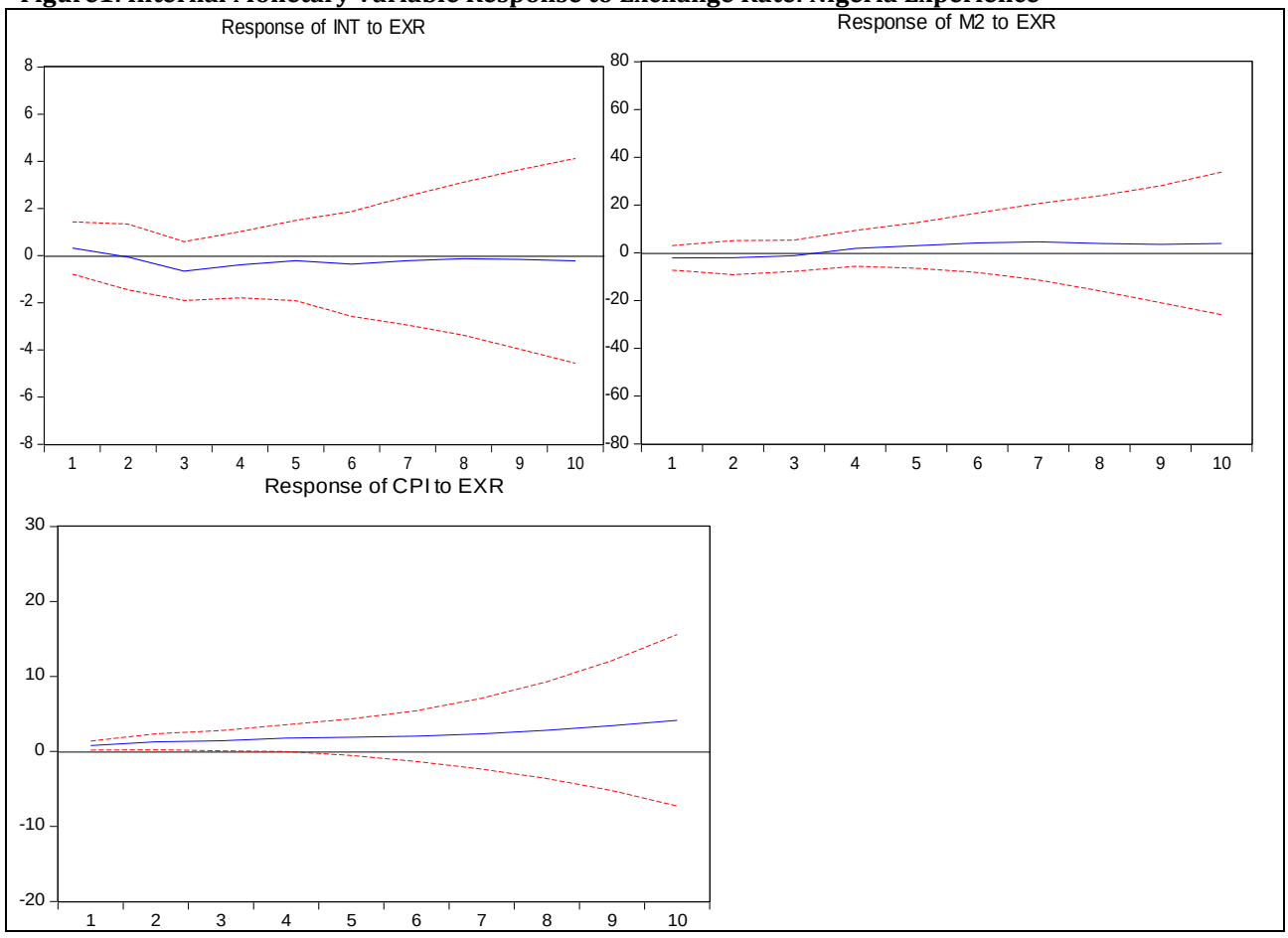
Where:
EXR represents Exchange Rate;
M2 represents Money Supply;
INT represent Interest Rate;
FIR represents Foreign Interest Rate;

WOP represents World Oil Price; and
CPI represents Consumer Price Index.

Data Sources: Secondary data was employed. The data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, Central Bank of Nigeria Annual Reports, Economic and Financial Data for South Africa, the Global Open Data Index and from the database of the World Development Indicator (WDI). The data from this source spanned the period of 1985 to2015 – as stated in the scope of this study.

4. Findings and Interpretation

Figure1: Internal Monetary Variable Response to Exchange Rate: Nigeria Experience

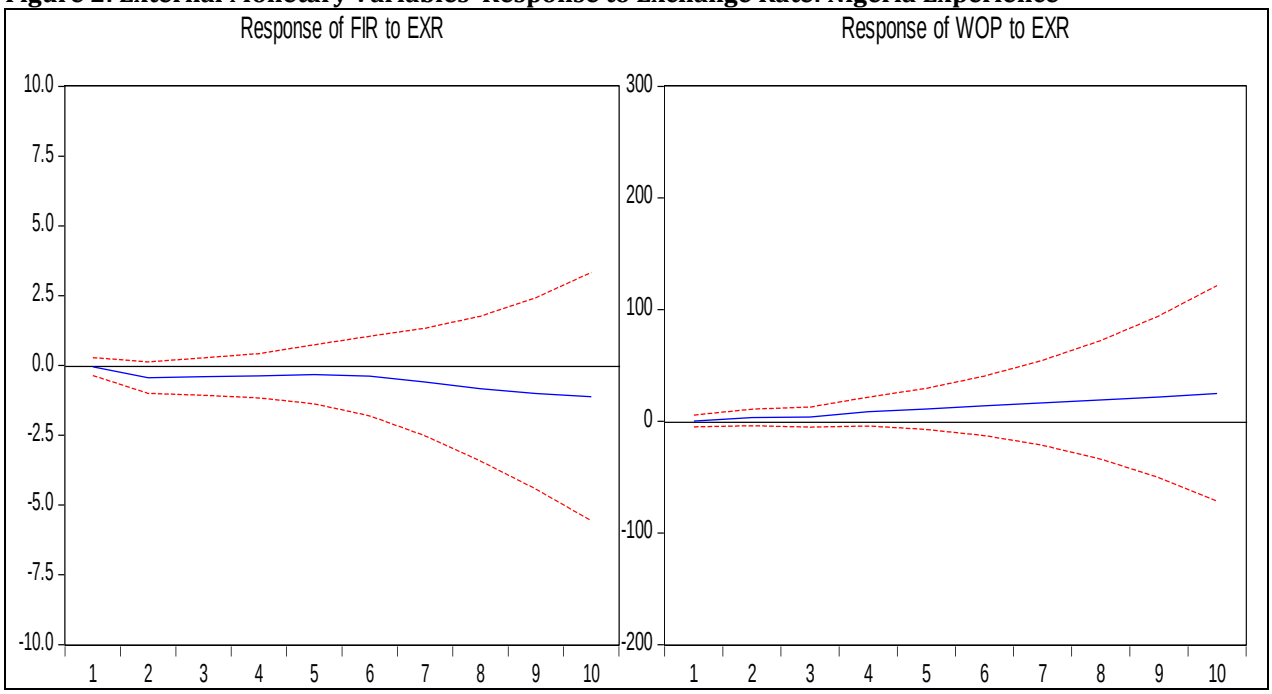


Source: Eviews 9.0

Vector Autoregressive (VAR) Impulse Response Analysis (Nigeria Experience): Impulse response function identifies the responsiveness to one standard deviation in an exogenous variable relative to one of the innovations of the endogenous variables of a model. Furthermore, it is used to predict the response of each endogenous variable to changes in other exogenous variables (Ogunsakin, 2011). Result of impulse response function is therefore presented. The result in figure 1 revealed the response of exchange rate to the shock coming from an interest rate as an internal monetary variable in Nigeria is positive from the beginning and is closer to zero in quarter two, after which it becomes negative and statistically insignificant. The economic implication of this finding stems from the fact that this result is in line with the theoretical prediction. Looking critically at the results in figure 1, the result equally confirms that a standard-deviation shock coming from the money supply inflicts negative from the beginning to the quarter of period three – after which it becomes positive and has an insignificant effect on exchange rate. This equally conforms to the theoretical prediction. The response of exchange rate to the shock from the CPI, as shown in figure 1, is

positive and statistically significant. The CPI was initially insignificant from quarter one up to quarter two– but is later significant. The economic implication of this finding is that the CPI increases, corresponding to an increase in exchange rate. However, it is not considered to be a good indicator of economic growth and price stability in Nigeria during the study period.

Figure 2: External Monetary Variables' Response to Exchange Rate: Nigeria Experience



The result in figure 2 showed the external monetary variables' shock relative to exchange rate in Nigeria – that is, a standard-deviation shock from a foreign interest rate has a negative but statistically insignificant impact on exchange rate in Nigeria during the study period. This finding actually conforms to the *a priori* expectation. According to this theoretical prediction, an unexpected foreign interest rate shock has no impact on the exchange rate. The response of the exchange rate to the shock from the world oil price is positive and significant. The economic implication of this is that an increase in the world oil price attracts more foreign currencies and strengthened the Naira.

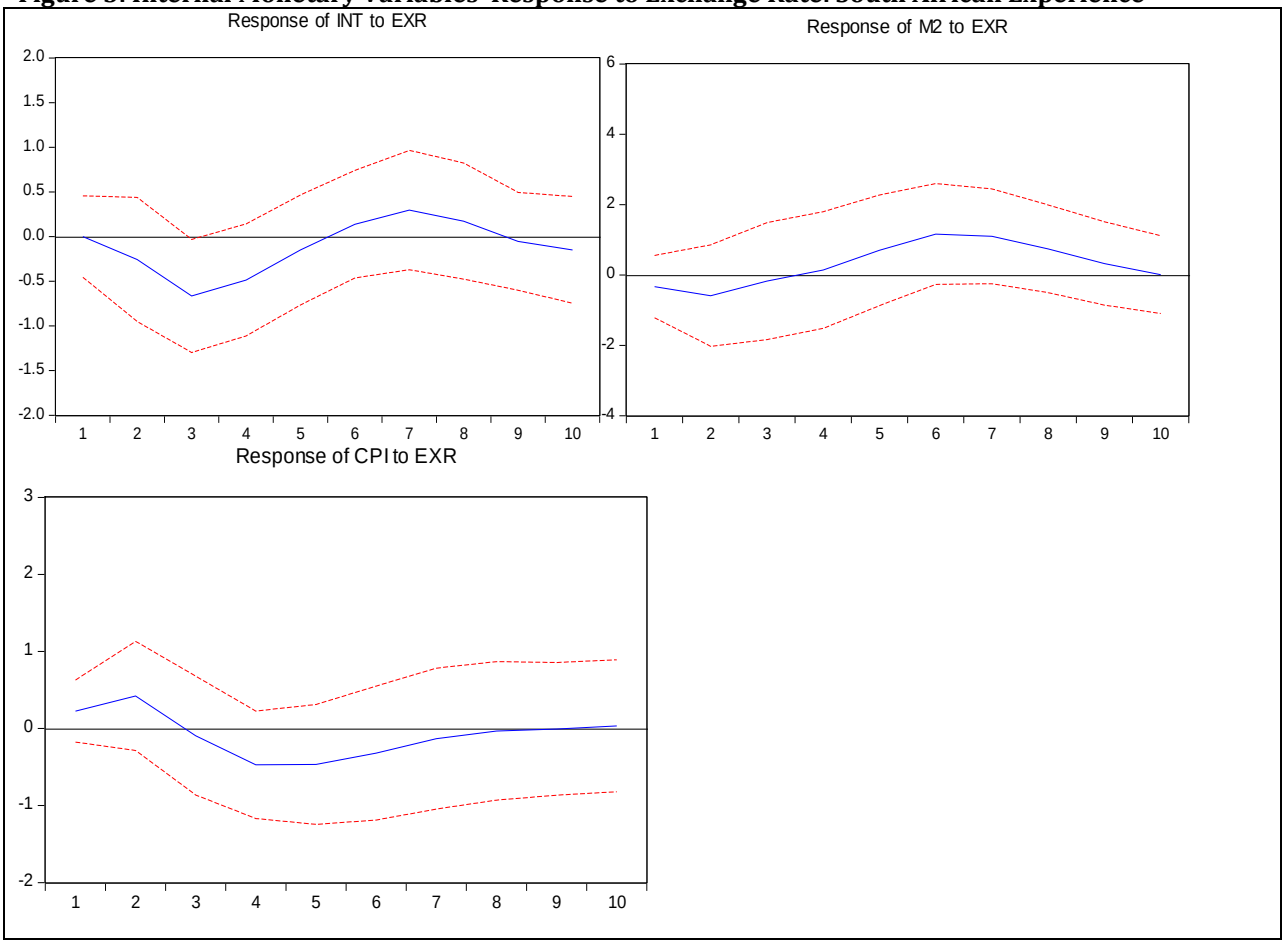
Variance Decomposition: The result in Table 1 showed the variance decomposition of exchange rate to both the internal and external monetary variables in Nigeria during the study period. In the short-run, apart from the own shock, the world oil price has the highest percentage (31%) of variance in the exchange-rate decision in Nigeria. This is followed by foreign interest rate that accounts for 11% of the variation to exchange-rate decision in Nigeria during the study period. Furthermore, interest rate and CPI are equally responsible for a 6% and 5% variation in the exchange-rate decision in Nigeria, while in the long run, world oil price accounts for 53% of variations, foreign interest rate for 20% of variations and money supply for 9% of variations in the exchange rate. Interest rate and CPI are insignificant in the long-run – accounting for 4% and 3% of the variations, respectively, in the exchange-rate decisions in Nigeria during the study period. This is similar to the work of Babatunde and Olufemi (2014) that the variation in the monetary policy variable explains the movement of the exchange rate.

Table1: Variance Decomposition of Exchange Rate to both Internal and External Monetary Variables (Nigeria Experience)

Variance Decomposition of EXR:							
Period	**S.E.**	**EXR**	**INT**	**M2**	**FIR**	**WOP**	**CPI**
1	10.19895	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	14.77457	66.82903	7.640594	1.065286	5.412023	17.04005	2.013027
3	19.09211	47.35821	5.649893	0.900267	10.51792	30.70020	4.873521
4	24.06741	32.02881	6.883825	0.588635	15.61292	41.11029	3.775523
5	31.59246	18.59954	7.168126	0.474669	20.26370	50.54277	2.951195
6	40.88997	11.83419	7.648107	1.255854	22.81572	53.96275	2.483374
7	52.42101	8.959610	7.039604	3.115560	23.55294	55.03555	2.296743
8	66.58060	8.372872	6.008156	5.309294	22.85258	55.04665	2.410451
9	83.24225	8.907031	5.191035	7.345302	21.57037	54.34717	2.639093
10	102.2590	10.00969	4.580178	9.109791	20.16174	53.23363	2.904967

Source: Authors' computation (2017)

Figure 3: Internal Monetary Variables' Response to Exchange Rate: South African Experience

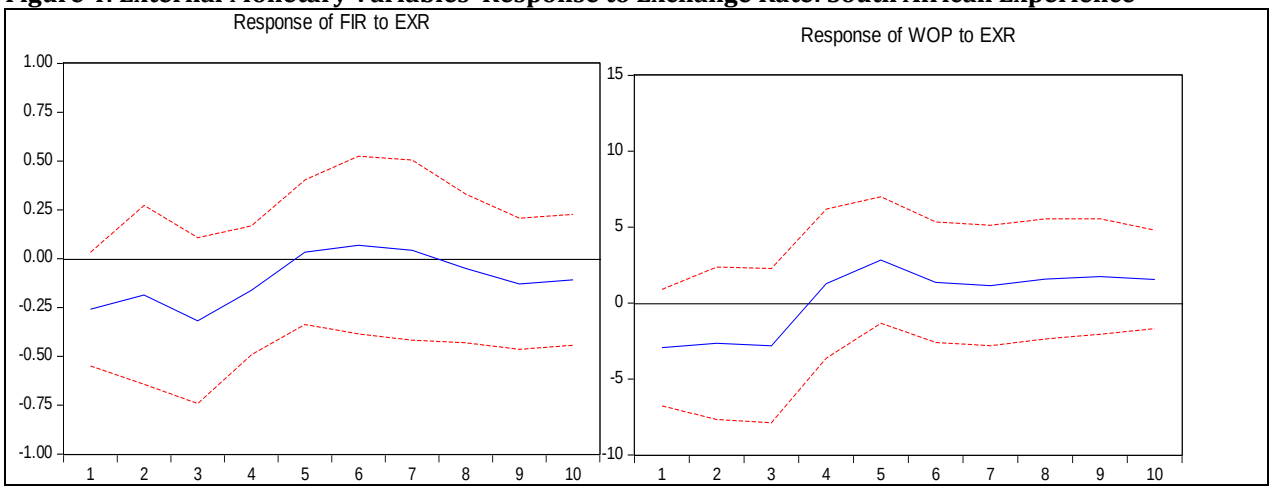


Source: Eviews 9.0

Vector Autoregressive (VAR) Impulse Response Analysis(South African Experience): The responses of South African internal monetary variables to exchange rate are presented in figure 3 showed that the standard-deviation shock of interest rate to the exchange rate displayed negative from quarter one to quarter five, and later oscillated to equilibrium at the end of quarter five, which became positive up to quarter eight, and began to decline negatively from quarters nine to ten. The implication is that the interest rate contributed both positive and negative movement to the exchange rate of South Africa during the study period. The

shocks from money supply to exchange rate depicts negative impact from quarter one to the end of quarter three, and then oscillated from the end of quarter three in a positive upward movement, and later declined from quarter seven. The internal CPI impulse to exchange rate is positive from quarter one to quarter three and declined negatively for a long period up to quarter nine – as shown in figure 3.

Figure 4: External Monetary Variables' Response to Exchange Rate: South African Experience



Source: Eviews 9.0

Figure 4 presented the external monetary variables such as foreign interest rate (FIR) and world oil price (WOP) deviations to exchange rate in South Africa. FIR standard deviation to exchange rate displayed negative at the beginning of quarter one to the early period of quarter five, then moved slightly positive to quarter eight, and later become negative during the study period. The innovation of world oil price to exchange rate was equally negative from quarter one to the end of quarter three, and which later becomes positive for a long period.

Table 2: Variance Decomposition of Exchange Rate to both Internal and External Monetary Variables (South African Experience)

Variance Decomposition of EXR:							
Period	**S.E.**	**EXR**	**INT**	**M2**	**FIR**	**WOP**	**CPI**
1	0.699882	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.816953	92.53086	2.060321	1.691963	0.000961	2.166514	1.549377
3	1.015057	60.24333	9.620399	9.710632	14.42054	3.850169	2.154933
4	1.116511	50.35770	11.77301	8.042135	24.65970	3.337064	1.830390
5	1.140234	49.14838	11.31041	8.121554	24.28023	3.224676	3.914761
6	1.210018	43.90796	13.70538	8.010205	24.10381	3.754758	6.517890
7	1.333268	36.35991	17.08134	9.573141	25.69135	4.031354	7.262901
8	1.440421	32.13672	18.43376	11.06706	26.57523	4.134054	7.653182
9	1.506760	30.69762	18.44839	10.95274	27.11435	4.373150	8.413747
10	1.548242	30.02874	18.10585	10.38856	27.73617	4.697809	9.042870

Source: Authors' computation (2017)

Variances' Decomposition (South African Experience): Table 2 (above) shows the variance decomposition of exchange rate to both the internal and external monetary variables utilized in the South African economy during the study period. In the short-run, apart from the own shock that is exchange rate, the foreign interest rate has the highest percentage (14.4%) of variance in the exchange-rate decision in South Africa. This is followed by money supply and interest rate which account for 9.7% and9.6% of variations respectively in the exchange-rate decision in South Africa during the study period. Also, world oil price and CPI are equally responsible for a 3.9% and 2.2% variation in exchange-rate decision in South Africa during the study period. In the long-run, the foreign interest rate accounts for 28% of variations, interest rate for18% of variations,

and money supplyfor10% of variations in the exchange rate. CPI accounts for 9% of variations in the exchange rate. World oil price is insignificant in the long-run – with only a 5% impact on the exchange-rate decision in South Africa during the study period.

Summary: This study focused on a comparative analysis of monetary policy shock and exchange rates in the two largest economies in Africa (Nigeria and South Africa). The rationale for this analysis was due to the realization that fluctuations in exchange rate through internal and external monetary policy innovations, took place in both Nigeria and South Africa. Based on the analysis, the South African foreign interest rate has higher variations in the short-run. This was followed by money supply and interest rate. The world oil price and CPI have lower variations in the short-run. In the long-run, the South Africa Rand in terms of other currencies shows that foreign interest rate equally has the higher percentage of variations to exchange rate, followed by interest rate and money supply – while CPI and world oil price have the lowest variations in exchange-rate fluctuations. The Nigerian analysis revealed that world oil price has the higher percentage of variations in exchange rate in the short-run, followed by foreign interest rate and interest rate – while CPI and money supply have lower variations to exchange rate in the short-run. In the long-run, world oil price also has the highest percentage influence on exchange rate, followed by foreign interest rate and money supply. Domestic interest rate and CPI had a lower variation to exchange rate in Nigeria during the study period.

5. Conclusion and Recommendations

The aim of this study is to make a comparative analysis of monetary policy shock and exchange-rate fluctuations, based on evidence from the two largest economies in Africa (Nigeria and South Africa). This study concluded that the external monetary variables employed in the study – world oil price and foreign interest rate contributed more impacts compared to internal monetary variables like money supply, interest rate and CPI. In South Africa, foreign interest rate acquired a higher percentage variation to influence exchange rate during the study period, while in Nigeria world oil price acquired a higher percentage of variations in exchange rate during the study period. Simultaneously, foreign interest rate equally controls higher variations in the long-run with the South Africa experience, while world oil price controls higher variations as far as Nigeria is concerned. It also concluded that Nigeria is a crude-oil exporting country which contributes largely to exchange-rate fluctuations – implies that the higher the cost per barrel of crude oil, the more foreign currencies Nigeria earns. However, South Africa is not a crude-oil exporting country and is rather an importing country. Furthermore, foreign interest rate contributes moderately in both countries in terms of exchange-rate fluctuations. The internal monetary variables equally contribute to exchange rate – but not significantly to influence the fluctuations in exchange rate. From the findings, it is therefore suggested that the monetary authorities and policy-makers in the two countries should encourage external currency flows of foreign interest rate and world oil price into the economy. It is equally suggested that the internal monetary variable particularly interest rate and consumer price index should be strengthened in order to avoid sudden movement of the country's currency in term of other currencies.

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Perceptions of the National Credit Regulator on the usefulness of the debt counselling process in South Africa

KH Masilo
Tshwane University of Technology, Pretoria, Republic of South Africa
masilokh@tut.ac.za

Abstract: The South African National Credit Regulator is responsible for the regulation of credit industry, registration and training of debt counsellors, enforcement and monitoring compliance of the provisions of the National Credit Act. The aim of this paper is therefore to analyse the perceptions of the National Credit Regulator on the usefulness of debt counselling process in South Africa. A qualitative approach, which was exploratory in nature, was adopted for this study. Ten employees from the National Credit Regulator's office were interviewed. There was no evidence that debt counsellors were managing the debt counselling service effectively. It was also observed that the debt counsellors received insufficient support from the National Credit Regulator. The paper recommends that the National Credit Regulator should adequately support the debt counsellors so that they can effectively manage debt counselling service and ultimately assist the over-indebted consumers. Debt counsellors training curriculum should also be outcomes- based approach with exposure to business management.

Keywords: *Debt counselling process, debt counselling course, National Credit Act, National Credit Regulator, South Africa*

1. Introduction

The expansion of consumer credit in South Africa started to be noticeable since 1968 and has been going on over the past years. According to Prinsloo (2002), from 1985, the importance of consumer credit changed substantially as several factors such as the high level of nominal interest rates, the depreciation in the value of the rand and adverse socio-political developments impacted negatively on consumer confidence and caused a slowdown in the expansion of consumer credit. Prinsloo (2002) further added that the net result of these developments was an increase in mortgage debt relative to total household debt, reaching a level of 53% in 1988. Excessive interest rates paid by borrowers have caused heinous socio-economic hardships and sufferings for low-income individuals and communities (Du Plessis, 2007). A high percentage of personal income is used to service micro-lending debt, leaving very little of borrowers' personal income to pay for other household expenses (Republic of South Africa, 2006). In addressing this problem, the government introduced the National Credit Act (NCA) No 34 of 2005. The main objective of the NCA is to promote a fair and non-discriminatory marketplace for access to consumer credit and to provide for the general regulation of the consumer credit (Republic of South Africa, 2006).

In support of the objectives of the NCA, the National Credit Regulator (NCR) was established in 2006 and it was tasked with the regulation of the South African credit industry. The main responsibilities of the NCR included carrying out education and awareness of the NCA; consumer protection; registration and monitoring of credit providers, credit bureaus and debt counsellors; receiving and investigating complaints of the consumers and ensuring that consumer rights are protected. This paper aims to analyse the perceptions of the National Credit Regulator on the usefulness of debt counselling process in South Africa. The research focused mainly on the analysis of the reflections of the NCR's perception about the debt counsellors' practices. The rest of the paper covers the literature reviewed, research methodology, findings and conclusions, recommendations, and the limitations of the study.

2. Literature Review

The National Credit Regulator was established following the introduction of the National Credit Act No. 34 of 2005 (NCA) and it is responsible for the regulation of the South African credit industry. It is an independent juristic body that is subjected to the South African Constitution and the NCA (Debt Counselling Help South Africa, 2009). Currently it (NCR) has only one main office, which is located in Midrand, Gauteng Province in South Africa. The NCR is tasked with carrying out education and creating awareness of the NCA, which

includes conducting research about the credit market and monitoring access and the cost of credit in order to identify factors that may undermine access to credit (Republic of South Africa, 2006). NCR is also responsible for competitiveness and consumer protection; policy development; registration, training and monitoring of credit providers, credit bureaus and debt counsellors. In addition the NCR is tasked with regulating, receiving and investigating complaints of both the debt counsellors and the consumers and ensuring that consumer rights are protected.

It is also required that the NCR investigates reckless lending, all alleged contraventions of the NCA and the conduct by any of the registrants (debt counsellors, credit providers and credit bureaus) and to refer unresolved matters to an Ombud with jurisdiction if necessary (Debt free magazine, 2016). Debt counselling was introduced in 2007 to provide a definite process for helping consumers who are encountering problems with their debt repayment (NCR, 2010). It provides a consistent system of debt restructuring, enforcement and judgment, which places priority on the eventual satisfaction of the consumer's obligations under the credit agreements (De Wet, 2011:1-2). A consumer who is experiencing debt repayment problems may seek debt restructuring assistance by applying for debt counselling service at any debt counsellor of his or her choice (Debt Counselling Help South Africa, 2009).

Before debt counsellors begin their operations, they are required to undergo a two-week training approved by NCR (Vessio, 2008) and to register with the NCR. According to Sigamoney, Linganiso & Karodia (2014), training provides skills and confidence to perform tasks and as such trained debt counsellors will be in a better position to understand their responsibilities. The debt counselling training comprises of the following:

- Purpose and elements of the National Credit Act
- All credit related Acts
- Consumer rights
- Reckless credit and its consequences
- Role of debt counselor
- Debt counseling process
- Compliance with the NCA
- Business ethics
- Role of the NCR (Summitfin, 2014).

Since its inception, debt counselling process has been plagued with challenges and obstacles. The challenges differ in terms of the capacity of debt counsellors and the levels of satisfaction of the stakeholders Groenewald (2010). In assessing the preparedness of the debt counsellors before they start with debt counselling process, Groenewald (2010) launched an intensive study to determine the competency requirements and the skills needed for the debt counsellors. The findings revealed that some debt counsellors were incompetent. They lacked integrity and knowledge of financial management as well as knowledge of credit legislation. The current levels of competencies of debt counsellors; education; expensive legal fees; poor cooperation between credit providers and debt counsellor; and experience in the debt counselling service have been identified as some of the barriers for effective debt counselling process and as such most debt counsellors are no longer practising (Fin24.com, 2013). Masilo (2014) alluded that many debt counsellors trained and registered by the NCR were no longer practicing because they believed that the debt counselling was not financially feasible. The report by the Trade and Industry (Dti, 2013) indicated that by the end of 2013, a total of 2013 debt counsellors were registered with the NCR in South Africa, however, not all of them were practicing. The report further indicated that South Africa had a total of 422 624 consumers who applied for debt counselling in 2013 (Dti, 2013).

In an effort to provide guidance and support and as part of its mandate to support and promote debt counselling, the NCR conducted 573 monitoring exercise road shows during 2012/2013 financial year (NCR, 2013). The purpose for the monitoring was to assess compliance with the NCA. In addition Dti (2013) indicated that NCR conducted only six provincial debt counselling workshops or road shows in Gauteng, Eastern Cape, Free State, KwaZulu- Natal, Limpopo and North West. Subsequent to the road shows conducted, Fin24.com (2013) confirms that the registration of two debt counsellors were cancelled by NCR after an investigation into their activities and levels of compliance to the NCA proved to be irregular. In assessing debt

counselling processes in South Africa, Business Enterprise –UP (2012) conducted a survey and revealed that the two week course that debt counsellors undergo, is only based on the theoretical issues of debt counselling, and does not empower debt counsellors to deal with complex administrative tasks; management of the consumer's file and management of consumers with financial difficulties. In addition, the debt counsellors' lack of commitment and understanding or knowledge about the process and credit were also indicated as a challenge (Business Enterprise – UP, 2012). In 2014, Masilo conducted a study to determine the debt counsellors' level of preparedness and experiences they had with the regulation and monitoring by the National Credit Regulator. The findings revealed that some debt counsellors were incompetent and lacked integrity and ability to interpret the NCA (Masilo, 2014).

According to Masilo (2014), debt counsellors were also aware and expecting that the National Credit Regulator has to ensure and monitor their performances. By monitoring the debt counselling processes, the National Credit Regulator would be able to identify areas of non-compliance and to provide support to the debt counsellors. When non-compliance is identified, such cases should be escalated to the National Credit Regulator's investigations department for an investigation in order to prosecute (Masilo, 2014). The survey used open-ended questions which allowed for multiple responses, and as many as twelve (12) experiences were shared (quoted verbatim) by the debt counsellors as listed below:

- The NCR takes a long time to process transfers of consumers from one debt counselor to another;
- The service they receive from NCR staff is sometimes poor;
- There is no uniformity in terms of how the Magistrate courts operate, they operate differently from one court to the other;
- Poor co-operation between debt counselors and credit providers;
- The NCR dictates how debt counselors should run their businesses;
- Clients struggle to receive clearance certificates because they still have home loans;
- Lack of debt counseling information and education;
- The NCA is unjust to debt counselors, credit providers do not comply but nothing is done;
- Insufficient monitoring by the NCR;
- Lack of NCR's involvement in attending to problems with certain credit providers;
- Insufficient support in terms of problems and queries that they raise with the NCR; and
- Credit Industry Code of Conduct created uncertainty for debt counselors (Masilo, 2014).

Some of the examples of the incompetency of the NCR are highlighted by the South African media. The following are some of the reported examples:

- The NCR had to answer questions before the members of the South African Parliament portfolio committee over the perception that it was not doing enough to bring the transgressors of the NCA to book (Arde, 2016).
- According to (Arde, 2006), the Summit Financial Partners (The Summit) filed a complaint with the South African Public Protector against the NCR. The Summit indicated that the NCR has failed to promote and support the development of effective and accessible credit market as mandated by the NCA.
- In addition, the NCR admitted that it was aware of the misconduct by African Bank, and took no action, despite numerous complaints by consumers and the debt counselors. Action was only taken after the African Bank disclosed and admitted to breach of the NCA. The contravention of the NCA by the bank started in 2011 and it stopped to operate in 2014 (Debt free magazine, 2016).

It is indicative from the above findings and reports that debt counselling faces challenges regarding: inadequate training of debt counsellors; poor cooperation by the credit providers; inability to interpret the NCA, insufficient monitoring, regulation and support from the National Credit Regulator as mandated by the National Credit Act.

3. Methodology

This investigation is qualitative (Gummesson, 1988) and has focused on the National Credit Regulator's perceptions on the debt counselling process in South Africa. The research approach adopted in this study

followed purposive interviews with all ten officials in the debt counselling department from the NCR's offices in Midrand, Gauteng Province in South Africa. These interviews were conducted in one day. According to the analyses, and also following Klein's, (2007) paradigm on investigative interview questions, the questions for the interviews for the ten employees of the NCR were similar and, the responses were also identical with just a few differences. The investigation exposed various causes of the debt counsellors' incompetency and the challenges that debt counsellors face. In highlighting the problem and arriving at the findings, the outcomes emerging from the interviews were then contextualized with the argument to this paper through literature review (Gainer and Padanyi, 2005).

Research Approach: The qualitative approach was adopted mainly to investigate the perception of the NCR on debt counselling process. The interview questions revolved around debt counselling objective and applications; qualifications and prerequisite for a person to become a debt counsellor; effectiveness of debt counselling, interventions and support that NCR gives to the debt counsellors. After the interviews with the employees, the responses, as indicated, were analysed (Griffin and Roberts, 1999). Responses which were analysed to have been similar are reflected with some differences in the findings. It is these differences upon which the brief report that follow is based. These are taken as the reflection of the National Credit Regulator's perceptions on the debt counselling processes.

Reflections from the NCR

When asked about the purpose or objective of introducing debt counselling, the following emerged:
The objective was to assist over-indebted consumers. Before debt counselling, there were two remedies that is; administration and sequestration measures which had limitations, and were also not effective to assist consumers.

When asked how many debt counsellors were registered and still practicing the following emerged:
Records indicate that there are 2013 registered debt counsellors, but not all of them are practicing. There has been a decline in terms of numbers of applications for debt counselling also.

Asked about the qualifications and the prerequisites of debt counsellors, they said:
For a person to be registered as a debt counsellor, one needs to possess a minimum of a matric qualification. In addition, the person must attend a two-week debt counselling course which is offered by the National Credit Regulator.

When asked if debt counselling is known to consumers, they indicated that:
The National Credit Regulator is making sure that it conducts road shows to inform consumers about the services that the debt counsellors are offering. Most road shows are conducted in Gauteng Province.

When asked why road shows are mostly held in Gauteng, they indicated that:
The National Credit Regulator had joined the Department of Trade and Industry in their outreach initiatives because they were having challenges in reaching out to communities in rural areas. We are now able to reach communities in other provinces.

When asked about any interventions that they put in place to assist debt counsellors in assisting over-indebted consumers, this is what they said:
The National Credit Regulator had been collaborating with the South African Police Service (SAPS) and the South African Social Security Agency (SASSA) to monitor illegal credit provision and subsequently illegal credit providers have been arrested.

When asked if NCR has follow-up mechanisms that they use on practices of the debt counsellors, they indicated as follows:
There are mechanisms like the regular visits that the Regulator does. The National Credit Regulator conducts regular workshops for debt counsellors; in addition, regular communiqués to debt counsellors are issued.

When asked about the other offices they have other than the one in Midrand, Gauteng Province, they said:
Currently, the duties of the National Credit Regulator are only conducted in Gauteng Province. The National Credit Regulator' staff in the company of the Department of Trade and Industry does conducts workshops at various provinces from time to time.

When asked if NCR give support to the debt counsellors, here is what they unwrapped:
The National Credit Regulator does support debt counsellors by monitoring, holding workshops where various stakeholders are invited.

4. Findings and conclusion

The reviews of literature and the purposive interviews have both been described above. What emerged from the descriptions of both phenomena will now be discussed. It was noted that some of the registered debt counsellors have stopped practicing and not many people are applying to become debt counsellors. People need Matric certificate and a two-week debt counsellors' course to be registered as a debt counsellor. Debt counselling service is not effectively performed due to lack of professional integrity, incompetent debt counsellors, and lack of sufficient support from the NCR. The findings pointed out that debt counsellors were not adequately trained; the NCR does not act instantly to complaints raised by debt counsellors; the regulation, monitoring and support from the NCR is insufficient, and as such there is no proper monitoring on the debt counsellors as mandated by the NCA. The visits, road shows and communiques conducted by the NCR are insufficient as they do not reach all debt counsellors across South Africa, particularly in rural areas. Most road shows are conducted in Gauteng Province. Furthermore, NCR takes long in responding to problems and queries raised by debt counsellors against credit providers.

5. Conclusion and Recommendations

The main purpose of this paper was to analyze the perception that the National Credit Regulator has on the usefulness of debt counseling process within the South African context. Based on the findings and the conclusions, the paper recommends that the NCR should review the prerequisites for and the qualifications for people to register as debt counselors. In addition, the NCR should in consultation with accredited trainers; upgrade the content of the debt counselors' training manuals. Furthermore, an occupational curriculum for debt counseling profession and the credit industry be designed. This curriculum should mainly focus on the critical competencies for the debt counselors to enable them to perform tasks as required by the NCA. A more outcomes- based approach with exposure to business management may alter the situation. Arrangements can be made with accredited institutions of higher learning that offers business management courses. This will eradicate the registration of incompetent debt counselors. Furthermore, during such training sessions, prospective debt counselors should be subjected to assessment criteria and be granted with either a competent certificate or an advanced certificate prior to their registration.

The NCR should arrange road shows in all provinces to educate consumers about the dangers of incurring unaffordable debts. The NCR should also make consumers aware of the existence of debt counsellors and the services they offer. The NCR should appraise the outstanding performances of various debt counsellors so as to encourage excellence. These performances can be made public on the debt counsellors' regular newsletters in order to motivate other less-performing debt counsellors. South African media can also be used to announce regular outstanding performances of debt counsellors. This will stimulate recognition of debt counsellors and performance will therefore be improved. It is also recommended that NCR should establish and open satellite offices around all nine provinces of South Africa, not only to deal with extensive duties conferred on it by NCA, but also to deal with administrative matters arising in each province, especially in the light of provincial demographic variance. Following from the performance appraisal recommendation, the external monitors who will evaluate and report on the services of the debt counsellors should be appointed. The NCR should also make the reports public, so that each debt counsellor can be aware of how his or her counterparts perform. This would encourage efficient service provision.

Limitations of the study: Limitations are matters and occurrences that arise in a study and which are not of the researcher's control (Simon & Goes, 2013). Limitations influence the extent of the study and it also affect the end result and conclusions that the researcher can take.

Population: The study was limited to the National Credit Regulator's staff. Only ten staff members were interviewed.

Reported data: The researcher interviewed NCR staff members and relied on the information gathered. Unfortunately some of the information cannot be verified and it can have elements such as the following:

- Selective memory - remembering or not remembering experiences or events that occurred in the past;
- Attribution - attributing positive events and outcomes about their own services and attributing negative events and outcomes about other stakeholders; and
- Exaggeration of responses.
- The researcher is of the opinion that the findings of this study could be used for further study.

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Human Capital, Higher Education Enrolment and Economic Growth in the SSA Countries (Panel Model Approach)

Akinola G. W.*, Bokana K. G.
College of Law and Management Studies, University of KwaZulu-Natal, South Africa
214585066@stu.ukzn.ac.za*, bokanakg@ukzn.ac.za

Abstract*:* This study offers exploratory analysis on the relationship among human capital, higher education enrolment and economic growth in SSA countries. With data from twenty-two African countries across the four economic blocs, five variables which include human capital formation, capital stock, employment rate, total factor productivity and higher education enrolment were regressed against gross domestic product per capital. Panel analysis which includes fixed and random effects analyses were carried out. We report results from fixed effect (within) regression as Hausman test suggests. It was discovered that SADC countries perform better among the four economic blocs. To further study individual country specific effects, we employ least square dummy variables (LSDV). Sixteen countries out of twenty-two exhibit specific effects. Our findings revealed that enrolment rate of higher education in SSA have a very weak relationship with economic growth in the SSA countries. This reflects why there is a weak relationship between economic growth and the total factor productivity and consequently negative consequential effects on our total factor productivity. The main policy implication is that for SSA countries to maintain sustainable economic growth, home based human capital must be given a priority in the form of increased higher education budget and financing.

Keywords: *Economic growth, Sub Sahara Africa, Human Capital, Higher Education Enrolment*

1. Introduction

Among the macroeconomic theories, of prominence is the priority placed on the concepts of human capital and sustainable economic growth, this is because these concepts greatly and directly affect the pattern of living of the population and the total wellbeing. From the Sub-Saharan African (SSA) countries experience, according to the World Bank (2008), it is obvious that a nation may have a sustainable growth rate in an economy resulting from physical capital such as equipment, land, raw materials, macroeconomic stability, restructured market imperfection, the removal of trade restriction, integration into global demand and natural resources based products, without having substantive productivity and the ability to sustain it over a giving period of time once the propelling force behind it is not an indigenous human capital (Fleischhauer, 2007). Fitzsimons (1999) argued that human capital acts as a framework for instituting government policies. It is the driver of basic economic activity. Human capital is at the center of any national technological advancement, any productive effort and any meaningful innovation. A nation without trained human capital would be marked with poverty, inequality, low health care, short life expectancy and subsistent livelihood. Developing economy is faced with different economic problems which are directly linked with fluctuations in the major macro-economic variables (Nnanna, Alade, & Odoko, 2003). The tendency of establishing or finding the correct relationship among the major macro-economic variables such as gross output (GDP), gross capital formation, savings, exchange rate, inflationary rate, employment rate, to mention a few, and their right applications in policy implementation has been the secret of sustainable economic growth of many developed economies which is a reflection of the trained human capital in that economy.

According to Amir, Mehmood, and Shahid (2012), the best choice available for sustainable economic growth is home based human capital. Economic experts are consenting to the fact that it is advancement in productivity that really determine long-run per capital growth rate. Investment in factor input and growth rate in employment can, to a degree of confidence, expand productivity. With efficient allocation of factor input, it is expected that productivity should grow. Investment in education and human capital are the major determinants of productivity growth (Verbic, Majcen, & Cok, 2009). Having known that human capital is so important, investment into it is germane and will be the secret of prosperity of any nation, and no investible fund spent in the right direction on education will be seen as a wasted effort. Investment in human capital leads to future streams of benefits and real earnings, which positively affects the economy even beyond the initial capital invested. Education is the institution from which human capital is raised.Hassan and Ahmed

(2008)take a critical look on education from micro concept as giving privileges to individual skills acquisition whereby an individual becomes highly wage competitive; he is given room to stock of knowledge and potentials by which complex and sophisticated task is performed thereby leading to specialization. With education, most recent advancement in technology and productive activities becomes easily adaptable; entrepreneurial skills and mobility of labor is easily carried out in a more advanced ways. Education aids both personal national propensities to save by raising human capital accumulation. In addition, countries' population dependency burden is reduced to minimum level, and builds up an appreciable physical, investment and productive capability.

There is a relationship between economic growth, the level of education and human capital. Between 1980 and 2000, SSA countries witnessed low economic growth and made little progress in raising their levels of education and this low level of education will be evident in the poor performance of human capital formation(Glewwe, Maiga, & Zheng, 2007). Record from World Bank data estimated that between that same period the Sub-Saharan Africa countries' average growth rate in GDP per capital was -0.6%, 3.6% for South Asia, in Latin America it was 0.5%, for East Asia it was 4.9%, Middle East was 1.2% and, it shows the reasons why SSA countries are economically backward. The nation's population level of educational achievement will steadily reveal and reflect the knowledge, skills, and the level of economic freedom enjoyed. The level of educational attainment that is closely linked with improvement in human capital is the higher education. The role of higher education in development and growth is already drawing a worldwide knowledge-based competitive attention within the economy setting (Bloom, Canning, and Chan, 2006). Higher education in the past was often seen as a highly-priced and unproductive public service that was mostly enjoyed by the wealthy and privileged. In recent time, it has been discovered that higher education necessarily contributes to nation building, especially alongside with other variable inputs to the success of national efforts to boost productivity, competitiveness and economic growth. A critical look from this direction indicates that higher education ceases to compete with primary and secondary education during policy implementation. Instead, to boost innovation and performance across economic sectors, it becomes an essential complement to educational efforts at other levels as well as to national initiatives.

Corazzini, Dugan, and Grabowski (1972) says that it is usually argued that higher education makes available highly skilled human capital that is required to build the advancement in technology of the community and it is expected that the general benefits be increased especially due to abundance of the knowledge provided by the higher education sector. According to Chaudhary, Iqbal, and Gillani (2009), higher education has become crucially significant in an age when intellectual resources and asset is progressively more appreciated and valued, both for individuals and nations,. It can create essential thinkers and innovators as well as strong conversant and engaged society, provides a high standard of living and social mobility, battle with present democratic renewal and health services as well as public policy challenges. Moreover, previously incurable diseases has been battled by the world's higher education institutions and universities through research driven activities, and the fortunes of cities, regions and even nations have been shaped through the provision of facilities for innovative business ideas and political theories. According to Okebukola (2008), for a dynamic economy and enduring speedy societal transformation, higher education provides high level of human capital. It shows that, the more liberal the prospect for rapid social and economic development the greater the opportunity given to the citizenry for higher education. The prospect is in the structure of the higher education participation rate, which according to him is the share of 18-35 years age group that is enrolled in higher education.

When compared with the past, SSA countries witnessed 6% increase in GDP between 2002 and 2007 as a result of a number of factors including improvement in the macro-economic stability, restructured market imperfection, removal of trade restrictions and integration of natural resources based products into global demand. If SSA countries are to maintain and stimulate this rate of growth, a remarkable improvement of investment in higher education (human capital) and physical capital sustained over a given period of time is indispensable. World Bank (2008) suggested an urgent need for countries in SSA to attain the ladder that will generate latest industries, which will in turn, enhance more productive activities, provide numerous opportunities and more exports promotions, improve managerial and technical expertise in order to maintain the benefits obtained from investment in physical assets such as infrastructure and productive facilities, institutions and human capital.Tilak (2005) argued that enrolment in higher education is relatively small in

context with the overall secondary school leavers, level skill acquisition is relatively low, and its value is greatly inconsistent. Initial report from World Bank Millennium Development Goal seems not to be favorable to funding of the Sub- Saharan African countries' higher education. This was premised on the reason that the gains and privileges offered by higher education is more of private return than social return to the state at least at the short-run.

Again, primary education was the main argument submitted at The Dakar summit on "Education for All" in 2000 as pivot upon which an expansive social wellbeing of the citizens revolves. The fact that less attention was given to higher education adversely affected the priority given to it during consideration for national policy and this set back suffered by higher education was due to the fact that the empirical evidence on the roles it played in nation building, reduction in poverty and economic growth has not been properly established. Friedman and his wife Rose once argued that higher education can stimulate social disturbances and political insecurity and that there were no convincing facts to show that higher education provides social returns beyond the opportunities enjoyed by the beneficiaries themselves (Tilak, 2005). The unquestionable acceptance of the above has led into relative abandonment of higher education (Bloom et al., 2006), as the bias the international development community has on the preference for more attention on primary and secondary education has attendant negative effects on the low consideration given to higher education by governments of SSA. 17 per cent of the World Bank's global education-sector expenditure was on higher education between 1985 and 1989, compared with 1995 to 1999 when the amount apportioned for higher education reduced to 7 per cent. Despite this reduction, the social expenditure by the SSA government also reduced, to even sustain the existing low levels of enrolment became difficult as was evidenced in the academic research output in the region being among the lowest across the globe.

It is amazing that SSA countries accounting for more than 11 per cent of the population of the world (720 million) could have only 3 per cent (4.5million) of the student number in higher education. The gross enrolment ratio was barely 6 per cent as against 70 per cent in the high income countries of the World. From the 4.5 million, Nigeria has 1.5 million and South Africa 0.7 million. In several nations, such as Tanzania, Chad, Malawi, Central African Republic and Niger, the enrolment in higher education ranges between 2 percent or even lower in 2010 (Bloom et al., 2014). Some countries like Congo, Angola and Somalia seems to have a decline in their university-level institutions over the years (Tilak, 2011). Again, in contrast to the earlier view of argument against higher education on government funding, some of the outcome of recent research revealed that higher education is a determining factor as well as the engine to economic growth. This is because it can boost national productivity and can generate private and public benefits. Higher education has the potentials of increasing savings and investment, and builds up tax revenue for government, thereby leading to a society with more entrepreneurial skills. It can proffer solution to the problem of population growth in the region, develop home based technology, improve a countries' health, and promote good governance.

When measuring some of the advantages attributed to the benefits coming from higher education for a country's economy, many researchers attributed India's giant breakthrough into the global economic arena as a product of her decades of long thriving hard work to promote super technically endowed higher education to a considerable number of her populace (Bloom et al, 2006). The extent of the priority of higher education to countries' growth in the economy as it affects SSA countries has not been significantly and empirically verified. The outcome of findings across literatures on the relationship among human capital, economic growth and the level of higher education enrolment are quite mixed. While some have positive relationship, some are found to have negative relationship. Examples of such are Nurudeen & Usman, (2010) and Belgrave & Craigwell (1995), whose empirical findings showed that there is a negative impact that higher education human capital has on economic growth. To the peculiarities of individual countries in the SSA, this mixed empirical evidence is more chronic requiring further investigation. Some literatures approach such relationship without empirical analysis (Tilak, 2011), while others used divers variables which may not really hit the nails on the head; few of such researchers include Adawo, (2011); Bergh & Fink, (2008); Sojkin, Bartkowiak, & Skuza, (2012); Barro (1996); Chowdry, Crawford, Dearden, Goodman, & Vignoles, (2008); Tilak, (2011). Bloom et al. (2006) acknowledged the peculiarities of Sub-Saharan Africa and advocates further research.

In recent years, attention of most monetary organizations such as the World Bank, International Monetary Fund and other governmental aid supporters seems to be shifting away from the exclusive priority giving to primary education and are beginning to show concern to secondary and higher education, striking a balance among the three levels of education and their roles in growth promotion and reduction of poverty, which brings some rays of hope to higher education in SSA. The fact that some countries of the SSA are now putting policies in place to encourage higher education systems is worthy of our commendation. But when compared with the achievement made so far with other regions across the globe, the efforts here are still negligible. This low effort is a product of low knowledge of the significant positive effect that higher education has on the SSA economy. These policies in each country need not to be subjective but rather empirically supported as this will heighten their sense of commitment as hitting the ball on a target goalpost. The purpose of this research work is to empirically establish that human capital through higher education enrolment in SSA is one of the important determining conditions for individual country's economic growth. This study seeks to determine the relationship among human capital, higher education enrolment and economic growth in the various economic blocs of the SSA countries. We shall achieve this as we determine the relationship between human capital, higher education enrolment and economic growth in the various economic blocs of the SSA countries as well as evaluate the possible spill-over effect resulting from the relationship between human capital, higher education enrolment and economic growth in the various economic blocs of the SSA countries.

The dynamic nature of the world economy is sending red alert as it is creating wider gap to SSA economy which calls for urgent attention. The gap cannot be unconnected with shortage in the required human capital available in sufficient quantity as to commensurate with the demand for productivity, competitive labor market in SSA countries. The major problem confronting SSA countries is the low enrolment rate in higher education (which remains the lowest in all regions of the world) and this low enrolment rate is visible in the low human capital available in its economies. The role of higher education as a link between human capital, the labor market and the economy has been empirically verified in literature. The right application of this empirical evidence is a reflection of progress witnessed in the developed nations of the world. The marginal gap between the developed nations and the developing economy of the SSA countries is an indication that the outcome of the empirical findings which has been used for the developed nations needed to be developed, and probably modified also, to suit the SSA economies. Going by the current population growth rate in the region, we hypothesized that what percentage of student enrolment would ensure human capital that would measure up to the required challenge in the economy of the region? This question is of great importance to the success of this study. The objective of this study is to analyze the impact of higher education human capital on the economic growth of the SSA countries.

2. Human Capital, Higher Education Enrolment and Economic Growth Relationship

Endogenous growth theory originated from Lucas (1988) and Romer (1986), and argues that the absorption of new accumulation of innovation and knowledge will generate self-induced growth in the economy, causing growth patterns to be divergent. The growth theory postulates that, for positive long run sustenance of the growth rate per capita to be achieved, consistent new processes and advancement in technological knowledge is required. If technological progress halts, diminishing returns set in. This causes economic growth to cease (Aghion, Howitt, Brant-Collett, & García-Peñalosa, 1998; Lucas, 1988). This proposition has drawn the attention of scholars across the field of economics, which gave birth to endogenous growth theory. For instance, while adopting the Cobb Douglas production function, in his model, Mankiw et al. (1992) argued that the neoclassical model is sufficient to account for differences across countries' economic growth paths, if an expansive view of capital which takes physical and human capital into account is adopted. However, since it takes technological progress which is a fundamental determinant of the growth process as exogenous, (Aghion et al., 1998) argued that the model lacks the capacity to account for the persistent growth rate of each country. Although many factors have been identified that determine economic growth, human capital is fundamentally unique (Barro, 1996; Mankiw et al., 1992; Hanushek & Kimko, 2000). The importance and uniqueness of human capital as a growth factor is premised on the fact that, its skills determine growth in productivity(Verbic et al., 2009). Again, among those factors that determine human capital, education is germane (Glewwe, Maiga, and Zheng, 2007; Hassan and Ahmed (2008). There are diverse views on which education sector has the greatest impact on human capital. While Okebukola (2008), Corazzini et al. (1972), and Chaudhary et al. (2009) argued that higher education creates the highly skilled human capital that is

required to build advancement in technology, Anyanwu & Erhijakpor, (2007) cited primary and secondary education as the major determinants of human capital. Among the proponents of higher education as the determinant of human capital, there is generally no acceptable measure of such capital. While Zivengwa (2006); Barro (2001) and Mankiw et al. (1992), among others,used the enrolment rate as a proxy for human capital, they failed to account for dropout rates. Researchers such as (de La Fuente,&Domenech 2011) and(Barro & Lee, 1993)used school attainment while the $H = e^{\eta(s)}$ in Mincer's macro equation represents human capital where (s) represents year of schooling. This leads us to empirical works by scholars on this concept.

The growth accounting method was used by Matsuschita et al. (2006) to consider the impact of education to growth in Australia over the period 1969-2003. The study also regressed on the impact of total factor productivity to growth. It was discovered that per capita real GDP in Australia was raised by 1.9 percent annually, from which about 31 percent was impacted by education. The outcome of the finding has significant implications for Australia's policy makers. For example, access to post compulsory education is a function of promoting economic growth in the years ahead, Australia's vocational training, education and higher education becomes cheaper and easier. This finding is opposed to extant trend of government policy towards increasing the student share of the cost on education. Chaudhary et al. (2009) used Johansen co-integration causality approach in Vector Autoregressive (VAR) framework to estimate the long-run contribution of higher education on the economic growth Pakistan. The result confirmed that there is a long-run relationship existing between higher education and economic growth in Pakistan. The result confirmed that that there is a unidirectional causality running from economic growth to higher education and no other direction of causality was discovered among the variables. Anyanwu and Erhijakpor (2007) used panel data analysis to estimate the contribution of government expenditure on education enrolment from four African SANE countries. SANE here represents Algeria, South Africa, Egypt and Nigeria. The research work centred basically on primary and secondary education and the results showed that government expenditure on education impact positively on both primary and secondary enrolment with Nigeria recording the greatest impact. Democracy index and urban population were included as these variables were found to have direct impact on both education spending and education capital. The work also suggested that policy intervention program which will enhance a sustained democracy and other international aid support program will be required for African countries to attain the millennium development goals. Olawumi Ogungbenle and Obasuyi (2013), making use of OLS and annual time series data from 1977 to 2007, examined social spending on education and health as catalysts to economic growth in Nigeria. It was found out that both variables impact positively on economic growth. However, the impact of education appears to be stronger than that of health on economic growth. It was therefore recommended that health and education should be priories to optimize national growth.

3. Methodology

Model Specification: We augment Cobb Douglas' production function for labour input effectiveness, where labour force combines with level of human capital (Bloom et al, 2014; Holland, Liadze, Rienzo, & Wilkinson (2013).

$$Y_{it} = A_{it} K^{\alpha}_{it} (L_{it}V_{it})^{\beta} \quad \text{..... (3.1)}$$

where

Y_{it} =Total output in country i at time t.
A_{it} =TFP in country i at time t.
K_{it}= Physical capital in country i at time t.
L_{it} = Labour force in country i at time t.
V_{it} =Level of human capital per worker in country i at time t.
$(L_{it}V_{it})$ = Labour input effectiveness
α and β = partial elasticity coefficient of output with respect to physical and human capital in country i at time t.

To disaggregating V_{it} into:

$V_{it}= (N_{it}\, G_{it})$ .....(3.2)

The multiplicative function is consistent with the work of Holland et al. (2013); Adawo (2011) and Mankiw et al. (1992) where labour is disaggregated into various types of labours in its multiplicative form and we include higher education enrolment, and higher education output to control for dropout rate. Again, higher education enrolment, initial level of education and level of school attainment is used to proxy human capital (Zivenqwa, 2012; Barro, 2001).

Where
N_{it} = Enrolment in higher education in country *i* at time *t.*
G_{it} = Output from higher education in country *i* at time *t.*

$Y_{it}= A_{it}\, K^{\alpha}_{it}(L_{it}\, N_{it}\, G_{it})^{\beta}$.....(3.3)

To take the log of Equation (3.3)

$log\ Y_{it}= log\ A_{it} +\alpha\ log\ K_{it}+\beta(log\ L_{it}+log\ N_{it}+ log\ G_{it})$ .....(3.4)

In summary, the production function aggregate when linearised can be expressed thus:

$logY_{it}= log\ A_{it} +\alpha\ log\ K_{it}+\beta log\ L_{it}+ \beta log\ N_{it}+ \beta log\ G_{it}$.....(3.5)

We introduce $\varepsilon_{it,}$to capture the unexplained phenomenon(random shock) which was not captured in the adjustment process.

$Y_{it}= logA_{it} +\alpha logK_{it}+(\beta logL_{it}+ \beta logN_{it}+ \beta logG_{it})+ \varepsilon_{it}$.....(3.6)

The $y_{it,}\ k_{it,}\ l_{it,}\ n_{it,}\ g_{it,}$ are the logs of $Y_{it,}\ K_{it,}\ L_{it,}\ N_{it,}\ G_{it,}$ respectively.

The equation reveals that output depends on enrolment in higher education, higher education output, labour and stock of capital.

For output (y_{it}),we use the logged difference of per capita GDP at constant 2005 national prices as the dependent variable for country *i* in period *t* to ensure the growth rate.

Capital stock (k_{it}) at current PPPs (in millions 200US$) is used as proxy for physical capital. For labour force (l_{it}), employment rate is used to capture the number of persons engaged (in millions),enrolment rates shall proxy higher education *enrolment* (n_{it}), completion rate shall higher education output (g_{it}) for country *i* in period *t*.TFP (a_{it})for country *i* in period *t* is supplied in our data, (ε_{it}) denotes the error term while α and β are coefficients of estimation**.** Our expectation from a priori theory in production function is that $a_{it,}\ k_{it,}\ l_{it,}\ n_{it,}$ $g_{it,}$ must be positively signed (Mankiw et al., 1992; Anyanwu and Erhijakpor, 2007).

Data Sources: We employed data for Sub-Saharan African countries covering the period 1980–2013. Most secondary data required for this study are readily available and were sourced from the World Development Indicators database of the World Bank and Penn world Table 8.0.We are constraints to adopt data from 1980 to 2013 because of the choices of our model and to control for omitted variables.

Justification for the Methodology Adopted: Clarke et al. (2010) argue that the action of Fixed and random effects models is done to eliminate biasness of omitted variable as it quantifies changes within group. The within group measurement (across time) control for a number of potential omitted variables peculiar to groups. Inference is the key issue differentiating Fixed Effects from Random Effects. Since fixed-effects estimator could only control for inferences about the group of measurements. On the other hand a random-effects estimator permits inferences on issues about the population upon which sample is drawn. If there is large enough size effect on the concept relative to the variance between the chosen concepts, one can be

assured that sampled population would exhibits that effect. Premise upon this argument, we have chosen fixed and random effects estimator to investigate the human capital education variable and the corresponding effects on SSA economic growth. We are constraints to limit our analysis to panel approach static modal as the result is sufficient to justify our expectation in some sense while problem on endogeneity is remains unaccounted for in this study.

4. Results

In this section, the data from twenty-two countries containing all the expected variables have been pooled together. Panel analysis which includes fixed and random effects analysis had been conducted in this section. This is done to allow the analysis emerge with the estimate that is both consistent and efficient. Diagnostic test on Hausman test was carried out to know which of the fixed or random effects is preferred for the study in other to verify the existence of serial correlation, the test on autocorrelation was performed. We begin the analysis of panel models which comprise of both the fixed and random effects with the estimation and interpretation of the analysis, while Tables 3 and 4 contain the estimated fixed effect within regression and random effects regression results respectively.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Gdpna	748	24372.99	57999.86	1051.9	399522.6
Emp	748	4.072266	4.515062	.1768752	22.09982
Pck	748	51514.77	127119.2	954.1815	978322
Hee	748	187.381	4993.468	.01068	136574
Ctfp	748	.3973829	.2882075	.0731556	3.071847
humcap	748	1.801425	.4568992	1.090541	6.682602

Source: Author's Computation

Summary Statistics Results: Table 1 reports the baseline results of the summary of statistics which explains the data distribution in terms of its mean and variance. The result shows that some variables clustered around the minimum. For instance, the mean value of employment (labor) is 4.072266 which is nearer the minimum value 0.1768752 than the maximum 22.09982; the mean value of capital stock is 51514.77 which is nearer the minimum value 954.1815 than the maximum 978322, the mean value of higher education enrolment is 187.381 which is nearer the minimum value 0.01068 than the maximum 136574 ;the mean value of total factor productivity is 0.3973829 which is nearer the minimum value 0.0731556 than the maximum 3.071847;the mean value of human capital is 0.3973829 which is nearer the minimum value 1.090541 than the maximum 6.682602.Again, high level of variance is noted in variables such as Gdpna (57999.86), capital stock (127119.2), and higher education enrolment (4993.468). However, some variables exhibited low variance, i.e. employment (labor) having 4.515062, 0.2882075 for total factor productivity and human capital with 0.4568992 respectively.

Correlation Matrix: The correlation matrix is computed for all the variables in other to investigate the expected relationship among the variables

Table2: Results of the correlation matrix

	Gdpna	Emp	Pck	Hee	ctfp	Humcap
Gdpna	1.0000					
Emp	0.5911	1.0000				
Pck	0.9821	0.5842	1.0000			
Hee	0.0001	0.0292	-0.0030	1.0000		
Ctfp	0.2252	-0.1311	0.1385	-0.0037	1.0000	
humcap	0.3584	0.1013	0.3473	0.0031	0.3666	1.0000

Source: Author's Computation

Table 2 presents correlation relationships existing among dependent variable (economic growth) and the independent variables. There is a positive relationship between economic growth and employment (labor),

having 0.5911. For capital stock and economic growth, apart from having positive relationship, its value of 0.9821 exhibits a very high positive relationship. However, higher education enrolment though showed positive relationship with gdpna but the coefficient is extremely low. It is again very clear that there is a weak relationship between economic growth and the total factor productivity because the correlation coefficient as shown is 0.2252.The human capital of the value 0.3584 is also very weak though it exhibits positive relationship with the economic growth. The fact that negative relationship is found between higher education enrolment and total factor productivity (-0.0037) is a clear indication that higher education enrolment has an issue especially with 0.0031 figure showing a very weak relationship with human capital. The fixed effects regression results revealed that all the independent variables; employment (labor), capital stock, total factor productivity and human capital are statistically significant except higher education enrolment which is not significant having the value of 0.171.Our result partially support the findings of Shaihani et al. (2011); Gemmell (1996) and Mchahon (1998) who established a negative relationship between higher education and economic growth.

Table 3: Fixed Effects (within variation regression) Estimation Results

Lgdpna	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Lemp	1554.884	88.08726	17.65	0.000	1381.946	1727.822
Lpck	.3202225	.0032175	99.53	0.000	.3139058	.3265393
Lhee	.0288579	.0210741	1.37	0.171	-.012516	.0702319
Lctfp	5621.193	655.7883	8.57	0.000	4333.71	6908.676
lhumcap	-2772.275	469.3435	-5.91	0.000	-3693.718	-1850.832
_cons	4299.771	876.7875	4.90	0.000	2578.41	6021.133
Wald chi2(8) = 19894.22; Prob > chi2 = 0.0000; R-sq: within =0.9659						
Number of obs = 748; Number of groups = 22						

* statistical significance at 10%** statistical significance at 5%.** *statistical significance at 1%

Table 4: Random Effects Estimation Results

Lgdpna	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
Lemp	1537.138	90.57259	16.97	0.000	1359.619	1714.657
Lpck	.3238298	.00329	98.43	0.000	.3173815	.330278
Lhee	.029248	.0218452	1.34	0.181	-.0135678	.0720638
Lctfp	5994.105	675.9716	8.87	0.000	4669.225	7318.985
lhumcap	-2735.072	483.0248	-5.66	0.000	-3681.783	-1788.36
Decc	11563.12	7300.934	1.58	0.113	-2746.445	25872.69
Deco	8397.326	6882.603	1.22	0.222	-5092.327	21886.98
Dsad	20081	6551.951	3.06	0.002	7239.41	32922.59
_cons	-9549.364	6031.627	-1.58	0.113	-21371.14	2272.408

Wald chi2(8) = 19894.22; Prob> chi2 = 0.0000; Number of obs = 748; R-sq: within = 0.9658
Number of groups = 22
* Statistical significance at 10%** statistical significance at 5%.** *statistical significance at 1%
Source: Author's Computation

It is again shown that only employment (labor) and total factor productivity with coefficient values 1554.884 and 5621.193 respectively show a very high and positive relationship with economic growth, while capital stock and higher education enrolment though show positive relationship with economic growth with coefficient values 0.3202225 and 0.0288579 respectively, but the value of the figures revealed there is a very weak relationship it shows a strong contribution to growth among the SSA countries. It indicates that the productive unit of the economies namely none education section such as primary and secondary sector impact more growth. Higher education enrolment on the other hand does not impact on growth. The result is puzzling, but shows that higher education which absorbed only about 7% of the enrollable members of the society has not been adequately supported among the SSA countries and hence requires urgent policy intervention (Bloom et al., 2014).There is a negative relationship between economic growth and human capital with the coefficient value of -2772.275. This negative relationship cannot be unconnected with the insignificant nature of higher education enrolment contribution to economic growth. The high coefficient value of total factor productivity cannot be unconnected with positive relationship of employment(labor) and

its contribution to economic growth. From the random effects result, the insignificant value of higher education enrolment which is 0.181 further corroborates the results from fixed effects. In addition, the result from the four economic blocs of the SSA countries shows that only SADC countries having 0.002 value is statistically significant. Despite the similarities in the estimated results from the two panel models, yet there are slight differences. Therefore, the next analysis is to test which of the two models is more appropriate for our analysis. This is done through the Hausman test. The result of the Hausman test is presented in table 5.

Table 5: Hausman test for Panel Models

Fixed	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Lemp	1554.884	1537.138	17.74533	11.62019
Lpck	.3202225	.3238298	-.0036072	.0005484
Lhee	.0288579	.029248	-.0003901	.0002202
Lctfp	5621.193	5994.105	-372.9117	72.21254
Lhumcap	-2772.275	-2735.072	-37.203	58.38994
chi2(0) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 44.55; Prob>chi2 =0.0000				

Test: Ho: difference in coefficients not systematic

Table 6: Fixed Effects (LSDV) Estimation Results

Lgdpna	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Lemp	1554.884	88.08726	17.65	0.000	1381.946	1727.822
Lpck	.3202225	.0032175	99.53	0.000	.3139058	.3265393
Lhee	.0288579	.0210741	1.37	0.171	-.012516	.0702319
Lctfp	5621.193	655.7883	8.57	0.000	4333.71	6908.676
Lhumcap	-2772.275	469.3435	-5.91	0.000	-3693.718	-1850.832
Country						
2	4586.525	759.6266	6.04	0.000	3095.181	6077.869
3	433.2637	712.4477	0.61	0.543	-965.4562	1831.984
4	5272.787	1050.775	5.02	0.000	3209.843	7335.732
5	994.5587	705.9458	1.41	0.159	-391.3961	2380.514
6	2784.016	734.7787	3.79	0.000	1341.454	4226.577
7	-6115.453	695.1196	-8.80	0.000	-7480.154	-4750.753
8	-4141.354	737.4504	-5.62	0.000	-5589.16	-2693.547
9	889.6746	721.5112	1.23	0.218	-526.8393	2306.188
10	1735.134	731.1354	2.37	0.018	299.7251	3170.542
11	-7409.434	847.2949	-8.74	0.000	-9072.894	-5745.974
12	1590.912	751.5732	2.12	0.035	115.3785	3066.445
13	1669.66	028.523	1.62	0.105	-349.5972	13688.917
14	3292.731	824.738	3.99	0.000	1673.556	4911.905
15	3369.168	881.5651	3.82	0.000	1638.426	5099.909
16	1758.205	697.3239	2.52	0.012	389.1772	3127.233
17	2291.637	921.4857	2.49	0.013	482.5216	4100.753
18	67720.98	1773.465	38.19	0.000	64239.21	71202.75
19	35846.84	982.2843	36.49	0.000	33918.36	37775.32
20	2910.099	1049.345	2.77	0.006	849.9617	4970.236
21	-1480.825	895.9308	-1.65	0.099	-3239.77	278.12
22	-16620.08	1128.168	-14.73	0.000	-18834.96	-14405.19
_cons	-308.3671	787.5291	-0.39	0.695	-1854.491	1237.757
R-squared = 0.9750 = (overall) F(5, 742) = 5776.21; Prob> F = 0.0000						
Number of obs = 748						

Note: Standard error in parenthesis
** Statistical significance at 5%.** *statistical significance at 1%.
Source: Authors Computation

The results from the hausman test suggest we accept the alternative hypothesis and reject the null hypothesis. The implication of this is that we accept the results from the fixed effect and reject random effects results. Therefore fixed effect result is more suitable for our analysis. Hence, the few places where we noticed slight differences in the results of the model means we stick with the outcomes of the fixed effect in those areas.

Cross-sectional dependence test using fixed effect Least Square Dummy Variable (LSDV): As earlier stated in the introductory aspect of this research that a host of diagnostic tests will be conducted this includes *inter alia* the test for cross sectional dependence. This is the next test to be explored here. The reason for this is to test whether specific characteristics of individual country can interfere with our panel results. This is necessary as it will enable us determine if we can generalize our results for all the twenty-two countries used in the study. This test is done through fixed effect estimation special case called fixed effect least square dummy variable LSDV. The results of the fixed effects LSDV is presented in table. The LSDV result is an extension of the fixed effects results. The test computes coefficient for dummy variables as intercept or constant for all the twenty-two countries. It also tests their individual statistical significance. It should be noted that the first aspect of the result is just a repetition of the fixed effects within regression we did earlier and which appeared in table 3. The remaining coefficients are the constants which represents dummy variable for each country. The LSDV result shows that out of the twenty-two countries investigated in our study sixteen out of twenty-two have their constants to be statistically significant. The implication of this is that the cross-sectional dependence noticed may be more pronounced in these sixteen countries as it appears they share common features but the degree of the common features varies across countries. This is an important area for further research. This might involve studying of the countries individually to know those countries with specific characteristics that distinguish them from others.

5. Discussion and Conclusion

The result of the panel model under correlation matrix suggest that enrolment rate of higher education in SSA has a very weak relationship with economic growth in the SSA countries. Under this model, higher education enrolment though showed positive relationship, it is however very weak (0.0001).This seems to support the findings of Adawo (2011) that tertiary education dampens economic growth. The correlation coefficient table shows that there exist a very strong relationship up to the value of 0.9821 between the capital stock in the region and GDP. It is again noted that the total factor productivity and human capital having the values of 0.2252 and 0.3584 respectively exhibit a very weak relationship with GDP. This is seen to be in contrast with the study carried out on synovia by Verbic et al. (2009) who found economic growth to be endogenously determined in the model by the development of human capital stock as well as the development over time of the overall total factor productivity. Furthermore, the table further showed a negative (-0.0037) relationship between higher education enrolment and total factor productivity and consequently a weak relationship (0.0031) was seen to exist between human capital and higher education enrolment.

The Table3 under fixed effect (within) regression shows that all the independent variables are seen to reflect and to be significant at 5% level of significance except higher education enrolment with the value of 0.171 shows insignificance as well share a very weak coefficient of 0.0288579 and 0.3202225 with capital stock as against GDP. Again, it was further found that human capital having a negative coefficient of -2772.275 is negatively related with GDP. This again contradicts Hassan and Ahmed(2008) who found a positive correlation between growth and human capital in the SSA countries. This weakness cannot be unconnected with the effect of the insignificant nature of higher education enrolment in the region. This is in conflict with the Romer (1986) argument that endogenous growth theory which emphasize that broad categories of investment activities, such as acquisition of knowledge and human capital, were not subject to diminishing returns because they generated productivity spillovers to the rest of the economy (Romer, 1986). However, with 5621.193 value of total factor productivity, our results show there is a very strong relationship between TFP and the GDP which could be caused by various factor variables. Our results have clearly shown that human capital has not been adequately developed and supported among the SSA countries and unfortunately the part to this human capital improvement which is the expansion of the higher education sector is again not doing well to impact on economic growth at all. The main policy implications for the SSA countries among others are that they have to undertake radical and urgent transformation policy that will turn the tunnel of

low higher education enrolment in the region. To achieve this vital goal of expansion of higher education and sustainable economic growth, home based human capital must be supported and given a priority in the form of increased higher education budget and financing. In conclusion, higher education human capital does generate productivity spillovers to the rest of the economy.

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Fostering Entrepreneurship Education among Women and Girls in South Africa: Destroying the Gendered and Encultured Patriachies

Tirivangasi H. M
University of Limpopo, Department of Sociology and Anthropology, South Africa
mathewtirivangasi@gmail.com

Abstract: Gender inequality has been in existence in as much as the humans themselves. The South African women and girls like many other societies around the world are also suffering from the lack of opportunities whilst men still receive favorable treatment. The government of South Africa engaged in the promotion of Small and Medium Enterprises (SMEs) as part of empowerment projects for the Black people since the attainment of democratic rule in 1994. Entrepreneurship continues to play an integral role in the South African economy as well as the economies of many developing countries around the world. The creation of new Small and Medium businesses activities contributes to economic growth, job creation, better livelihood of people involved and the communities which surround them. However, there has been a lack of women participation in entrepreneurship businesses in South Africa. Women continue to shy away from starting SMEs. Research reveals that an approximately 6, 2 percent of South African adult women were involved in SMEs in 2015. This is an appalling situation if South Africa is going to achieve Sustainable Development Goals (SDGs). The SDG, goal number five encourages States to 'Achieve gender equality and empower all women and girls'. The aim of this paper is to identify challenges faced by female entrepreneurs in South Africa, which makes their survival difficult within a patriarchal society.The empirical analysis is based largely on data from information available from sources such as journals, dissertations, thesis, books, conference reports, internet sources, and policy briefs relating to women and entrepreneurship.

Keywords: *Entrepreneurship; Sustainable Development Goals; Small and Medium Enterprises; Gender inequality; Empowerment; Entrepreneurship Education*

1. Introduction

South Africa, is facing many developmental challenges such as unemployment, poverty, inequality, increasing gap between the rich and the poor as well as poor governance.Small and Medium Enterpises (SMEs) play a critical role in the creation of employment, reducing high inequality, improving income distribution as well as reducing poverty rates(Ramukumba, 2014). This is in light of the disadvantages faced by women in the past, for example, during the apartheid era, it is imperative for woman to participate in the empowerment programmes.Women empowermentdrive through both political and economic emancipation has received greater attention over the past decade (Ramukumba, 2014). The increased number of female entrepreneurs will help in employment creation, eliminating poverty and the maintenance of sustainable development in South Africa. They are few women who are participating in entrepreneurship ventures in South Africa, with many showing low results on attitudes (Kelley, Brush, Green, Herrington and Ali, 2015). In South Africa, the SMEs sector has played an integral role towards fostering economic growth and development. This has encouraged the government to create policies aimed at helping the growth of SMES and to increase the budget towards SMEs development, improvement of entrepreneurship activity in the country and creating money-making initiatives for entrepreneurs (Ngek, 2014).

Small and Medium Enterprises contribute 61% towards job creation in both rural and urban areas. It provides stability, innovation and economic development in developing countries (Kongolo, 2010). Abor and Quartey (2010) notes that SMEs contributes an approximately between 51% and 57% of the gross domestic product and they account for about 91% of businesses operating in South Africa. The development of SMEs is quiet important since it contributes towards the elimination of poverty among the poor people living in rural areas. In most cases, it is the only source of income for the poor and low income households (Katua, 2014). Women are the most disadvantaged group in the society hence, their involvement play a critical role towards empowering them as well as the development of SMEs sector in the country. In many developing countries, women face challenges which are grossly embedded in socio-cultural, economic, political, legal and technological environments created by the partriachal society which they live in. Given this strife, this paper proposes entrepreneurship education as a solution to the lack of woman participation in the SMEs sector.

This research can reveal that entrepreneurship education creates qualities which enable women to be self-sustainable individuals who have tolerance of risk, ambiguity and uncertainty; creativity, self-reliance and the ability to adapt. Entrepreneurship education increase societies' consciousness of self-employment as a path to alleviate unemployment. Further, it promotes the development of entrepreneurship attributes in women such as innovative thinking, commitment, risk taking, creation of social networking with right contacts and leadership qualities (Dzomonda, Tirivangasi and Masocha, 2016). This researcher believes that institutions of higher learning can play a critical role in fostering entrepreneurship education. This can be done through the creation of Centres of excellence aimed at developing entrepreneurial skill among woman and girls. Once equipped with the entrepreneurial skills, young girls and woman will be able to survive in the market place and in the process, help them to overcome poverty and South Africa will achieve Sustainable Development goals.

2. Literature Review

Woman and Entrepreneurship: There is still minimum research conducted on female entrepreneurship in South Africa and among the developing world (Mazonde and Carmichael, 2016; Brush and Cooper, 2012). Entrepreneur is a French word which dates to the 1700s, and it has been used to refer to someone who undertakes a venture (Herrington, Kew, Kew and Monitor, 2010). This field has been dominated by male entrepreneurs for in most societies, males were the most proactive people. Women entrepreneurs are women or a group of women, who initiate, organise and run a business enterprise (Manerkar, 2015). Women entrepreneurs engage and start their start their own business, taking all risk that comes with it (Chinomona and Maziriri, 2015). Scholars have revealed that women entrepreneurship comprises of a business initiative owned and skilfully managed by a woman and the she should own at least 51 percent of the shares; at least 51 percent of the employment generated in the enterprise should go to women (Chinomona and Maziriri, 2015; Arakeri, 2006).The participation of woman in entrepreneurship business remains low with one among eleven (8.9%) women is being involved in entrepreneurship across the globe (Bajpai, 2014). However, the participation of women in SMEs adds value towards the emancipation of woman in the world. Moreover, we cannot ignore that, women are more than man in South Africa, Hence, their participation result in the economic growth, job creation and diversity of any economy around the world(Huarng, Mas-Tur and Yu, 2012; Reed, Storrud-Barnes and Jessup, 2012).

Types of female entrepreneurs: Women entrepreneurs fall into four categories namely, conventional female entrepreneurs, domestic female entrepreneurs, innovative female entrepreneurs and radical female entrepreneurs (Anderson and Woodcock, 1996). There is a constant mobility of these female entrepreneurs from on category to the other.

Conventional Female Entrepreneurs: These are type of entrepreneurs who are usually based at home. They engage in food, cleaning, cosmetic, knitting and grooming. In addition, women in this category act as both their own managers and they are also subordinate to the women's roles as spouses and mothers (Anderson and Woodcock, 1996; Shabbir and Di Gregorio, 1996). In most cases, women engaged in these businesses take their enterprises as a source of secondary income. They are less motivated and got no wish to expand their SMEs into flourishing business ventures.

Domestic Female Entrepreneurs: This group is more like the conventional female entrepreneurs; they start business due to influence of another person. They also want create surplus money from the money that is earned by their husbands already (Nxopo, 2014). This group of entrepreneurs do not start as serious sources of income but however may grow when the other source of income is depleted. These may include business such as hair dressing, interior design, selling on the informal markets.

Innovative Female Entrepreneurs: The female entrepreneurs who fall under this category are more serious and present a fundamental shift from the conventional or domestic female entrepreneurs. These are more educated on how to run SMEs or business in general, they are technically good. They display features of an entrepreneur for instance, they are concerned with self-advancement, they are not confined to the directive of their husbands (usually they are single and alone). Furthermore, these women are only satisfied with the

success of their business, they compete with males for business opportunities and they devote mote more time in engaging with other business partners for future ventures (Nxopo, 2014).

Radical Female Entrepreneurs: This category has got proactive female entrepreneurs who are determined to achieve same objectives as many within the society, they believe in the empowerment of women within the society. These women are more independent and at one point of their life they have e 'glass-ceiling' which has been created by a patriarchal society in which they grew up in (Anderson and Woodcock, 1996). Furthermore, one noticeable feature among these women is lack of interest in profit making. However, they are determined in ending a male dominated society. Profit making comes as a secondary goal among this group of women. These women display the following characteristics: They are unmarried; tend to view their enterprises as an alternative to conventional family life; their backgrounds are largely middle-class and well educated; and their management style emphasises consultation and decision-making. Moreover, radical female entrepreneurs engage in businesses such as craft trading; retailing; education; small-scale manufacture; publishing and printing; and taxi services (Nxopo, 2014).

Theoretical framework of the study: This research adopts Social capital theory to explain how women can rely on social capital for them to forge successful enterprises. The social capital theory was developed through the works of the following scholars, (Bourdieu, 1986; Coleman, 1988; Coleman, 1990;Lin, 2002). Bourdieu (1986:248) notes that "Social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition". Individuals involved have social obligations and maintain networks within and among members of the group (Lin, 2002). Moreover, members of the group have gained resources and income from the partnerships that emerge during the networking. Coleman (1990) notes that when all members of the community contribute to the wellbeing of each other, eventually everyone will reap rewards; it does everyone good. Therefore, to sustain this collective assert, there is need to establish trust, norms, values and sanctions to govern the members of the group. Social capital refers to acquaintances among people, this include social networks and the norms of exchange and dependability that emerge from that (Putnam, 2002).

Towards a collaborative approach between women and male entrepreneurs: In a patriarchal society, social capital theory can be used in trying to find mechanism of making woman to survive in a male dominated society. There is need for women to gain skills and engage in successful business ventures. This can be achieved through forging partnerships of woman and man. The two cannot survive by neglecting the other, however, the creation of networking can create better environment for women. The social networking helps in the movement of information between different people which quicken the achievement of goals (Putnam, 2002). Networking is more important among female entrepreneurs than male entrepreneurs (Botha, Nieman and Van Vuuren, 2007). Research has shown that an approximately 870 million of the world's illiterates are female and the number is not expected to decrease in the next twenty years (Reynolds, Bygrave, Autio and Arenius, 2004). This researcher can assert that using networking women may gain a lot from men entrepreneurs. Moreover, due to lack of female role models, women cannot do away with male entrepreneurs completely but they can tap in from the knowledge posed by males and manage to operate their businesses effectively (Chiloane and Mayhew, 2010). Female entrepreneurs can create sustain long-standing relationships and networks, to effectively communicate ideas; to organise efficiently; to be fiscally conservative, to be aware of the needs of their environment, and to promote sensitivity to cultural differences (Jalbert, 2000). In addition, research has shown that most women consult more sources at the beginning of the business; this can only by creating better social networking between woman and man as well as among women themselves.

3. Methodology

Research design: This researcher adopted an exploratory research design for this secondary research. Burns and Grove (2003) define exploratory research as a research conducted to gain new insights, discover new ideas and to learn the truth about something. This is an appropriate research design for this research as the research seeks to find out a new solution to the challenges faced by women entrepreneurs in South Africa.

Units of analysis: Cant, Gerber-Nel, Nel and Kotze (2005) notes that secondary research consist of data that already exists and can be gathered from internal and external sources. This consists of information available from other sources such as journals, dissertations, theses, books, conference reports, internet sources, and policy briefs relating women and entrepreneurship. Considering this, Babbie (2005) concurs that in social research they are virtually no limits to what or who or the units of analysis which can be studied. Secondary data documents with "women and entrepreneurship; challenges facing women entrepreneurs in South Africa" as the main theme were used as the units of analysis in this research.

Data collection: Data was collected from secondary sources. The documents used were chosen because they have certain characteristics or features for instance, information pertaining to women entrepreneurship, entrepreneurship education; and challenges facing women entrepreneurs in South Africa. Qualitative information was collected from the documents which contain relevant information.

Data analysis: Critical Discourse Analysis (CDA) was used to analyze data. The researcher followed three steps put forward by (Rohleder and Lyons, 2014), in conducting the discourse analysis. First stage, the researcher read through different texts or representations. The second stage is coding. In this stage the researcher selected materials for analysis using the research aim as the basis for selection. Then the research developed a coding frame, based on reading and rereading the data. Thirdly, the researcher highlighted and selects the relevant texts and file under the coding frame. The last stage is entitled analysis. At this stage the researcher read the coded data paying attention to the functional aspects of the discourse for instance looking whether discursive themes or interpretations repertoires can be identified.Rohleder and Lyons (2014) suggested that the research should be contextualized in the context of other discourse analysis studies. The analysis and the discussion should be combined followed by a separate conclusion and recommendations.

4. Results and Discussion

Challenges facing woman entrepreneurs in South Africa: This section identified and discussed the challenges faced by female entrepreneurs in South Africa, which makes their survival to be difficult within a patriarchal society.

Gender Bias or Gender Discrimination of Women Entrepreneurs: Sex discrimination or gender stereotyping is one of the challenges faced by women entrepreneurs in a patriarchal society that separate woman from their success. Discrimination involves the unequal treatment of various categories of people; people discriminate in the way they grant favours towards one person to the other based on sex, race and gender (Mandipaka, 2014). In most cases women are judged as inferior beings, they are regarded as unable to certain duties or job. South Africa, like other African nations are still facing the same problem of gender equity, a situation where women are regarded as competitive, independent and rational as man in spheres of business. The risks entrepreneurs face; women face woman still face male dominated field where they are regarded as supportive beings rather than equal partners (Wilson and Mitchell, 2004).The core difficulty lies with the unwillingness of banks to grant credit, lack of support, the negative socio-cultural attitudes and sex discrimination or gender bias(Valla, 2012).

Lack of Education and Training: The Global Entrepreneurship Monitor (GEM), report reveals that most of the women entrepreneurs interviewed in a study they conducted had a grade 12 school qualifications and other were having none (Maas and Herrington, 2006). The GEM report recognised that education presents a fundamental route to freedom for many women and people emerging from a disadvantaged background. The absence of education, it disadvantages many people from accessing useful. For instance, Small Enterprises Development Agency (SEDA) programmes are circulated through the Internet, newspapers and through the media. African continent is suffering from illiteracy and this urge women entrepreneur to undergo pre-entrepreneurial training in order plan an organized business venture successfully (Bajpai, 2014). Considering running business ventures can be a very risky and the challenges they face in a male dominated world, education becomes a necessity. Lack of education and training remains a challenge among woman running SMEs in South Africa (Oxford, Wood, Fischer, Herrington and Segal, 2003). Moreover, many women in developing countries remain illiterate and live in poor communities (Ascher, 2012). Woman always encounter difficulties in running their businesses due to lack skills and education (Jalbert, 2000). It can be

noted that. There is a need for woman to be equipped with skill of how start up their businesses and to avoid being duped. The lack of pure business credentials limit woman in accessing funds to run business smoothly and at the end, they become reliant on males for support.

Work status: This is a serious challenge for emerging women entrepreneurs. There is lack of job opportunities assigned to women in South Africa and other developing countries. This hinders women from starting businesses since they do not have on the job experience. In most cases women turn to informal sector, starting unregistered business as means of survival rather than for business prowess. They see this outlet as unlicensed and it is therefore attractive to informal entrepreneurs (Morris, Pitt, Davis and Allen, 1992). The informal sector is offering economic activities that can be relied on to provide both adequate and secure alternatives to unemployment (Chiloane & Mayhew, 2010). This research therefore reveals that women should be given employment opportunities, for them to venture more into formal entrepreneurship. It is unemployment, which encourages woman to start small businesses rather than big one due to lack of their own personal money. Men who are employed by big corporate find it easy to start their own businesses due to a big financial muscle which they have.

Cultural attitudes: In South Africa, woman comes against a background where they were viewed as legal minors, where they could not open bank accounts, sign property leases or conduct legal transactions without permission of their husbands (Linnegar and McGillivray, 1998).This is a regime which reign forced cultural attitudes which may hinder the progress of woman in South Africa. It increased the perception that woman is subordinate and they need to be taken care of, it instilled fear and inferiority whilst business itself requires assertiveness. This is still a case where working woman do not make personal decisions when it comes to their financial use and this restrict women from starting up their own businesses which may include risk and possibility of failure. Moreover, risk is even higher in societies where woman is living in a male dominated society where they face dangers from crime, domestic abuse and violence. The fear for women to start their own businesses is reinforced by religion, politics and lack of education. These are societal institutions which may hinder the progress of women within a society (Chiloane and Mayhew, 2010).

Lack of Skills: This happens when women entrepreneurs lack skills based training for instance they will exhibit deficiencies such administrative managerial, practical training, and relevant education. This constrains the growth of women entrepreneurship projects. Girls' and women's involvement in technical vocational education has been recorded a slow growth in African countries. In most instances when it comes to technical and vocational training women are limited to traditional occupations such as knitting, cooking, sowing, cookery and hair dressing (Spevacek, 2010). In most cases skills training programs are not developed in alignment with the demands from the labor market. As result of lacking skills woman often find themselves in low productive sectors in which most women operate for example doing business such as handicraft and horticulture. Further, women thrive in these sectors because they are no barriers placed by man in these sectors. Moreover, there is no potential for business growth due to the high number of people operating in those areas. In addition, women lack skills to grow their businesses so that they become globally competitive, this more attributed to poor product design, failure to understand the trade-related aspects of intellectual property rights, Lack of capacity serve large orders from new markets (Spevacek, 2010). These include lack of credit, technical skills, as well as understanding and complying with international specifications for their products (Spevacek, 2010).

Entrepreneurship and patriarchy: This is a major stumbling block on the way for woman empowerment and for most female entrepreneurs in general. This how woman is trained under patriarchy system, their role in the family remain un-negotiable. This something they are no longer forced to do or given reinforcement rather, it is something they do without hesitation. Leung (2011) presents the view that women can draw from the values and knowledge embedded in their normative gender roles when they embark on entrepreneurial endeavours. Studies have revealed that women struggle to make balance between home duties and work had a negative impact on the growth patterns among women owned firms. However, women operating in the formal SME environment see themselves as free from any cultural or family commitment which may impede their progress. In addition, research has revealed that women in sub-Saharan Africa contend with gender inequality, the result of patriarchal heritage. Moreover, society attaches little value to the work which they do at home and low paid work. However, this is what contributes to high poverty rates among women. That

alone adds to less progress when we try to account why women are not involved in entrepreneurial business or SMEs development in South Africa (Spevacek, 2010).In addition to the domestic duties, the patriarchal society has made women to respect male domination. This has lead many women to appoint their husbands as director director as well. This is despite the knowledge of the husband about the business in question. This can lead to conflicting business decisions or interest, thus hindering the development of women entrepreneurship business among women.

Fostering Entrepreneurship Education and Training among young girls and Women Entrepreneurs: Education plays an integral role in the ensuring the success of women entrepreneurs in South Africa. They are attributes one can gain through the completion of acquiring education in entrepreneurship. These are qualities one is not born with but they are attributes one can acquire through being trained to become an entrepreneur. The attributes of a true entrepreneur are indicated in table 1 as defined by different scholars.

Table1: Attributes of entrepreneurs

(Gartner, 1990:21-26)	Innovation. Organisation creation. *Creating value:* transforming a business, creating a new business, growing a business and creating wealth. Make profit. Growth of business. Uniqueness. Owner-manager.
(Min, 1999:80)	Recognising and taking advantage of opportunities. Resourcefulness. Creativity and innovation. Visionary. Independent thinker. Hard worker. Optimistic. Risk taker. Leader.
(Bolton and Thompson, 2004:17)	Ability to identify opportunities to utilise ideas.
(Jonker, Saayman and De Klerk, 2009)	Organisational skills. Resourcefulness. Achievement. Self-edification. Explorative. Commitment.
(Te Velde, 2004:123)	Social intelligence: ability to recognise present and coming trends in society at a very early stage. Imagination and empathy: ability to connect these trends with existing new combinations to change the conventional routines in the circular flow. Establish a social network with the right people around the innovation. A protected niche should be created to enhance the social network. Ability of the entrepreneur to up-scale the niche.
(Timmons and Spinelli, 2004)	Commitment and determination. Leadership. Opportunity obsession. Tolerance of risk, ambiguity and uncertainty. Creativity, self-reliance and the ability to adapt. Motivation to excel.
(Botha, Nieman and Van Vuuren, 2007:166)	Risk propensity. Creativity and innovation.

	Opportunity identification. Role model analysis (success factor). Networking. Leadership. Motivation. Social skills. Start-up skills.

Sources: (Saayman, Douglas, & De Klerk, 2008; Nxopo, 2014)

They are different scholars agree that entrepreneurship education plays a critical role in creating entrepreneurship awareness or tendencies (Alberti, Sciascia and Poli, 2004). This acquiring of skills such as entrepreneurial skills, knowledge and attitudes. This is what makes one entrepreneurship to be successful in setting up some effective businesses. The entrepreneurship attributes revealed in the table show that entrepreneurship education which is well developed creates female entrepreneurs who can create their own businesses and have the zeal to develop and succeed. It enables individuals to be able to identify hidden opportunities and motivates graduates to venture into business. It can be noted entrepreneurs are risk takers; hence, entrepreneurship education helps as motivator to still woman and girls towards taking similar risk as man. The avocation of the entrepreneurship attributes to all women will inspire a young generation of women to seek higher education as well as encourage them to take up business ventures which are often attributed to males (Stevenson and St-Onge, 2005).To make entrepreneurship education to be effective among young girls and women, it is imperative, to make this training compulsory (Daymard, 2015), from primary level up to matric level.

The pre-entrepreneurial training helps women to be able to plan and start successful business ventures (Bajpai, 2014). Moreover, to break the patriarchal stronghold on women, entrepreneurial education designed specifically for young girls and women must be designed to stir up the hidden ability of women to prosper in business. Various scholars reveal that entrepreneurship education have a positive effect on enterprise performance (Akanji, 2006; Chinomona and Maziriri, 2015; Cheston and Kuhn, 2002). Additionally, Botha*et al.* (2006) recommends that women entrepreneurship education program should include the following areas of importance: monetary backing, administration assistance and training as well as networking, mentoring and counselling. In addition, to developing attributes of entrepreneurship in young girls and women, entrepreneurship education, it helps women understand the entrepreneurial process. This process involves four key stages namely, Identifying and evaluating the opportunity, developing a business plan, Determining the resource requirements and Starting and managing the enterprise. These are essential skills which need to be known by every entrepreneur before they start engaging in formal business entrepreneurship.

5. Conclusion

The challenges faced by young girls and women entrepreneurs are more closely linked to their background, which is filled with injustices brought about by the patriarchal society. In most communities' men were given advantages which made them dominant whereas women were made to be subordinates. This made women to be weak and lack the audacity to venture into business. Entrepreneurship education presents women with opportunity to be innovative, self-aware, earn confidence and skills to start out businesses without fear. Furthermore, instilling entrepreneurship education among woman from the grassroots level will help South Africa in achieving Sustainable Development Goal number 5 'achieve gender equality and empower all women and girls'. This is a better way to empower young girls and women. Education itself liberates and empowers individuals to be able to survive in world where men are striving. This paper therefore concludes that with Entrepreneurship education, the future of young girls and women in South Africa and the developing world is bright.

Recommendations:

Creation of grassroots entrepreneurship organisations: There is need to set up entrepreneurship organisations from rural areas growth points and townships in urban areas in South Africa. These are organisations which must be run by women with minimum interference of man. The activities of these organisations should be to increase networking, technical assistance, capacity building and creation of

associations which will serve as forums where young girls and women will meet and discuss ideas. This will increase formulation of partnerships as well as sharing ideas. Moreover, for young girls this will serve as a platform to identify role models. They are women who are already successful in running business; these will be invited to share their stories and motivations with young women. The existence of strong grassroots entrepreneurship organisations will help women to engage with the government and influence certain decisions made by the Minister representing women in the cabinet.

Entrepreneurship Centres: They are many universities in South Africa which can spear the development of entrepreneurship education. This can be done through the establishment of entrepreneurship centres. In other countries like America, the demand for entrepreneurship skills have so great to an extend that many universities, there, have created entrepreneurship centres (Katz, 2003). These can create the connection between the students and the prominent entrepreneurs in South Africa. This can be ensured through inviting or employing people who are in practice to come and train young girls and women at universities. In addition, the Centres can reach out to young girls and women by identifying individuals with a natural aptitude for creative and innovative business ideas and develop them. Entrepreneurship Centres can save a greater role of spreading the skills to less developed areas where young girls and women are located. The centre's work can be advertised in community radios, television and newspapers. Moreover, flyers and outreach teams can be used as recruitment exercise.

Integration of entrepreneurship within the education curriculum system: This can work hand in hand with the establishment of entrepreneurship centres. The process of integrating entrepreneurship into the curriculum system would start as a compulsory module for all matric students. The students with high potential can absorb into the centres at university. However, at university level entrepreneurship can be learned as module in all departments. This is a curriculum that can be tailor made to suit the needs of each department at all universities. The lectures conducting these modules can work in collaboration with the entrepreneurship centres.

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The Relationship between Oil Price Volatility and Macroeconomic Variables in Nigeria: A Vector Autoregressive (VAR) Approach

Tochukwu Timothy Okoli, Devi Datt Tewari, Ajibola Rhodaoluwafisayomi
University of Zululand, South Africa
tochukwu.okoli@fuoye.edu.ng, tewariD@unizulu.ac.za, rhophix2014@gmail.com

Abstract: Nigeria as an oil exporting mono-economy is susceptible to fluctuations in the world oil prices. About 97 percent of the government's revenues are gotten from proceeds from oil export. The study attempts to assess the behaviors of macroeconomic variables in the face of oil price volatility in Nigeria. The empirical evidences reveal that macroeconomic variables were susceptibility to volatility in Oil Price. The theoretical framework is based on the Mundel-Flaming model and adopts the variance decomposition and impulse response functions to explain the dynamic properties of the VAR methodology. The impulse response results reveal that a one standard deviation in oil price will trigger a significant change in RGDP, GEXP, INFLATION and IMPORT both in the short and long run, and IR and EXR significantly only in the short run. Finally, the variance decomposition of RGDP, GEXP and EXR reveals that the variability in them were significantly explained by oil price volatility and other tests ran reveals a consistent result. Therefore, volatility in oil price has direct impact on real GDP, Government expenditure, inflation, interest rate, exchange rate and import. The researchers therefore recommend diversification of the economy to other sectors, financial prudence, sound fiscal policy and the lowering of interest rate to stimulate domestic investment.

Keywords: *Macroeconomics, Growth, Mundell-Fleming Model, Volatility, VAR*

1. Introduction

Over the decade's oil has remained the main source of revenue to the Nigerian economy. The boom of revenue that the federal government of Nigeria realizes from the oil sector is far more than all the other revenue it gets from other sources of fund put together, hence consisting over ninety seven percent (97%) of the country's foreign earnings. This invariably has led to the abandonment or better still the death of most of the other sectors of the economy, making the Nigerian economy a mono-economy that is completely dependent on oil. Therefore, any shock or fluctuations in the price of crude oil will virtually affect every facet of the Nigerian economy. Hence, the need to not only study its impact on the economy but to also ensure that the right policy measure is put in place to eradicate or at worse alleviate its negative effect becomes indispensible. The consequential place of oil to the Nigerian economy is well established. Since its discovery in commercial quantities during the years 1973/74, it has grown to assume a pivotal place in the Nigeria economy; constituting the main source of export earnings, foreign exchange and public generated revenue (Obadan, 2014). By the year 1985, the country produced a total of 1.9 million barrels of oil, and that generated a total of N1.78 million as export earnings. By the year 1980, the production of oil rose to 760.1 million barrels and that trickled in a total of N13,306.93 million as export earnings, constituting 96.8% of total export earnings (CBN, 2012) and ever since then, it has been increasing exponentially. The discovery of oil in Nigeria was in 1958. Before this time, the country's source of foreign earnings is basically agriculture and ironically; relative prices were stable with low/no inflations, unemployment rate was non existing, balance of payment was favorable, and Naira/dollar exchange rate were at per however these became a mirage after the discovery of oil to this time and kept on deteriorating. Hence, the economy is not only susceptible to fluctuations in the oil price but to global macroeconomic shocks.

The price of oil has experienced great fluctuation since the 70s. Philip and Akintoye (2006) observed that it oscillated between $ 17 per barrel and $26 at different times in the year 2002 and about $ 53 per barrel by Oct. 2004 and rose to $60 by 2005 and Hassan & Zahid (2011) asserted that during the summer of 2007, the price of one barrel of crude oil jumped to above $ 70 and even crossed $ 145 mark in July 2008. The price staggered between $61.73 per barrel in October, 2009 and remained at an average of $ 75 per barrel until August, 2010. It is pertinent to note here that this fluctuation is increasingly getting worse every day and therefore raises serious research interest among scholars especially as oil is the main source of the country's foreign earnings. Oil price variation plays a crucial role in the macroeconomic performance of Nigeria because of its impact on the country's foreign earnings which the annual budgets of the economy hinge. In the light of

the pivotal place of oil to the Nigeria's economy and the macroeconomic implications of its frequent changes in price, it is pertinent we identify the role and the impact of oil price volatility on the Nigeria's economy as well as proffer solutions to their proper management and stability. This will guide policymakers and economic agents not to expose the economy to further variability. Take for instance, investors will have the confidence to borrow money and invest without any fear of possible capital loss due to changes in interest rate by the monetary authority in trying to mop-up liquidity in order to prevent the Naira exchange rate not to deteriorate. Moreover, foreign direct investment can be discouraged if the global oil price volatility triggers consistent shocks on the macroeconomic indicators within the system. But the question is: how can an economy who is 97 Percent dependent on oil mitigate the effect of changes in its prices? The situation might persist or even gets worse with a positive change in price, therefore this work is aimed at identifying the variables of interest that are highly susceptible to oil price volatility and to what degree as well as identifying a policy measure that can help to cushion these effects by the development of other sectors of the economy.

Statement of the Problem: It is obvious that oil is the mainstay of Nigeria source of revenue and it is the most important driver of the entire economy. Therefore changes in the price of oil have significant effects on economic growth and welfare of the citizenry at large. Take for instance, there have been persistent fluctuations (a fall to be precise) in the price of crude oil in the world oil market in the recent past, with a slow movement in its demand, thereby affecting other macroeconomic aggregates such as a rise in inflation, balance of payment disequilibrium, falling export revenue, deteriorating exchange rate, a rise in interest rate will result in a slowdown productivity as a result of fall in investment as well as a fall in economic growth. With all these and more also being the negative effects of oil price volatility, it makes the prospective future oil supply highly uncertain.

Moreover, it is more likely that in the nearest future, there will be further increasing fluctuations in the oil price. This is because of the uncertainties regarding the discovery of new oil reserves, persistent political instability in Nigeria as well as other exporting countries and worse still the fact that technological improvements have now proffered solutions to other means of crude oil saving devices leading to further fall in the global demand for crude oil, hence a persistent fall in its price. Again, considering the facts that the transmission mechanism through which constant changes in the oil price affects the aggregate economy are enormous, it becomes pertinent to identify these channels for a proper policy mix to counteract its unwanted effects. Take, for instance, an increase in the prices of crude oil is more likely going to increase the costs of production leading to a reduction on output and a rise in prices being passed on to the final consumers. This will further affect other macroeconomic indicators such as high rate of unemployment, high inflation rate, and exchange rate deterioration, fluctuations in the stock market prices, the balance of payment deficits and a general rise in the costs of living. However, the extent to which the shock transmits to the economy is dependent on the structural composition of the economy.

Furthermore, oil price shocks on the international market might be amplified in specific countries, depending on the respective Dollar exchange rate and prevailing inflationary pressures. But for a country like Nigeria that is highly susceptible to changes in the oil price, since oil is the main source of revenue to it, little shock in the oil price will have a quick and touching impact on the economy as a whole therefore, this research really wants to know the behavior of various macroeconomic variables in the face of this oil price shocks as well as the nexus between them. Irrespective of the trade balance of any country of the world, they will still perceive consecutive fluctuations in the oil prices not only uncertain but also detrimental to the entire economic well-being, whether they are an oil exporting country or an oil importing country. The Central Bank of Nigeria is interested in the oil price movements in the local and international oil markets because of its direct bearing on Nigeria's annual budget. Majidi (2006) maintains that the bigger the oil-price increase and the longer higher prices are sustained, the bigger the macroeconomic impact. Nigeria became more exposed to oil price fluctuations the moment she started importing refined petroleum products due the collapse of local refineries in the late 1980's (Obioma, 2006). However, the impact of this oil price volatility as argued by Masih et al. (2010) is likely to be significantly greater in oil-importing countries, especially where policy frameworks are weak, foreign exchange reserve is low, and access to international capital markets is limited.

Theoretical Framework: The theoretical model to adopt in this work in order to investigate the interaction between oil price volatility and macroeconomic variables will be the Keynesian open economic model

(Mundell-Fleming Model). To achieve an internal balance, the fiscal policy instrument of government expenditure is used. This operates through the product market equilibrium by finding the levels of income and interest rate combinations where savings-investment equality takes place so that the product market of the economy is in equilibrium. An increase in government spending will raise the level of income leading to a fall in interest rate and a rise in price level, therefore the product market is in equilibrium when a given level of government spending, relative prices of goods and services, income in the previous years and interest rate interacts to determine the level of income. The Keynesian believes that an expansionary fiscal policy will give rise to an increase in income and rate of interest. The increase in interest rate leads to capital inflow thereby creating short –run balance of payment surplus on capital account and exchange rate appreciation. Whereas the rise in income increase import thereby leading to Balance of payment deficit in current account and exchange rate depreciation. The net overall effect on the balance of payment will depend upon the elasticity of the balance of payment curve.

2. Literature Review

Abraham (2015) used quarterly data and adopted the GARCH model as well as a multivariate VAR analysis to investigate the impact of oil price shocks on the Nigerian economy. The impulse response functions show that oil price shocks have immediate and prolonged effect on all the macroeconomic variables considered. He concluded that oil price shocks have a direct impact on real GDP, total monetary assets and credit to private sector and as such urgent and serious efforts should be made to cut back on government expenditure, increase the tax base, diversify the economy and improve the overall efficiency and scope of other existing non-oil revenue sources, so as to ameliorate the impact of falling oil prices. This implies that oil revenue constitutes a greater percentage of the total output in Nigeria. Therefore sufficient attention should be given to it. This result was inconsistent with the findings of Oriakhi & Iyoha (2010) who found an indirect causality running from oil price volatility to real GDP. Having employed a VAR model to a quarterly data he concluded that oil price changes determine real exchange rate, real import and government expenditure level directly, but indirectly on real GDP, real money supply and inflation through the instrumentality of government expenditure. Therefore, the reverse causality between this two works could be as a result of the periods under consideration and possible structural changes and political changes in the system. Katsuya (2010) in assessing the Impact of Oil Price Volatility on Macroeconomic activity in Russia using the VAR model with a quarterly series spanning from 1994:Q1 to 2009:Q3, giving 63 observations found that the Russian economy is greatly vulnerable to oil price changes. This is because a little change in it triggers reasonable changes on GDP and exchange rate both in the short and long run with a marginal increase in inflation only in the short run. He therefore recommends the needs to diversify by increasing foreign direct investment (FDI) and improve domestic investment.

Wilson et al. (2014) investigated the causal relationship between oil prices and key macroeconomic variables in Nigeria in a multivariate framework using times series data from 1980 to 2010. He used Granger causality and the ordinary least squares to investigate whether there is prediction between oil prices and macroeconomic indicators (inflation, interest rate, exchange rate and real gross domestic product) and the impact of oil prices on the applied macroeconomic indicators respectively. His findings further stressed that changes in the gross domestic product (GDP) is not influenced by oil price volatility, nor do they find evidence of influence on key macroeconomic variables during the short and long runs with a positive but insignificant relationship between oil price and the Nigerian Gross domestic product. Ogundipe et al. (2014) examined the effects of oil price, external reserves and interest rate on exchange rate volatility in Nigeria using the GARCH and the EGARCH models. He found a long run relationship among the variables with the use of Johansen Co-integration technique while the vector correction mechanism was used to examine the speed of adjustment of the variables from the short run dynamics to the long run equilibrium. It was observed that a proportionate change in oil price leads to a more than proportionate change in exchange rate volatility in Nigeria; which implies that exchange rate is susceptible to changes in oil price. The study recommends that in order to dwindling the impact of crude oil as the mainstay of the economy and overcome the effect of incessant changes in crude oil prices which often culminate into macroeconomic instability the Nigeria government should diversify from the oil sector to other sectors.

Hodo, Akpan and Offiong (2013) employing annual time series data spanning the year (1970-2010) and the methodology of VAR examine the asymmetric effect of oil price shocks on exchange rate volatility and domestic investment in Nigeria. The study revealed a consistent result with the findings of Oriakhi & Iyoha (2010) that government expenditure exhibited a direct and an immediate positive response to oil price shock, but public investment, private investment and industrial production exhibited negative response to oil price shock, further confirming the evidence of a "Dutch disease" in Nigeria. The variance decomposition analysis further revealed that exchange rate, government expenditure and domestic investment are mainly affected by oil price shock, particularly in the short-run. Therefore, this suggests that fiscal policy tool of government expenditure is a potential instrument in ensuring internal and external balances. Englama et al. (2010) in an empirical work designed to examine the oil price-exchange rate nexus, employed monthly data for the period 1999:1 to 2009:12 and utilize the methodology of VECM. The study discovered that both oil price volatility and the demand for foreign exchange impact on exchange rate volatility both in the short-run and the long-run. Essentially, the study discovered that the demand for foreign reserves put more pressure on exchange rate than oil price volatility. Using monthly panel of G7 countries Chen and Chen (2007) investigate the long run relationship between real oil price and real exchange rates and they found that real oil prices is a dominant cause of real exchange rate movements. This could be more true to a country like Nigeria who is more exposed to external shocks due to the country's over dependency on oil as a main source of revenue.

Olomola (2006) investigated the impact of oil price shocks on aggregate economic activity in Nigeria using quarterly data from 1970 to 2003. He discovered that contrary to previous empirical findings, oil price shocks do not affect output and inflation in Nigeria significantly. However oil price shocks were found to significantly influence the exchange rate. However, this can be justified on the ground that the period the work covered does not really capture the period of sufficient output growth within the economy. Al-Zee (2011) in Bahrain used Johansen co integration test to examine the co integrating relationship between the real GDP, real effect exchange rate and real oil price of a country. Real GDP of Bahrain is more elastic to changes in international oil prices than real exchange rate. Research conducted on Vietnam from the period of 1995 to 2009 using the vector autoregressive model (VAR) produce results that suggest that both oil prices and the real effective exchange rates have strong significant impact on economic activity. Habib and Kalamova (2007) investigate the effect of oil price on the real exchange rate of three countries Norway, Saudi Arabia and Russia. In case of Russia a positive long run relationship was found between oil price and exchange rate and no impact of oil price on exchange rate was found for Norway and Saudi Arabia.

Aliyu (2009) believed that this is caused because of lack on strong institutions and total dependency on oil exports. Aliyu (2009) recommended larger divergence of the economy through the investment in top prolific sector to reduce the adverse effect of oil price shocks and the exchange rate volatility. Oil price has a strong influence on oil dependent countries and their currency is referred to as oil currency whereas for countries like Norway and Canada which are developed and have strong institutions there are weak influences of oil price on exchange rate and economic activities in this countries. Ahuru and James (2015) verified the direct and indirect impact of oil price volatility on Nigeria's economy. The indirect impact attempts to trace the impact of oil price volatility on selected macroeconomic variables through public expenditure, while the direct impacts tied the same selected macroeconomic variables directly on oil price volatility. The methodologies used in the study were VAR, dynamic simulations of forecasting error variance decomposition and the pair wise Granger causality. The study finds out that oil price volatility significantly stimulate most of the macroeconomic variables through the public expenditure. The study recommended that efforts should be made to safeguard both the quantity and quality of public expenditure through appropriate revenue policy measure, promoting sound fiscal institutions, promote budget flexibility and diversification of the revenue base.

3. Methodology

The unrestricted Vector Auto Regression (VAR) model will be adopted and interpreted with the standard Choleski decomposition method as well as conduct the Granger causality test procedures. This method is preferred to other methods because it is suitable for addressing structural changes and for testing the long run policy implications.

Model Specification: The Unrestricted VAR model of order one is represented in equation 2; however, due to the peculiarity of Nigerian economy, other factors identified by empirical literatures which describes the effect of oil price volatility on growth in Nigeria will be included in the model; hence, adopting Keynesian open economic model as specified by Blanchard, 2008 is as follows:

Y_t = f(INF, IR, GEXP, OILPRICE, EXR, IMP).....(1)

The model is summarized in the reduced-form VAR model as follows:

$$\left[Y_t = \delta_O + \sum_{i=1}^{n} \beta_i Y_{t-i} + \mu_t \right] \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

All variables are in normal form. β_i are coefficient matrices of size 6×6 and u_t is the prediction error, δ_o is the intercept matrix of 6*1. Y_t is a 6*1 vector of variables (INF, IR, GEXP, EXR, OILPRICE, IMP)

Where: Y_t = Real GDP/Output in the current year
f = Functional notation
INF = Inflation Rate
IR = Interest rate
EXR = Naira/Dollar Nominal Exchange rate (ER) as proxy for import
OILPRICE = Oil Price a proxy for Exports
IMP = Import
GEXP = Government Expenditure

The structural equation for the model is stated as follows:

$OILPVOL_t = \sigma_0 + \sigma_1 RGDP_{t-1} + \sigma_2 INF_{t-1} + \sigma_3 IR_{t-1} + \sigma_4 EXR_{t-1} + \sigma_5 GEXP_{t-1} + \sigma_6 IMP_{t-1}$.....(i)

$INF_t = \lambda_0 + \lambda_1 RGDP_{t-1} + \lambda_2 IMP_{t-1} + \lambda_3 IR_{t-1} + \lambda_4 EXR_{t-1} + \lambda_5 OILPVOL_{t-1} + \lambda_6 GEXP_{t-1}$.....(ii)

$IR_t = \pi_0 + \pi_1 RGDP_{t-1} + \pi_2 INF_{t-1} + \pi_3 IMP_{t-1} + \pi_4 EXR_{t-1} + \pi_5 OILPVOL_{t-1} + \pi_6 GEXP_{t-1}$.....(iii)

$RGDP_t = \alpha_0 + \alpha_1 IR_{t-1} + \alpha_2 INF_{t-1} + \alpha_3 EXR_{t-1} + \alpha_4 IMP_{t-1} + \alpha_5 OILPVOL_{t-1} + \alpha_6 GEXP_{t-1}$.....(iv)

$GEXP_t = \varphi_0 + \varphi_1 RGDP_{t-1} + \varphi_2 INF_{t-1} + \varphi_3 IR_{t-1} + \varphi_4 EXR_{t-1} + \varphi_5 IMP_{t-1} + \varphi_5 OILPVOL_{t-1}$.....(v)

$EXR_t = \beta_0 + \beta_1 RGDP_{t-1} + \beta_2 INF_{t-1} + \beta_3 IR_{t-1} + \beta_4 GEXP_{t-1} + \beta_5 OILPVOL_{t-1} + \beta_6 IMP_{t-1}$.....(vi)

$IMP_t = \delta_0 + \delta_1 RGDP_{t-1} + \delta_2 INF_{t-1} + \delta_3 IR_{t-1} + \delta_4 GEXP_{t-1} + \delta_5 OILPVOL_{t-1} + \delta_6 EXR_{t-1}$.....(vii)

However, in order to account for the volatility in oil price, the mean deviation of oil price will be estimated to control for its volatility on the economy thus:

$U_t = OilPrice_t - \alpha_1 OilPrice_{t-1} - \alpha_0$.....(3)
Where U_t is the Mean Deviation for Oil Price representing the Volatility of Oil Price.

The Granger (short-run) causality approach: Causality in the sense of Granger can be defined by stating that a time series X causes a time series Y if the present value of Y can be better predicted using past values of X in addition to all other relevant information. Needless to say, the correct estimation procedure would be to include all independent variables indicated by the relevant economic theory. Excluding appropriate variables may yield irrelevant and useless results. Granger considers a system of the general form:

$$Y_t = \sum_{i=1}^{n} \delta_i Y_{t-1} + \sum_{i=1}^{m} \beta_i X_{t-1} + \mu_{1t} \ldots\ldots\ldots\ldots\ldots (4)$$ and

$$X_t = \sum_{i=1}^{\pi} \lambda_i Y_{t-1} + \sum_{i=1}^{\kappa} \alpha_i X_{t-1} + \mu_{2t} \ldots\ldots\ldots\ldots\ldots (5)$$

Where X and Y are stationary series and u_1 and u_2 are white noise processes.

Testing the hypothesis that X does not cause Y is equivalent to testing the joint restriction that $\beta_i = 0$ for i = 1, …, m, while testing that Y does not cause X implies $\lambda_i = 0$ for i = 1, …, π.

Sources and Methods of Data Collection: The data to be used in this study is a secondary quarterly data spanning from the period of 1980 first quarter to 2014 fourth quarter and they are sourced from the central Bank of Nigeria Statistical Bulletin, publication, annual report and statement of account and economic and financial reviewed of various year supplemented with these data from the CBN statistical bulletin (2015). The period covered is essential as it includes the pre SAP and the post SAP periods in Nigeria. Also, it is sufficiently large to capture periods of volatility in the oil price. Structural Adjustment Program is a period in Nigeria when government embarked on serious structural programs that had a far reaching implication for the macroeconomic environment in Nigeria.

4. Results and Analysis

This section of the research work covers the presentation of the empirical results as well as the analysis and discussion of the results. The analysis begins with the descriptive statistics of the variables to the correlation matrix and then to exploration of time series properties of the variables used in the model through test for stationarity, Granger Causality test and then to Cointegration test and finally to Impulse Response test and Variance Decomposition.

Table 1: Descriptive statistics

	RGDP	INF	IR	GEXP	OILPVOL	EXR	IMP
Mean	94083.65	19.74193	6.012019	1279001.	18.63504	65.92612	2116419.
Median	25064.40	12.68726	6.630339	428215.2	7.330213	21.99698	529115.3
Maximum	522963.9	76.42606	11.83820	5185318.	103.1569	159.3309	6567883
Minimum	681.5138	0.666756	0.144740	9636.500	-12.20526	0.516864	4567.700
Std. Dev.	147040.0	18.04813	2.878867	1651571.	29.79784	63.14380	6010518.
Skewness	1.748702	1.599351	-0.325645	1.193152	1.328678	0.269719	8.650076
Kurtosis	4.697235	4.379949	2.289990	2.967729	3.548455	1.268533	90.78481
Jarque-Bera	88.15588	70.79307	5.415034	33.22370	42.94698	19.18567	46698.57
Probability	0.000000	0.000000	0.066702	0.000000	0.000000	0.000068	0.000000
Sum	13171711	2763.870	841.6826	1.79E+08	2608.905	9229.657	2.96E+08
Sum Sq. Dev.	3.01E+12	45277.17	1152.014	3.79E+14	123419.6	554212.4	5.02E+15
Observations	140	140	140	140	140	140	140

Authors' Computation

Discussion of Findings: Table 1 above shows the descriptive result for the variables, which include RGDP, INF, IR, GEXP, OILPVOL, EXR and IMP. The result indicates that all the variables under consideration have positive mean with 140 observations. The highest standard deviation was recorded by Government Expenditure of 1651571 while the least standard deviation of 2.878867 is recorded by Interest Rate. The results indicate that the skewness coefficient of the variable interest rate (-0.325645) is less than zero whereas the skewness coefficients of the rest of the variables which includes RGDP, INF, GEXP, OILPVOL, EXR and IMP are all greater than zero. The kurtosis coefficients of variables RGDP (4.697235), INF (4.379949), IR (2.289990), IMP (90.78481) GEXP (2.967729) and OILPVOL (3.548455) are all leptokurtic while the kurtosis coefficient of the variable EXR (1.268533) is platykurtic. The estimation above indicates that the Jarque-Bera probability for the variables shows that the error terms are normally distributed.

Table 2: The Correlation Matrix

	RGDP	INF	IR	GEXP	OILPVOL	EXR	IMP
RGDP	1.000000	-0.293195	0.460811	0.959889	0.892789	0.773486	0.408683
INF	-0.293195	1.000000	0.059343	-0.337858	-0.355214	-0.365342	-0.131572
IR	0.460811	0.059343	1.000000	0.476877	0.346594	0.567190	0.313217
GEXP	0.959889	-0.337858	0.476877	1.000000	0.902610	0.870071	0.442440
OILPVOL	0.892789	-0.355214	0.346594	0.902610	1.000000	0.739990	0.433233
EXR	0.773486	-0.365342	0.567190	0.870071	0.739990	1.000000	0.395388
IMP	0.408683	-0.131572	0.313217	0.442440	0.433233	0.395388	1.000000

Authors' Computation

The Correlation Analysis: The result of the Correlation Matrix as shown above depicts strong positive relationships among Oil Price Volatility and almost all the macroeconomic variables in the model such as Real Gross Domestic Product (RGDP), Real Naira/Dollar Exchange Rate (EXR), Government Expenditure (GEXP), and Interest Rate (IR) although, the relationship between interest rate and Oil Price Volatility is less than 50% (i.e. 0.346594), yet it is still positive meaning that a rise in Oil Price Volatility will cause a rise in interest rate. The highest of the correlation exists between Oil Price Volatility and Government Expenditure which is more than 90%. This is consistent with economic apriorial expectation: when changes in the world oil price become increasingly volatile (say steady fall), government expenditure will tend to be more than its revenue leading to deficit financing. The Correlation Matrix also shows a high positive relationship with real GDP, this could be as a result of increase in government expenditure which in turn will have a high multiplier effect on National Income. However, a negative correlation exists between Oil Price Volatility and inflation. This implies that Volatility in Oil Price will tend to reduce inflation rate. Other variables shows a reasonable level of relationship among themselves with the exception of inflation rate which depicts a very low and negative correlation across most of the other variables.

Unit Root Test: To test for stationarity or the absence of unit roots will be carried out using the Augmented Dickey Fuller test (ADF) and Phillips Perron tests, hence the hypothesis is stated as follows: If the absolute value of the Augmented Dickey Fuller (ADF) test is greater than the critical value either at the 1%, 5%, or 10% level of significance or/and if the probability value is less than 5% , then the variables are stationary either at order zero, one ,or two. The Augmented Dickey Fuller test equation is specified below as follows:

$$\Delta\widehat{u}_t = \beta\widehat{u}_{t-1} + \sum_{i=1}^{k}\Delta\widehat{u}_{t-1} + \varepsilon_t \quad \text{...} (7)$$

Table 3: Results of the Augmented Dickey Fuller (ADF) and Philip Perron stationarity test

VARIABLES	ADF			PP		
	TEST STATISTICS	ORDER OF INTEGRATION	PROB.	TEST STATISTICS	1st DIFF.	PROB.
Oil Price	-7.389594	I(1)	0.0000	-7.322269	I(1)	0.0000
Real GDP	-5.979718	I(1)	0.0000	-6.490094	I(1)	0.0000
Interest Rate	-6.047995	I(1)	0.0000	-5.380081	I(1)	0.0000
Exchange Rate	-6.371757	I(1)	0.0000	-5.923206	I(1)	0.0000
Inflation Rate	-3.513339	I(0)	0.0090	-5.665009	I(1)	0.0000
Oil Price Vol.	-7.389594	I(1)	0.0000	-7.322269	I(1)	0.0000
IMP	-9.468824	I(0)	0.0000	-9.926330	I(0)	0.0000
GEXP	-12.26873	I(1)	0.0000	-12.27637	I(1)	0.0000

Authors' Computation

The result of the augmented Dickey fuller {ADF} unit root test is presented above. From the result, all of the variables are stationary at first difference apart from inflation and import that was stationary at level. We therefore proceed to testing for Cointegration to ascertain whether the variables have a long run relationship. The idea behind cointegration is that even if some variables are not stationary their linear combination may be stationary after all. The existence of cointegration confirms co-movement among the variables and consequently long run relationship exists among the variables. We therefore proceed to conduct the cointegration test.

Causality Test: We utilized the causality test procedure developed by Granger (1969). The result of the causality tests obtained is as follows:

Table 4: Pairwise Granger Causality Tests

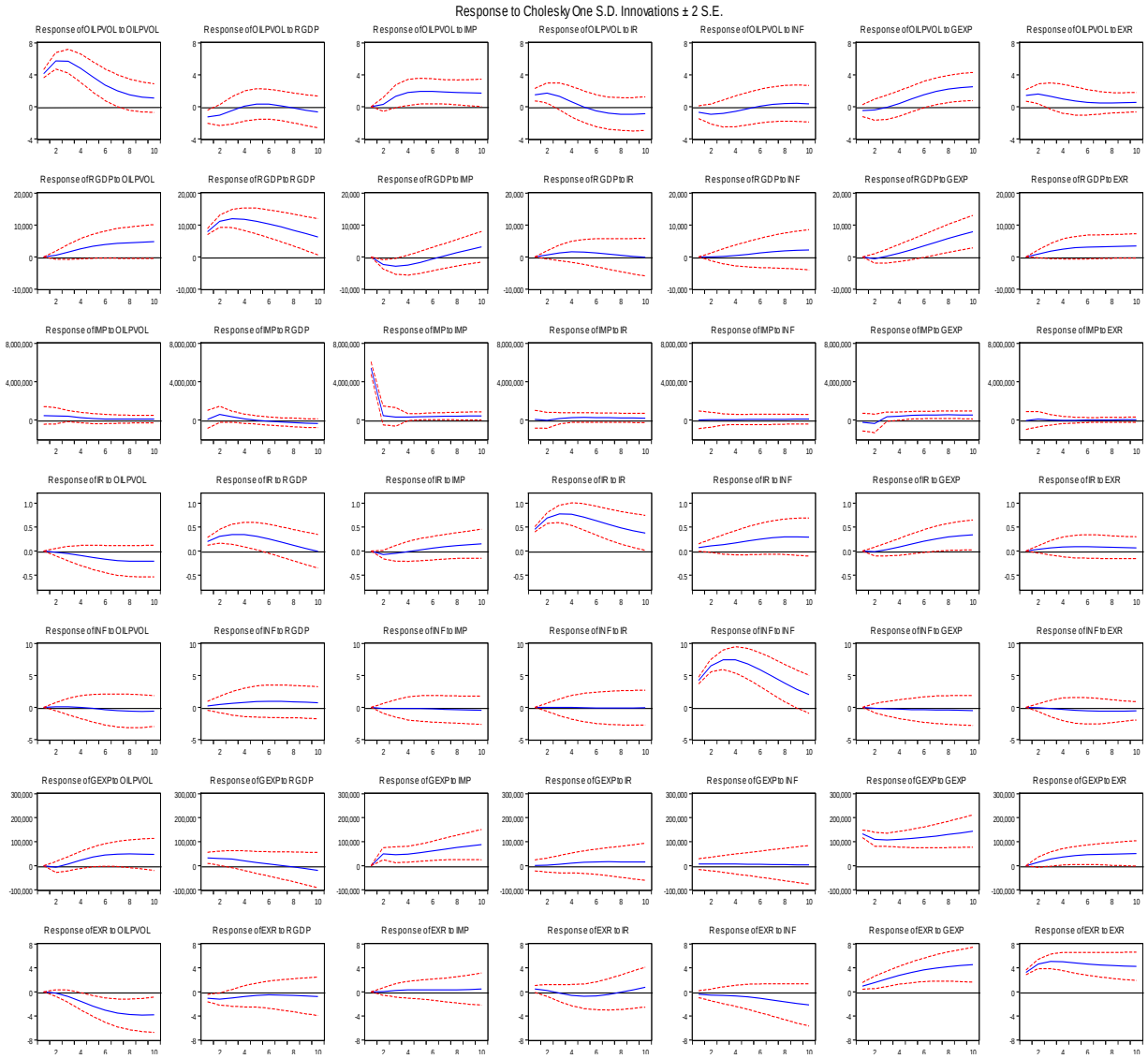
Pairwise Granger Causality Tests **Lags: 2** **Null Hypothesis:**	**Obs**	**F-Statistic**	**Prob.**
OILPVOL does not Granger Cause RGDP		6.26695	0.0025
RGDP does not Granger Cause OILPVOL	138	6.04819	0.0031
OILPVOL does not Granger Cause INF		0.99567	0.3722
INF does not Granger Cause OILPVOL	138	0.02612	0.9742
OILPVOL does not Granger Cause IR		0.28218	0.7546
IR does not Granger Cause OILPVOL	138	0.15834	0.8537
OILPVOL does not Granger Cause GEXP		1.39666	0.2510
GEXP does not Granger Cause OILPVOL	138	10.2134	7.E-05
EXR does not Granger Cause OILPVOL			
OILPVOL does not Granger Cause EXR	138	3.40057	0.0363
IMP does not Granger Cause OILPVOL		3.79726	0.0249
OILPVOL does not Granger Cause IMP	138	5.24585	0.0064

Authors' Computation

The Granger causality test is used to show the short run relationship of the nexus between OIL PRICE VOLATILITY and Macroeconomic variables. From the result of the test presented in the table above, it is evident that there is bi-directional causality running between the Real Gross Domestic Product and Oil Price Volatility because the probability value of its F-Statistics are less than 5%. Though (Rolle & Uffie, 2015) found a unidirectional causality running from oil price volatility to RGDPGR, both stresses the fact that oil price volatility causes growth. Oil Price Volatility granger causes Import and Import also granger causes Oil Price Volatility, therefore there is also a bi-directional causality existing between Oil Price Volatility and Import; a uni-directional causality exists between Exchange rate and Oil Price Volatility whereas there is no causal relationship between Oil Price Volatility and Inflation rate. The result of the Granger Causality test above depicts that Oil Price Volatility and Real Gross Domestic Product causes each other thereby justifying the assertions made above under the cointegration test that the variables have a long run relationship.

VAR Models: In order to analyze the dynamic properties of the VAR models, the variance decomposition and impulse response functions will be used. The table below displays the impulse responses of the RGDP,INF, IR, GEXP, OILPVOL, EXR, and IMPORT. The X-axis shows the time while the Y-axis shows the percentage variation in the dependent variable away from its base line level. The bold line in each graph is the estimated response while the dashed lines denote the one standard error confidence band around the estimate. There is no consensus on an explicit criterion for significance in a VAR framework. Sims (1987) however suggests that for impulse responses, significance can be crudely gauged by the how much the function moves away from zero, whilst Runkle (1987) suggests a probability range above 10 percent for variance decompositions.

Figure 1: Impulse response function



The impulse response graph above shows the response of macroeconomic variables to one standard deviation shock of OILPVOL on the first column while the response on OILPVOL to one standard deviation shock of macroeconomic variables is shown on the first row. Since our interest is to find out the impact of OILPVOL on macroeconomic variables, we proceed to interpret only the first column of our impulse response function. The response of OILPVOL to one standard deviation to its own shock shows a positive but a fluctuating trend into the future and then stabilizes along the horizon; it then becomes relatively stable up to the tenth period but never becomes negative. The response of RGDP to one standard deviation in OILPVOL indicates a positive and a rising response through-out the horizon. This suggests that one standard innovation to OILPVOL will generate an increase in the real gross domestic product within the economy. The impulse response of IMP to one standard innovation in the OILPVOL maintains a stable and a flat response all through the horizon. It neither rises nor falls along the horizon. The impulse response of IR to one standard deviation in OILPVOL is negative and fluctuates further into negative both in the short and long run. The response of INF to one standard innovation in OILPVOL is almost zero in the short run, this is because it lied on the origin up to the fifth quarter and afterwards declines slightly into negative through-out the horizon into the long run. This shows that inflation does not respond much to changes in OILPVOL. A response of GEXP to OILPVOL shock indicates a negative response in the short run but rises into positive in the long run and rises all through the horizon. This shows that a change in the OILPVOL growth rate will trigger a

significant rise in GEXP. The impulse response function of the EXR to one standard innovation in OILPVOL shock indicates a negative and a fluctuating trend further into negative from the short to the long run.

Variance decomposition: The variance decomposition provides complementary information on the dynamic behavior of the variables in the system. It provides information on the importance of various structural shocks explaining the forecast error variability of OILPVOL that could be attributable to other variables. The tables below show the variance decomposition for each of the variables over the short term period (1-5 years) and over the long term (6-10 years):

Table 5: Variance Decomposition of OILPVOL

Period	S.E.	OILPVOL	RGDP	IR	INF	IMP	GEXP	EXR
1	3.604725	71.97409	6.658256	6.893848	0.757305	0.530816	1.041156	12.14453
2	6.238187	76.86244	4.143269	5.878215	0.917074	1.181895	0.650662	10.36644
3	8.446539	78.18476	2.795720	4.812510	0.958312	3.827919	0.415144	9.005633
4	10.39536	77.80939	2.195484	3.930204	0.902483	6.672879	0.437086	8.052474
5	12.22377	76.20470	1.985881	3.437452	0.809792	9.189771	0.991743	7.380667
6	13.99118	73.66295	1.875632	3.358329	0.742516	11.21270	2.268334	6.879536
7	15.70467	70.51196	1.756007	3.569659	0.726846	12.74552	4.220635	6.469369
8	17.35483	67.09483	1.659063	3.894478	0.746218	13.88211	6.611535	6.111763
9	18.93520	63.68631	1.648863	4.190658	0.766809	14.74679	9.161660	5.798910
10	20.44672	60.45137	1.754421	4.385545	0.765507	15.44799	11.65897	5.536203

Authors' Computation

From the table above, we can see that the variance decomposition of the OILPVOL to itself indicates that it accounts for the most of the variability over the periods, ranging between 71% in the short run to 60% in the long run. However, RGDP and EXR show that some of the variability or the shock in OILPVOL could be attributed to them, though they show a decreasing pattern from the first quarter; it ranges from 6% to 1% and from 12% to 5% in the tenth period respectively. Whereas that of IMP shows an increasing pattern ranging from 1% to 15% in the tenth period. The shock of the OILPVOL to other variables in the model such as GEXP, INF and IR show a decreasing pattern from 1st quarter with a range from 11%, 0.7% and 4% respectively in the tenth period. The variance decomposition of RGDP shocks to itself account for the most of the variability over all the periods ranging from 100% to 68% in the long run; whereas the shock to OILPVOL ranges from 0% in the first period to 8% in the 10th period. This result is consistent with the findings of Verheyen (2010) studying about the US economy attests to the fact that GDP dominates its own shock and that all other shocks account each for about 10% of the variance. In our study, the result indicates that EXR account for about 4% of the variance. However, a variance decomposition of RGDP shock to IR, GEXP, IMP, and INF shows different pattern with GEXP accounting for the highest variability among them of about 13%.

Table6: Variance Decomposition of RGDP

Period	S.E.	OILPVOL	RGDP	IR	INF	IMP	GEXP	EXR
1	4.865311	0.000000	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	8.017857	0.284771	96.32789	0.116576	0.015252	2.594699	0.125720	0.535096
3	10.13264	1.101559	93.43182	0.344004	0.060275	3.588461	0.092303	1.381578
4	11.44571	2.230960	90.98402	0.516910	0.154163	3.493497	0.360530	2.259924
5	12.26209	3.491011	88.52154	0.579419	0.312217	2.974560	1.093143	3.028105
6	12.82565	4.729161	85.68440	0.553504	0.536855	2.453875	2.402379	3.639828
7	13.28719	5.852481	82.24905	0.488594	0.812061	2.147986	4.348551	4.101277
8	13.71794	6.819959	78.13825	0.426240	1.105755	2.149426	6.920453	4.439912
9	14.14211	7.623572	73.40704	0.387525	1.378866	2.481183	10.03504	4.686777
10	14.56425	8.270680	68.20734	0.375294	1.596682	3.126495	13.55438	4.869121

Authors' Computation

Table 7: Variance Decomposition of GEXP

Period	S.E.	OILPVOL	RGDP	IR	INF	IMP	GEXP	EXR
1	7942.340	0.000000	5.769663	0.000000	0.000000	0.000000	94.23034	0.000000
2	13962.33	0.320611	5.820819	0.000873	0.027066	6.872731	86.42174	0.536157
3	18842.30	0.243915	5.502334	0.001941	0.073424	9.014201	83.32279	1.841396
4	22748.17	0.730486	4.720004	0.025398	0.112788	10.44820	80.55533	3.407795
5	25937.86	1.720399	3.865665	0.068554	0.134821	11.87364	77.53995	4.796969
6	28634.31	2.789924	3.119695	0.109107	0.141232	13.38532	74.62788	5.826841
7	31011.63	3.633432	2.533652	0.134192	0.137507	14.89613	72.15497	6.510116
8	33202.68	4.153621	2.111886	0.143959	0.128101	16.30882	70.22389	6.929723
9	35307.98	4.381911	1.849987	0.143926	0.115770	17.56359	68.77369	7.171124
10	37402.45	4.395048	1.743031	0.139547	0.102240	18.63842	67.68095	7.300772

Authors' Computation

The major source of variation in GEXP forecast errors shows it is its own shock which ranges from 94% to 67% in the long run. The innovations of GEXP to EXR and OILPVOL account for the forecast error variance ranging from 0% to 7% and 0% to 4% respectively. Hence, we can conclude that government expenditure dose not respond much to variations in the Exchange rate and Oil Price Volatility in the short run but can in the long run as well as to IMP which accounts to about 18% of the variability in the GEXP. This is further strengthened by the assertion that public expenditure impacts on most of the macroeconomic variables (Rolle and Uffie, 2015). However, the variance decompositions indicate that GEXP shocks explains though not dominant proportion of the forecast error variance of Income (RGDP) in the short run but not in the long run. Moreover, this result shows that INF and IR do not in any way account for the variations in GEXP both in the short and long run.

Table 8: Variance Decomposition of EXR

Period	S.E.	OILPVOL	RGDP	IR	INF	IMP	GEXP	EXR
1	0.502954	0.000000	8.399026	0.000000	0.000000	0.000000	7.228794	84.37218
2	0.915992	0.109772	6.600038	0.605036	0.001286	0.002708	8.468869	84.21229
3	1.259558	0.921435	5.049589	1.727144	0.001036	0.039773	11.02701	81.23401
4	1.530797	2.946371	3.858013	2.835740	0.019091	0.065000	13.98584	76.28995
5	1.742160	5.996138	3.005758	3.523025	0.097473	0.063599	16.90378	70.41023
6	1.909367	9.403472	2.419950	3.684565	0.278725	0.051585	19.48625	64.67545
7	2.045994	12.53058	2.028270	3.449752	0.584435	0.041029	21.63465	59.73128
8	2.161627	15.02771	1.775134	3.021442	1.007029	0.033598	23.37490	55.76019
9	2.262225	16.81320	1.619284	2.571387	1.513228	0.028743	24.78322	52.67094
10	2.351288	17.96168	1.530397	2.207139	2.054033	0.029325	25.94491	50.27252

Authors' Computation

From the result of the variance decomposition of the EXR obtained, own shock constituted the predominant source of variations for variables in the model. Apart from own shock, the most dominant variable is GEXP and OILPVOL. All through the ten-period horizon, it maintained an average significant influence of 7% to 25% and 0% to 17% from the short to long run. Other variables could account to an insignificant influence to the changes in EXR throughout the ten periods.

Table 9: Variance Decomposition of INF

Period	S.E.	OILPVOL	RGDP	IR	INF	IMP	GEXP	EXR
1	4.211266	0.000000	0.366844	0.000000	97.53329	0.000000	0.246462	1.853400
2	7.768606	0.020354	0.445991	0.001507	97.33151	0.046390	0.135558	2.018691
3	10.77730	0.026061	0.574002	0.003319	96.98448	0.048553	0.091987	2.271603
4	13.11750	0.018384	0.750788	0.003720	96.54526	0.048692	0.066069	2.567086
5	14.82444	0.022377	0.959387	0.003375	96.03090	0.055274	0.051743	2.876948
6	16.00106	0.057938	1.178376	0.002973	95.46401	0.072669	0.046417	3.177620
7	16.76973	0.128984	1.388801	0.002723	94.87372	0.104689	0.050204	3.450882

8	17.24631	0.224017	1.577986	0.002637	94.29165	0.153381	0.065372	3.684957
9	17.52781	0.323770	1.740239	0.002877	93.74475	0.217879	0.095654	3.874827
10	17.68822	0.410372	1.875411	0.003807	93.24933	0.294542	0.145140	4.021401

Authors' Computation

The result from the table above shows that the variance decomposition of the INF to itself indicates that it accounts for the most of the variability over all periods; it ranges from 97% in the short run to 93% in the long run. This means that inflation account for almost all the variations in itself both in the short and long run. The shock of INF to rest of the variables reveals that they all had an insignificant impact in explaining the variability in INF both in the short and long run. However, EXR explained to the tune of 4% only in the long run.

Table 10: Variance Decomposition of IR

Period	S.E.	OILPVOL	RGDP	IR	INF	IMP	GEXP	EXR
1	5447982.	0.000000	15.92974	79.98212	2.722580	0.000000	0.021540	1.344019
2	5529038.	0.032419	16.21314	78.13057	2.689561	0.697305	0.006525	2.230482
3	5576653.	0.163498	16.17912	77.15292	2.998434	0.533606	0.131833	2.840585
4	5612407.	0.464111	15.96850	75.81959	3.623807	0.374933	0.517400	3.231651
5	5653162.	0.960978	15.45847	74.03690	4.535421	0.297227	1.276787	3.434218
6	5698433.	1.631982	14.63432	71.84423	5.664270	0.303578	2.426744	3.494869
7	5747600.	2.403798	13.59190	69.35926	6.893802	0.386941	3.902170	3.462132
8	5799587.	3.183046	12.48294	66.74775	8.086871	0.539485	5.581816	3.378096
9	5853365.	3.890908	11.45296	64.17234	9.123737	0.753340	7.332925	3.273797
10	5907966.	4.482092	10.60267	61.75267	9.928379	1.020217	9.045066	3.168906

Authors' Computation

The variance decomposition of the IR shows that among all the variables, its own shock explains about 79% to 61% of the forecast error variance during the period under review. However, the result shows that RGDP explains a reasonable percentage of the variations in interest rate of about 15% and 10% of the variation. Also the result indicates that apart from RGDP, INF explains about 9% of the changes in the IR, while OILPVOL explain about 4 % of the changes in the IR. The variance decomposition of IR to GEXP, EXR and IMP explains about 9%, 3.1% and 1% of the variations in the long run respectively. The variance decomposition of the IMP shows that among all the variables, its own shock does dominate in explaining its variability accounting to the tune of 99% to 89% of its changes. Other sources of the variability in IMP are GEXP and RGDP account up to 6% and 2% of the forecast error variance during the period under review. The result from the table also shows that OILPVOL could not explain much of the variability in IMP, accounting about just 1.1% in the long run.

Table 11: Variance Decomposition of IMP

Period	S.E.	OILPVOL	RGDP	IR	INF	IMP	GEXP	EXR
1	136989.4	0.000000	0.013707	0.028286	0.001549	99.78184	0.167388	0.007228
2	185348.9	0.532277	1.105323	0.033796	0.011605	97.73049	0.562174	0.024333
3	222491.6	0.978194	1.460384	0.119644	0.016529	96.45404	0.943464	0.027741
4	257278.9	1.116036	1.499595	0.301326	0.020377	95.56544	1.467802	0.029427
5	292027.2	1.148647	1.478465	0.512015	0.024613	94.61225	2.193235	0.030778
6	327414.7	1.147861	1.499137	0.705409	0.030777	93.58647	2.997325	0.033021
7	363358.4	1.138109	1.596675	0.867996	0.039668	92.49360	3.827106	0.036850
8	399697.9	1.126642	1.775677	1.000045	0.051054	91.36235	4.641693	0.042541
9	436356.1	1.115756	2.026003	1.106026	0.063759	90.22089	5.417583	0.049986
10	473325.5	1.105603	2.332309	1.190923	0.076184	89.09273	6.143343	0.058911

Authors' Computation

5. Conclusion and Policy Implications

In conclusion, the data analysis in this work started with the descriptive statistics result, which indicates that all the variables under consideration have positive mean with 140 observations. The highest standard deviation was recorded by Government Expenditure of 1651571 while the least standard deviation of 2.878867 is recorded by Interest Rate. We therefore conclude that since the Jarque-Bera probability for the variables shows that the error terms are normally distributed, and then the regression result is good. To test for stationarity or the absence of unit roots was carried out using the Augmented Dickey Fuller test (ADF) and Philip Perron which gave almost the same result that all the variables are integrated of order one I(1) except inflation rate and import under the ADF test which were stationary at level, hence the variables does not have a unit test.

The Correlation result shows that apart from inflation which reveals a negative relationship with OILPVOL all the other variables have positive and strong relationship with OILPVOL. The negative relationship between OILPVOL and INF depicts that with a rise in OILPVOL, INF will come down while a positive relationship of OILPVOL with RGDP, (EXR), (GEXP), (IMP), and (IR) implies that they are directly related. The causality test that was conducted reveals a bi-directional causality running between OILPVOL and RGDP, hence, an increase in income will likely lead to more of this risen income being shift to other economies in form of excess purchase of crude oil final product leading to capital flight which in turn bring about a fall in Naira exchange rate which (all things being equal) has the capacity of attracting capital back into the economy and then a vicious circle can be ensued. The causality test also reveals there is a unidirectional causality running from Oil Price Volatility to Money Supply, Exchange rate to Oil Price Volatility and Government Expenditure to Oil Price Volatility which was consistent with the findings of Apere and Ijomah (2013) in Nigeria that there is a unidirectional relationship exists between exchange rate and oil prices, and a significant relationship between oil prices and real GDP was not found. Though there were no causal relationship between Oil Price Volatility, interest rate and Inflation rate as presented in this work but Apere and Ijomah (2013)were of the view that there is. Moreover, the multiple regression analysis reveals that OILPVOL does actually impact on the Nigerian economy because the probability test is less than 5% and if OILPVOL increases by one unit, RGDP will increase by 525.5 units.

In addition, the dynamic properties of the VAR Model were interpreted using the impulse response function and variance decomposition. The response of RGDP, IR, GEXP and EXR to one standard deviation in OILPVOL all shows a positive response and stabilizes along the horizon in the long run. Whereas the impulse response of the IMP and INF to one standard innovation in the OILPVOL is negative and stable in the short run but rises along the horizon and becomes positive in the long run. Finally, the impulse response of IR to one standard deviation in OILPVOL is positive but fluctuates into negative along the horizon in the long run. Its variance decomposition shows that among all the variables, its own shock explains about 76% to 53% of the forecast error variance during the period under review; while OILPVOL explain about 4 % of the changes in the IR. INF responds negatively to one standard innovation in OILPVOL both in the short and long run. The result of the variance decomposition of INF shows that OILPVOL does not show any pattern of impact on the forecast error of INF both in the short and long run. A response of GEXP to OILPVOL shock indicates a positive and OILPVOL account for the forecast error variance in GEXP ranging from 0% to 16%. The impulse response function of the EXR to one standard innovation in OILPVOL shock indicates a positive but fluctuates along the horizon in the long run negatively while its variance decomposition from one standard innovation in OILPVOL average 1.6% in the short run to 15% in the long run.

Policy Implication: A lot of policy implications can be deduced from the findings made in this work. Information gathered from this study reveals that oil price volatility stimulate Nigeria's real gross domestic product through government expenditure because it could explain the variability in this variables both in the short and long run and the short run causality was further strengthened by the granger causality test revealing a bi-causality. This implies that a good fiscal policy measure could stimulate both internal and external balances. Therefore government expenditure changes with changes in oil generated revenue. This finding is consistent with other empirical evidence such as corroborate findings by (Rolle & Uffie, 2015) and Richard and Ronald (1980).Moreover, the impulse response of Interest Rate (IR) to one standard deviation in OILPVOL is negative and fluctuates further into negative both in the short and long run. This result simply

suggests that a steady fluctuating oil prices will necessitate an expansionary monetary policy measure which will further generate internal imbalances. This is because, with a fall in interest rate, aggregate expenditure will exceed potential output; therefore, the excess will be supplemented from output from abroad which can give rise to further external imbalance. Moreover, this can further deteriorate the exchange rate and other macroeconomic variables. Therefore the combination of a monetary and fiscal policy measures will be necessary to restore the economy back to equilibrium.

Furthermore, INF responds negatively to one standard innovation in OILPVOL both in the short and long run and the result of the variance decomposition of INF shows that OILPVOL does not show any pattern of impact on the forecast error of INF both in the short and long run. The correlation matrix and the variance decomposition of inflation further amplify this with a negative and a low relationship and no variability in inflation was explained by oil price volatility respectively. This therefore suggests that domestic inflation could not be explained by the fluctuations in the oil price. Hence, the Nigerian inflation rate could be as a result of structural changes, increase in money supply and consumers' expectation of high inflation rate. However, Oriakhi and Iyoha (2013) opined that oil price volatility only impacts on broad money supply when crude oil sales proceeds are monetized, thereby bringing to light the possibility of oil price volatility leading to inflation by increasing the Money supply.

Recommendation: Based on the findings from my study, the following recommendations are therefore made:

- The Federal Government need to diversify the economy to other sectors of the economy rather than concentrate only on the oil sector as the only source of revenue to the country.
- The Federal Government through the Central Bank are advised to simultaneously pursue an expansionary monetary and expansionary fiscal policies during periods of high volatility in Oil Price (in this case; a persistent increase) so as to be able to still maintain a stable equilibrium in the economy and vice versa.
- Government should ensure the adoption of an effective monetary policy measure as it does help in maintaining both internal and external balance under a floating exchange rate system.
- Attention should be given to other factors or determinants of income in Nigeria as it has a bi-directional causality with Oil Price Volatility.
- Investors are therefore encouraged to fully participate in the economy as it will help to generate foreign reserves for the economy.

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FDI and FPI Determinants in Developing African Countries

Patricia Lindelwa Makoni
Department of Finance, Risk Management and Banking, University of South Africa (UNISA), South Africa
patricia.makoni@gmail.com

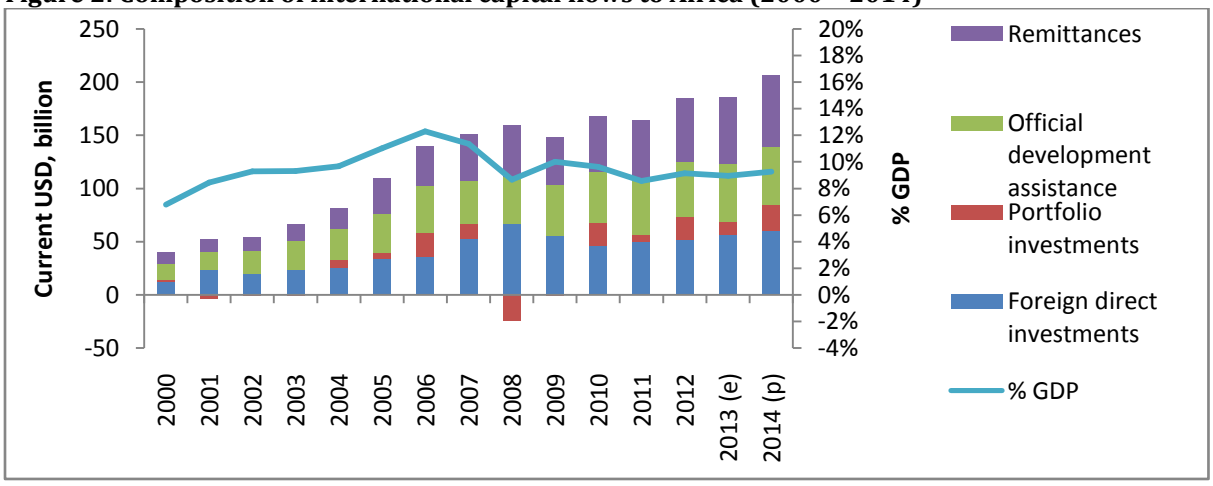
Abstract: We examine drivers of foreign direct investment (FDI) and foreign portfolio investment (FPI) in nine selected African economies, during the period 1980 to 2014, with particular interest in the role of financial market development. We set out to explore the drivers of FDI and FPI in selected African countries, respectively. We employ the dynamic GMM methodology to assess the motivators of inward foreign flows. The results show that FDI inflows are generally dependent on past inflows of FDI, low inflation, infrastructural development, and real GDP growth rate; while stock market capitalisation, commercial bank assets gauged against commercial and central bank assets as well as domestic credit to the private sector by banks intermediate for financial market development. On the other hand, we find that FPI inflows are attracted to foreign destinations due to previous FPI inflows, the real exchange rate, inflation rates and the presence of developed infrastructure. Further, developed financial markets, as proxied by stock market capitalisation, were found to significantly and positively influence inward FPI flows, while a closed financial account and low interest rate discouraged FPI. The significant contribution of this paper is that its findings empirically confirm FDI and FPI theory, as postulated in Dunning's eclectic paradigm insofar as the main "location" variables that enhance host country attractiveness are concerned, specifically in the African context. In light of these findings, we recommend that policy makers strengthen their domestic markets, complemented by appropriate regulations and institutions to attract foreign investment flows, while reducing their dependency on international aid and loans.

Keywords: *Foreign direct investment (FDI), foreign portfolio investment (FPI), financial market development (FMD), GMM*

1. Introduction

According to De Santis and Ehling(2007), international capital flows have attracted the interest of policy-makers, central banks, international institutions, investors and academia. International capital flows can be classified as either foreign direct investment (FDI), foreign portfolio investment (FPI) or foreign debt (Kirabaeva & Razin, 2013; Agbloyor, Abor, Adjasi & Yawson, 2014). Asiedu (2006) lamented that foreign portfolio investment is unavailable to most African countries, and most of the countries on the continent cannot raise funds from international capital markets because their own domestic financial markets are not sufficiently developed. Makoni (2014) conceded that despite Africa being endowed with vast natural resource deposits, basic infrastructure and an abundant supply of low-cost human capital, there are still limited FDI inflows.

Figure 2: Composition of international capital flows to Africa (2000 – 2014)



Source: African Development Bank (2015)

In
, although FDI and FPI have both shown signs of recovery since the 2008 global financial crisis, these flows still remain significantly low. FDI inflows to Africa rose from US$46 billion in 2008, to US$51.7 billion in 2012, while FPI rebounded from a negative US$24.6 billion position in 2008, to a positive US$22 billion in 2012 (African Development Bank Economic Outlook Report, AfDB, 2015). Using country-level data for nine selected African countries for the period 1980 to 2014, this paper explores factors that give rise to inward FDI and FPI flows to selected African countries, looking specifically at the role played by financial market development, by employing the dynamic generalized method of moments (GMM). The remainder of this paper is as follows: Section 2 gives a detailed review of literature on the determinants of FDI and FPI, respectively. The data is presented in Section 3, while the methodology and empirical analyses are in Section 4. The paper ends with a brief discussion of the findings, conclusion and policy recommendations.

2. Literature Review

Foreign Direct Investment: FDI theory is rooted in the early work of Smith (1776) as cited in Smith (1937) and Ricardo (1817); andsuch theory was related to international specialisation of production. However, Smith's theory of absolute advantage did not explain how trade arose between countries where one country was not in the business of production, while Ricardo's (1817) FDI was based on the theory of comparative advantage. Ricardo's (1817) theory was also flawed because it was based on the assumptions of two countries, two products and perfect factor (labour and capital) mobility, but still did not justify international capital movements (Kindelberger, 1969). Other well-known scholars to theorise FDI include Mundell (1957), Vernon (1966), Casson (1979), Rugman (1980), Calvet (1981), Kojima and Ozawa (1984), and Grosse (1985). Although some of these researchers made a concerted effort to incorporate capital, location, industrial organisation, growth of the firm, market failure, foreign exchange parity, investment portfolio and product lifecycle theories into one whole theory to attempt to explain the motives and patterns of FDI, most credit is given to Dunning's eclectic paradigm (theory) of international production (Boddewyn, 1983).

Dunning's 1977 Eclectic Paradigm posits that FDI occurs under different scenarios of ownership, locational and internalisation advantages (OLI). According to Dunning (2000), in order for a firm to engage in foreign direct investment, a firm should possess net, firm-specific *ownership* advantages over other firms serving particular markets such as trademarks, patents, information and technology. Furthermore, FDI location is influenced by firm behaviour insofar as the motives of its location is concerned, that is, whether it is resource-seeking, market-seeking, efficiency-seeking or strategic asset seeking. However, the overarching decision is in fact taken on the basis of economic geography which considers country-level characteristics such as its natural resources endowment, availability of labour, local market size, infrastructure and government policy regarding these national resources (Popovici & Calin, 2014). Lastly, it must be more profitable for the firm possessing these ownership advantages to use them for itself (internalisation), rather than to sell or lease them to foreign firms through licensing or management contracts (externalisation).

International empirical studies have highlighted human capital, degree of openness and inflation as being leading determinants of FDI. Al Nasser and Gomez (2009) tested the influence of financial market development and found a positive relationship between FDI and stock market development, as well as a significant and positive correlation between FDI inflows and credit offered by banks to the private sector. Later, Zheng (2009) found that inward FDI flows to China and India were influenced by domestic market growth, imports, cost of labour, and political risk. Similar to Zheng's (2009) survey were the findings of Leitao (2010) on Greece using data from 1998–2007, who concluded that trade openness; market size and labour costs were significant FDI determinants. Empirical evidence on Africa shows that the main FDI determinants are infrastructure, trade openness, natural resource endowment, low inflation and efficient legal systems (Anyanwu & Erhijakpor, 2004; Asiedu, 2006; Bokpin, Mensah & Asamoah, 2015).

Foreign Portfolio Investment: FPI theory, on the other hand, is premised on macroeconomic variables, namely interest rate differentials and exchange rate fluctuations. By extending the FDI eclectic paradigm, Dunning and Dilyard (1999) explained FPI using *OLE* (Ownership, Location and Externalisation). Their argument was that usually "O" variables are already present, so the choice of outlet for FPI depends on "L" and "E" variables. The location "L" specific advantages were suggested to be the result of the host nation's

political stability, level of financial market liberalisation and sophistication, as well as government macro and microeconomic policy. Finally, externalisation justifies the use of external markets rather than internal ones for the transfer of capital by playing a supporting role to ownership and location advantages.FPI provides opportunities for real economic growth, as well as potential social, economic and political development, including job creation, reduced cost of capital for domestic companies, forced compliance with transparency and corporate governance and capital market integration (Sawalha, Elian & Suliman, 2016). According to Gumus, Duru and Gungor (2013), unlike FDI flows, FPI is affected by several macroeconomic factors, primarily through their interaction with the financial markets. Earlier empirical studies confirmed that FPI was influenced by interest rates, foreign exchange rates, inflation rates, economic growth, government consumption, country risk, political risk, transaction costs and rates of return (Ekeocha, Ekeocha, Malaolu & Oduh, 2012; Sarno, Tsiakas & Ulloa, 2015).Other studies show that investors seek destinations with sound institutions and good (corporate) governance principles, as well as developed local financial markets (Calvo, Leiderman& Reinhart,1996; Fernandez-Arias, 1996; Chuhan, Claessens & Mamingi, 1998).

The effects of financial intermediation and financial markets on economic growth is magnified through capital accumulation, i.e. the rate of investment, as developed financial markets result in higher mobilisation of savings amongst locals. According to Hearn, Piesse and Strange (2010), stock market development facilitates both FDI and FPI through the acquisition of shares in local firms, thereby supplementing low levels of domestic savings. Agbloyor, Abor, Adjasi & Yawson(2011) add that for African studies, it is imperative to also examine the role of credit markets. Since the banking sector in Africa is much more developed than the equity markets, a significant amount of inward foreign investment is intermediated by banks rather than the stock markets. Hence, while stock markets provide equity finance for investment, the banking sector provides debt finance mobilised at low cost, thereby implying a complementary relationship between the two markets (Agbloyor et al., 2011). From the foregoing discussions, it has been ascertained that both FDI and FPI contribute to the economy of many developing countries. However, the various channels through which investors enter host countries is largely dependent on location-specific characteristics, which are often at the control of the host governments and policy-makers. With this in mind, we seek to identify and confirm the determinants of FDI and FPI and the specific role of the domestic financial markets in host countries in Africa. The next section examines the data set and variables of our paper.

3. Methodology

Data and variables: This study employed annual financial, economic and institutional quality data drawn from the World Bank's Development Indicators and Kuncic's (2014) databases. Table 1 below summarises the variables used in this study, and where they were also applied in similar studies.

Table 1: Indicators of FDI, FPI and FMD variables

Variable	Indicator	Similar Studies (Sources)
FDI and FPI inflow variables		
FDIGDP	Ratio of net FDI inflows to GDP	Alfaro et al. (2004); Asiedu (2006); Otchere, Soumaré & Yourougou (2015)
FPIGDP	Ratio of net FPI inflows to GDP	Agbloyor et al.(2014); Otchere et al.(2015)
Financial market development variables		
SMCAP	Stock market capitalisation of listed companies as % of GDP	Demirguc-Kunt & Levine (1996); Chinn & Ito (2006); Agbloyor et al. (2013)
SMTVT	Stock market value traded (total value as % of GDP)	Demirguc-Kunt & Levine (1996); Chinn & Ito (2006); Soumaré & Tchana (2015)
PCRED	Domestic credit to the private sector by deposit banks as a share of GDP	Demirguc-Kunt & Levine (1996); Agbloyor et al. (2014); Soumaré & Tchana (2015)
LIQLI	Liquid liabilities of the financial system (M3) divided by GDP	Demirguc-Kunt & Levine (1996); Alfaro et al. (2004); Soumaré & Tchana (2015)
CCBA	The ratio of commercial bank assets to commercial bank and central bank assets	Demirguc-Kunt & Levine (1996); Alfaro *et al.* (2004); Soumaré & Tchana (2015)
Economic and other control variables		

RGDPG	Real GDP growth rate	Ekeocha, Ekeocha, Victor & Oduh (2012); Otchere et al. (2015)
REXCR	Real exchange rate	Ekeocha et al. (2012); Otchere et al. (2015)
INFL	% change in GDP deflator	Asiedu (2006); Otchere et al. (2015)
INFRAS	Log(telephone lines per 1,000 people)	Asiedu (2006); Agbloyor et al. (2013); Otchere et al. (2015)
TRDOPN	Sum of imports and exports to GDP	Allen & Ndikumana (2000); Agbloyor et al.(2013); Otchere et al. (2015)
KAOPEN	The extent of financial openness using the capital account openness index (KAOPEN), developed by Chinn and Ito	Chinn & Ito (2002; 2006; 2008)
INTR	The real interest rate as measured by the lending interest rate, adjusted for inflation by the GDP deflator	Agbloyor et al. (2013); Otchere et al. (2015)
NATRES	Total natural resources rent scaled by GDP	Yilmaz, Tag, Ozkan & Degirmen (2014); Agbloyor, Gyeke-Dako, Kuipo & Abor (2016)
INSTQ	Institutional quality, measured by the average of Kuncic's institutional quality variables	Kuncic (2014)
HUMCA	Gross primary school enrolment ratio	Soumaré&Tchana (2015)

A panel data set covering nine African countries for the period 1980 to 2014 was used for our econometric analyses. This study was limited to a sample of nine countries with active stock markets, as well as the period of 35 years, due to data paucity. As such, we focused only on Botswana, Cote d'Ivoire, Egypt, Kenya, Mauritius, Morocco, Nigeria, South Africa, and Tunisia as the sample of African countries.

4. Results

As a preliminary to our econometrics, we ran descriptive statistics for the variables identified. Table 2summarises the descriptive statistics. The pooled results for the African economies in this study from 1980 – 2014indicate that the FDI inflows to Africa as a percentage of GDP were significantly low. The mean of net FDI inflows for the period under review was 2.54% of GDP, with a standard deviation of 12.5. With regard to FPI inflows, the average was 0.85% of GDP, with a standard deviation of 5.7. The minimum FPI as a percentage of GDP was -2.45%, while the maximum was 80.48%. In both cases, FDI and FPI disinvestment is deemed to have occurred in economies where the flow values were negative, thereby implying that outflows occurred during that period. The low FPI inflows could be attributed to the lowly developed financial markets in Africa, with most businesses depending on the banking sector rather than the stock markets as conduits for raising capital locally.

Table 2: Summary statistics for variables used in the pooled estimation (1980 – 2014)

Variable	Obs	Mean	Std. dev.	Minimum	Maximum
FDIGDP	315	2.5384	12.4781	-6.8976	220.0027
CCBA	315	84.9239	16.4528	30.6772	99.9982
FPIGDP	290	0.8532	5.6983	-2.4517	80.4750
HUMCA	315	97.7552	14.0608	63.1297	119.8757
INFL	315	9.5592	11.9203	-5.6657	113.0764
INFRAS	315	57.7868	67.5143	1.0267	315.0345
INTR	315	14.4184	4.8941	4.815	36.24
PCRED	315	42.5110	32.1195	6.6405	160.1249
SMCAP	290	36.9983	48.9544	1.8105	278.3918
SMTVT	290	8.1314	21.6165	0.0165	142.1928

TRDOPN	315	73.57416	25.9787	23.6089	137.1121
INSTQ	189	0.4992	0.1215	0.2543	0.7157
NATRES	315	9.2426	12.3902	0.0034	73.4978
RGDPG	315	3.9623	4.2602	-13.1279	33.7358
LIQLI	315	49.8062	22.4802	12.8592	112.8303
REXCR	315	68.6415	147.9861	0.4050	733.0385
KAOPEN	306	-0.5102	1.2994	-1.8889	2.3897

Using various dynamic panel data techniques, we set out to identify and examine the determinants of FDI and FPI, focusing mainly on the role of financial market development. The Hausman test was used to select the appropriate approach between fixed and random effects estimators in our panel data. Mundlak (1978) argued that the REM assumes exogeneity of *all* the regressors and the random individual effects. We failed to reject the null hypothesis, found no evidence that the random effects estimates are invalid, thereby making random effects more efficient than fixed effects for this study. We utilised dynamic Generalised Method of Moments (GMM) panel estimators to avoid spurious results arising from endogeneity problems, as well as to enhance robustness checks to our results by assuming that the past value of the explanatory variables is uncorrelated with the error term. The dynamic GMM panel data estimation method overcomes some of the shortcomings of cross-sectional estimation biases, such as the omitted variable errors, country-specific effects misspecification, endogeneity and the use of lagged dependent variables in the regression, which are generally encountered in panel data regressions.

The following dynamic generalised method of moments (GMM) models were specified:

$$\mathbf{FDI_{it}} = \mathbf{\alpha_0 FDI_{it-1}} + \mathbf{\alpha_1 FMD_{it}} + \mathbf{\alpha_2 FPI_{it}} + \sum_{\mathbf{n=1}}^{\mathbf{i}} \mathbf{\beta X_{it}} + \mathbf{\varepsilon_{it}} \quad \textit{(1)}$$

$$\mathbf{FPI_{it}} = \mathbf{b_0 FPI_{it-1}} + \mathbf{b_1 FMD_{it}} + \mathbf{b_2 FDI_{it}} + \sum_{\mathbf{n=1}}^{\mathbf{i}} \mathbf{\beta X_{it}} + \mathbf{\varepsilon_{it}} \quad \textit{(2)}$$

Where, FDI_{it} and FPI_{it} are the dependent variables measuring the inflows of foreign direct investment and foreign portfolio investment (US$) as a percentage of GDP into country i for time t, respectively. FDI_{it-1} and FPI_{it-1} represent the lag of FDI and FPI, respectively. FMD_{it} is proxied by different measures of financial market development. α_0 and b_0 denote a constant term, while ε_{it} is a randomerror term. The error term ε_{it} breaks down into $\mu_i + \nu_{it}$. μ_i represents the time invariant country-specific effect, while ν_{it} represents the remainder of the disturbance in the estimated regressions. $VectorX_{it}$ denotescontrol variables that explain the inflows of FDI and FPI to African countries, such as infrastructure, trade openness, human capital development, institutional quality, natural resources, inflation, interest rates, exchange rates, real GDP growth rates.

To overcome the challenge of endogeneity, we employed a GMM-based estimator, which allows for the efficient estimation in the presence of arbitrary heteroscedasticity, as it invokes the orthogonality conditions (Hansen, 2000). Specifically, we used the difference GMM estimator, also known as the Arellano-Bond linear dynamic estimator (Arellano & Bond, 1991), suitable in instances where we have lagged endogenous variables as instruments and cross-section fixed effects. The Arellano-Bond estimation is re-estimated as the first difference of *Equations 1 and 2*, respectively, as follows:

$$\Delta \boldsymbol{FDI_{it}} = \boldsymbol{\delta_0} + \boldsymbol{\delta_1 \Delta FDI_{it-1}} + \boldsymbol{\delta_2 \Delta FPI_{it}} + \boldsymbol{\delta_3 \Delta FMD_{it}} + \sum_{\boldsymbol{j=1}}^{\boldsymbol{n}} \boldsymbol{\delta_j} \Delta \boldsymbol{X_{it}} + \Delta \boldsymbol{\varepsilon_{it}} \quad \textit{(3)}$$

$$\Delta FPI_{it} = \delta_0 + \delta_1 \Delta FPI_{it-1} + \delta_2 \Delta FDI_{it} + \delta_3 \Delta FMD_{it} + \sum_{j=1}^{n} \delta_j \Delta X_{it} + \Delta \varepsilon_{it} \quad (4)$$

Where, Δ represents the first difference operator, $\delta_0$denotes a constant termand the other variables remain as described earlier.The first-difference transformation removes country-specific effects, which may be correlated with the exogenous variables, do not vary with time, hence can be easily removed through the first difference transformation. Failure to remove them, could lead to biases in the estimations. By instrumenting the first differenced lagged dependent variable in *Equations 3 and 4,* with its past levels (as done by the differenced GMM estimator), we are also able to control for any potential autocorrelation.

Discussion: The results from our GMM estimations for FDI are reported in Table 3. As expected, after accounting for endogeneity in the OLS estimation, we find that previous period FDI inflows, macro-economic stability proxied by low inflation rates, domestic credit to the private sector by banks and real GDP growth are positive and statistically significant in the GMM estimations. This confirms that a country that has previously been able to attract FDI will be able to maintain this position. This status quo will however be further advantaged by a stable economy with a low inflation rate and high growth prospects, in line with Asiedu (2006) and Otchere et al. (2015). Like the results of the study by Anyanwu and Erhijakpor (2004), we also find that infrastructural development gauged by fixed telephone lines per 1000 people, natural resource endowment, and real exchange rate are important for attracting FDI. On the downside, high interest rates and poor institutional quality were found to deter FDI inflows, similar to conclusions made by Asiedu (2006) and Anyanwu and Yameogo (2015).

Table 3: Dynamic panel data estimations: FDI

	OLS	FE	RE	System GMM	Differenced GMM
L.FDIGDP	0.263	0.279	0.263	0.263***	0.317***
	(1.33)	(1.36)	(1.42)	(1.33)	(4.08)
FPIGDP	-0.0629	-0.197	-0.0629	-0.0629***	-0.196**
	(-0.55)	(-1.52)	(-0.59)	(-0.55)	(-11.79)
HUMCA	-0.0338	-0.143	-0.0338	-0.0338	-0.144
	(-0.92)	(-1.71)	(-0.99)	(-0.92)	(-0.76)
INFL	0.00629	0.0257	0.00629	0.00629**	0.0254***
	(0.33)	(0.97)	(0.41)	(0.33)	(16.52)
INFRAS	0.0584	0.0270*	0.0584*	0.0584	0.0250
	(1.09)	(2.65)	(2.43)	(1.09)	(1.12)
INSTQ	-11.27	-19.43	-11.27	-11.27***	-19.13***
	(-0.99)	(-0.92)	(-0.73)	(-0.99)	(-5.21)
INTR	-0.229	-0.439	-0.229	-0.229**	-0.433***
	(-1.14)	(-1.30)	(-0.79)	(-1.14)	(-3.81)
NATRES	0.0483	0.175	0.0483	0.0483	0.172
	(1.85)	(1.70)	(0.90)	(1.85)	(0.44)
SMCAP	0.00884	0.0475	0.00884	0.00884	0.0472
	(0.75)	(0.92)	(0.26)	(0.75)	(1.43)
SMTVT	-0.0466	-0.142	-0.0466	-0.0466**	-0.141**
	(-0.81)	(-1.23)	(-0.65)	(-0.81)	(-2.59)
CCBA	-0.0182	0.0158	-0.0182	-0.0182	0.0154
	(-0.57)	(0.35)	(-0.53)	(-0.57)	(0.11)
LIQLI	-0.0493	-0.0461	-0.0493	-0.0493	-0.0459
	(-0.94)	(-0.59)	(-0.93)	(-0.94)	(-0.55)
PCRED	0.0155	0.222	0.0155	0.0155**	0.221***
	(0.55)	(1.39)	(0.49)	(0.55)	(52.62)

REXCR	0.000798	0.0129	0.000798	0.000798	0.0127
	(0.48)	(1.33)	(0.23)	(0.48)	(0.79)
RGDPG	0.0960	0.0939	0.0960	0.0960**	0.0925**
	(1.21)	(1.74)	(1.35)	(1.21)	(3.21)
TRDOPN	0.0246	-0.0473	0.0246	0.0246	-0.0493
	(1.40)	(-0.93)	(1.31)	(1.40)	(-0.38)
_cons	11.46	21.73	11.46	11.46	11.46
	(0.95)	(1.40)	(0.91)	(0.95)	(0.95)
N	305	305	305	305	305

t statistics in parentheses * p<0.05 ** p<0.01 *** p<0.001
NB: diagnostic test results are reported in Table 4 below.

Table 4: FDI diagnostic tests

	OLS	FIXED EFFECTS	RANDOM EFFECTS	2 STEP SYSTEM GMM	DIFFERENCED GMM
Observations	306	306	306	297	297
Groups	9	9	9	9	9
F-stats/Wald chi2	3.73			63.86	705.34
Prob>F/Prob>Wald chi2	0			0	0
Hausman Test		14.59	14.59		
Prob>chi2		0.5550	0.5550		
R-SQUARED					
Within		0.1037	0.0734		
Between		0.0677	0.6406		
Overall	0.0825	0.0206	0.0835		
rho		0.2514	-		
Arellano-Bond AR(1)				-0.57	-0.06
Prob>z				0.57	0.948
Arellano-Bond AR(2)				-2.10	0.04
Prob>z				0.035	0.964
Sargan test of overid				1.04	1.09
Prob>chi2				0.594	0.454
Hansen test of overid				0.6	0.5
Prob>chi2				0.741	0.862
Instruments				8	8

An unexpected result for us was the positive impact that domestic credit to the private sector by banks (PCRED) has on inward FDI flows to our sampled African economies. PCRED measures financial intermediary activity and the efficiency of channelling savings to investors, and is considered to be a common investment vehicle in countries where the stock market is under-developed (Ghartey, 2015). As Anyanwu (2012) pointed out, a high level of credit to the private sector indicates an abundance of domestic capital, in which case, FDI would not be necessary. It was indicated earlier on in this paper that African receives limited inflows of FDI and even less of FPI, thus our finding could in fact imply that domestic savings in these countries are minimal, thereby necessitating FDI. Stock market capitalisation and the ratio of commercial bank assets as a share of the sum of commercial bank and central bank assets (CCBA), also feature as drivers in harnessing FDI inflows by playing an efficient intermediary role of allocating excess funds' in the economy to deficient but productive sectors. Soumaré and Tchana (2015) examined the relationship between FDI and FMD in 29 emerging market economies from 1994 – 2006, and found that FDI and stock market capitalisation have a simultaneous and positive impact on each other (bi-directional causality), while the results for PCRED, CCBA and LIQLI were ambiguous and inconclusive.

On the determinants of FPI, Table 5 indicates that the lag of FPI was positive and highly significant, thereby supporting the proposition that prospective investors examine past trends of FPI prior to making financial commitments in foreign countries. Infrastructural development, institutional quality and stock market capitalisation were also found to positively influence inflows of FPI. These findings are in line with the studies by Daude and Fratzscher (2008) as well as Aggarwal, Klapper and Wyosocki (2005) who earlier found that inward foreign investments were highest in countries strong investor protection, legal framework and accounting standards. It has been argued that infrastructure is key for information dissemination; as are institutions and regulations regarding repatriation of investment income, as well the mere existence a stock market to trade shares the domestic share markets. Foreign direct investment (FDI) and a closed capital account were determined to shun FPI.

Table 5: Dynamic panel data estimations: FPI

	OLS	RE	FE	System GMM	Differenced GMM
L.FPIGDP	0.431*	0.400***	0.431***	0.450***	0.444***
	(2.43)	(10.37)	(10.68)	(6.03)	(7.41)
FDIGDP	-0.00402	-0.0123	-0.00402	-0.00480	-0.0123
	(-0.21)	(-1.27)	(-0.48)	(-0.26)	(-0.72)
KAOPEN	-0.0433	-0.665	-0.0433	-0.0268	-0.657
	(-0.40)	(-1.06)	(-0.16)	(-0.61)	(-1.45)
INFL	0.00430	0.00165	0.00430	0.00256	0.00172
	(0.54)	(0.31)	(0.52)	(0.63)	(0.04)
INFRAS	0.0215	0.0273	0.0215*	0.00344***	0.0260***
	(1.08)	(1.68)	(2.18)	(1.44)	(3.61)
INSTQ	2.715	5.392	2.715	0.268	5.262
	(1.16)	(1.23)	(1.32)	(0.69)	(1.60)
INTR	-0.120	-0.226	-0.120	-0.0149***	-0.223***
	(-1.01)	(-1.02)	(-0.76)	(-1.30)	(-8.02)
SMCAP	0.0201	0.0440	0.0201	0.00593***	0.0435***
	(1.48)	(1.11)	(0.93)	(1.83)	(3.39)
SMTVT	-0.0396	-0.0703	-0.0396	-0.00867***	-0.0688***
	(-1.12)	(-1.26)	(-1.03)	(-1.34)	(-4.15)
CCBA	-0.0439	-0.0380	-0.0439	-0.00687***	-0.0368***
	(-1.14)	(-1.55)	(-1.45)	(-1.59)	(-11.14)
LIQLI	-0.0123	-0.0159	-0.0123	-0.00462	-0.0161
	(-1.42)	(-0.81)	(-1.53)	(-1.72)	(-0.55)
PCRED	-0.00500	0.0189	-0.00500	0.000127	0.0188
	(-0.65)	(1.01)	(-0.43)	(0.04)	(0.28)
REXCR	0.00155	0.00579	0.00155	-0.000161	0.00574
	(0.85)	(1.23)	(0.91)	(-0.59)	(0.92)
RGDPG	0.0224	0.0108	0.0224	0.00825	0.0101
	(0.95)	(0.48)	(1.17)	(0.90)	(0.58)
_cons	3.541	0.997	3.541	0.737	0.821
	(1.14)	(0.50)	(1.03)	(1.74)	(1.87)
N	306	306	306	306	306

t statistics in parentheses * p<0.05 ** p<0.01 ***p<0.001

NB: diagnostic test results are captured in Table 6 below.

We conclude that our findings are similar to those of De Santis and Ehling (2007) who stated that the most important factor determining FDI and FPI transactions is the stock market. The stock market helps explain FDI because it produces signals that are relevant for firm investors. Foreign stock markets and home stock markets determine FPI because they measure the investment opportunity set and wealth effects. Portes and Rey (2005) also found that stock market capitalisation is a key driver of equity flows.

Table 6: FPI diagnostic tests

	OLS	FE	FE	2 STEP SYSTEM GMM	DIFFERENCED GMM
Observations	306	306	306	297	297
Groups	9	9	9	9	9
F-stats/Wald chi2	22.12			77.61	765.48
Prob>F/Prob>Wald chi2	0			0	0
Hausman Test		11.80	11.80		
Prob>chi2		0.6224	0.6224		
R-SQUARED					
Within		0.2830	0.2653		
Between		0.3807	0.8541		
Overall	0.3084	0.2383	0.3048		
rho		0.1746	-		
Arellano-Bond AR(1)				-1.02	-0.01
Prob>z				0.309	0.9
Arellano-Bond AR(2)				-0.99	-0.01
Prob>z				0.320	0.95
Sargan test of overid				3.05	0.01
Prob>chi2				0.962	0.751
Hansen test of overid				0.40	0.01
Prob>chi2				0.99	0.979
Instruments				8	8

5. Conclusion and Recommendations

The aim of this paper was to identify key drivers of FDI and FPI inflows, respectively, to selected African countries. The study confirmed that the previous period's FDI inflows, low inflation, infrastructural development, and real GDP growth rate made countries attractive to foreign investors. Individual financial market variables responsible for the driving inward FDI flows were stock market capitalisation, commercial bank assets gauged against commercial and central bank assets as well as domestic credit to the private sector by banks. On the other hand, FDI was deterred by poor institutional quality and high interest rates.FPI inflows to the selected African countries were enhanced by previous FPI inflows, the real exchange rate, inflation rates and the presence of developed infrastructure. These findings were in line with FPI theory which is premised upon macroeconomic variables, namely interest rate differentials and exchange rate fluctuations, as well as the work of Gumus et al. (2013), who reiterated that FPI is affected by several macroeconomic factors, primarily through their interaction with the financial markets. Developed financial markets as proxied by stock market capitalisation were found to significantly and positive influence inward FPI flows while a closed financial account and low interest rate discouraged FPI. These findings were in line with theory and earlier empirical studies. Insofar as FDI and FPI theory go – this study confirmed the main "location" variables which enhance host country attractiveness as stated in Dunning's eclectic paradigm.

Law and Habibullah (2009) affirmed that well-functioning financial markets and financial institutions should be a policy priority for governments. It is thus recommended that African governments should formulate investment policies which will diversify and develop their other economic sectors such as manufacturing,

agriculture and even financial services, which in the long-run contribute to macro-economic policy goals, while moving away from their dependence on natural resources such as the mining sector alone. Also, there is a growing need to enhance the attraction of domestic financial markets by improving instrument offerings so as to attract increased levels of FPI inflows. Despite having conducted a comprehensive study examining the determinants of FDI and FPI, there is scope for further research. Proposals include identifying the long-run relationships and directions of causality between FDI, FPI and FMD to cover other facets of the FDI-FPI-FMD nexus. With all previous studies having examined FMD using individual market variables, there is an opportunity to develop a composite index to reflect the overall level of financial market development; of which findings can be compared to other studies.

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