Capital Investment Decisions on Entrepreneurial Agricultural Projects in Kwara State

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Abstract: The purpose of this study was to assess the adequacy of the capital investment decisions of Youth Integrated Agricultural Project in Kwara State. The project has two parts: Youth Integrated Farm Training Centre and Farm Settlements. The Youth Integrated Farm Training Centre has produced 650 farmer-graduates, who are now working in the three locations where Farm Settlements are. The sixth batch consisting of 66 farmer-graduates provided the population of the study. From this population a purposive sample of 46 potential respondents was selected. These people filled a researcher-developed questionnaire. Thirty six correctly filled copies of the questionnaire were collected from the respondents. The responses of the thirty six framer-graduates were analyzed based on four research questions derived from the four objectives of the study. The major findings from this analysis were: (i) The Kwara State Government has invested a total of N65,408,129 on the Youth Integrated Agricultural Project in the last ten years; (ii) Seventy two percent of the respondents disagreed with the statements that the allowance paid to the trainees was sufficient. Moreover, ninety two percent of them disagreed with the statement that the empowerment packaged given to them to work in the Farm Settlements was adequate. In the same vein, seventy six percent disagreed that infrastructure in the Farm settlements were adequate; (iii) But the respondents agreed that infrastructure in the Farm Training Centre were adequate. In sum the State Government's capital investment decisions were not enough to make the Youth Integrated Agricultural project an unqualified success.

Keywords: Capital Investment; Decision Making; Agricultural Project

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1. Introduction

1.1. Background to the Study

The potential sources of the capital expenditure on agriculture are private and public, both of foreign and domestic provenances. The way capital stocks are financed currently worldwide suggests that the largest part of total investments comes from private domestics sources (F.A.O., 2009). But in this study capital investment from the public (government) source was the focus.

The size of government expenditures and its effect on economic growth, and vice versa, has been an issue of sustained interest for over decades now (Okoro, 2013). Public expenditure on all sectors of the Nigerian economy is expected to lead to economic development in the sense that both capital and recurrent expenditure will boost the productive base of the economy which in turn will lead to economic growth and development (Modebe, Okaroro, Onwumere & Ibe, 2012). Current expenditure is spending on items that are consumed and only last for a limited period of time. These are items that are used up in the process of providing a good or service, including wages, salaries, stationery, drugs and soon. By contrast, capital expenditure is spending on assets. It is the purchase of items that will last and will be used time and time again in the provision of a good or service. In the case of the government, examples would be building a new hospital, spending on agricultural projects, spending on building, factories, and the purchase of a new computer system, building new roads, and training and development. Capital expenditure has a lasting impact on the economy and helps provide a more efficient productive economy (Barro, 1990). Aregbeyen (2007) established a positive and significant correlation between government capital and public investment and economic growth; while he found that current and consumption expenditures were negatively correlated with it. Government controls the economy through the use of public expenditure. This instrument of government control promotes economic growth in the sense that pubic investment contributes to capital accumulation.

Capital investment from both the private and public sectors has been used to boost agricultural production, foster food security and promote economic development (Butzer, Mundlak & Larson, 2010). Three components of agricultural capital are:

(a)   Fixed capital in arable agriculture.

(b)   Livestock capital, and

(c)   Tree-stock capital

Agricultural production needs to increase by at least 6% per annum in Africa to meet the rising demand for food, arising from population growth, higher income levels and life style changes. Given the limited scope for net area expansion, agricultural growth will rely mainly on new capital. Agricultural investment can

help contain upward pressure in food price in a context of rising land costs and water scarcity, thereby enhancing food security (Larson, Butzer, Mundlak & Crego, 2000). Agricultural in Nigeria is largely at the subsistence level. In recent times in this country modern agricultural is gaining ground and agriculture is run as a business. To run agriculture as a business, one must look at all indices of production and profitability (Azogu, 2014). Mechanization is one of the indices. It has been established that mechanized farming is capital intensive.

Agricultural financing is being seriously addressed. One source is banks, backed by the Central Bank of Nigeria (CBN) policy frameworks. Before now, the rate of bank lending to agriculture was low. With the intervention of the CBN, things have started to change for the better (Jiyah, 2012).

Efforts made in the past by the Federal Government include:

(a)   National Accelerated Food Production Programme, started in 1973.

(b)   River Basin Development Authority.

(c)   Agricultural Development Project.

(d)   Operation Feed the Nation

(e)   Green Revolution Programme

(f)   National Agricultural Land Development Authority

(g)   Strategic Grain Reserve

(h)   National Centre for Agricultural Mechanization

Kwara State was one of the beneficiaries of the Agricultural Development Project (ADP) started in 1974 with a loan assistance from the World Bank. (Jiyah, 2012). Today, the ADP employees have been transferred to the Ministry of agriculture and Natural Resources. The ADP concept put the small farmers at the centre of Agricultural strategy. The CBN's contribution to ADP is indirect. Through the ADP farmers accessing CBN supported credits from the commercial banks.

1.2. Statement of the Problem

The Federal Government of Nigeria through the CBN has established credit schemes such as the Agricultural Credit Guarantee Scheme, the Agricultural Credit Support Scheme, Nigerian Agricultural, Co-operative and Rural Development Bank as well as CBN's agricultural facilities in the commercial and microfinance banks. These initiatives are also available to the farmers under the ADP to get access to guaranteed credit (Jiyah, 2012).

Jiyah, (2012) as well as Akramove (2009), Oyeyinka and Bolarinwa (2009) and the Enhancing Financial Innovation and Access (2008) found that only between 18 to

23 percent of the adult farming population in Nigeria has access to formal financial institutions. In place of the ADP, the Kwara State Government established the Youth Integrated Training Farm Centre at Malete, Moro Local Government area of the State, and Farm Settlements at Oke-oyi, Alateko and Aiyekale. The two complement each other as Youth Integrated Agricultural Project. However, this study examines the level of the funding of the integrated agricultural project to enhance capacity building and agricultural development in the State.

1.3. Objectives of the Study

The purpose of the study was to examine the level of capital investment on the integrated agricultural project by the State Government. The specific objectives were to:

i. examine whether the allowance given to the trainees in the Farm Centre are adequate.

ii. determine whether infrastructure in the Farm Training Centre is adequate.

iii. evaluate whether the money given to graduates of the Centre to empower them is adequate.

iv. establish whether the infrastructure in the Farm settlements is adequate.

2. Literature Review

The Youth Integrated Training Farm Training Farm Centre, Malete was set up in 2005 with the major aim of training youth to position them as successor-generation commercial farmers (State Government, 2013). The objectives of the project are to:

i. Bring about economic empowerment for youth in Kwara State;

ii. Train youth in modern farming methods to improve their lives and livelihoods;

iii. Generate a successor generation of commercial farmers, driven with a mindset of profitability and

iv. Develop agricultural entrepreneurs for job and wealth creation

2.1. Facilities in the Farm Training Centre

To ensure the implementation of the above objectives, the Farm Centre was provided with:

(a) A self-sustaining youth farm with potentials for internally generated revenue from the production of crops;

(b) Light and heavy equipment and implement.

(c)   Accommodation and facilities to carry out their training with ease.

(d)   Sheds to house equipment's and materials.

(e)   A curriculum on 80: 20 practical: theory blend to provide students with skills and knowledge needed to be successful commercial.

(f)   Farmers ICT Centre and a block of two classrooms.

(g)   An advanced agricultural curriculum being prepared for intakes with higher education than the secondary.

(h)   Two bedroom Guest House

2.2. End Products of the Project

Each students-farm gets N8000 monthly allowance. The pioneer 100 trainees spent two years on the training farm and graduated in 2007. On graduation the Kwara State gave them already – prepared farm settlements at Oke Oyi, Alateko and Aiyekale. The total area cleared for their use was 490 hectares. The Farm Centre has since graduated five other batches making a total of 650 young farmers. The hectares prepared for their use were between 400 and 500 hectares at the farm settlements.

Each graduate trainee was empowered with and loan or grants as incentives. The trainees were mandated to form co-operatives. Five of these were:

(i)   New Generation Commercial Farmers with 93 farmers.

(ii)   New Face Co-operative Group Farmers with 64 farmers.

(iii)   Real Image Commercial Farmers co-operatives, with 74 farmers.

(iv)   Harmony Commercial Farmers Group, with 90 farmers.

(v)   Unique Commercial Farmers Co-Operatives, with 97 farmers

(vi)   Excel Commercial Farmers Co-operatives, with 66 members.

2.3. Achievements of the Project

The Farm Centre and the Farm Settlements have achieved the following:

i.   Training of about 650 young farmers.

ii.   Generating manpower for the State's agriculture.

iii.   Selling 800 tons of maize.

iv.   Selling 120 tons of cowpea.

v.   Selling 600 tons of cassava.

vi.   Selling 30 tons of rice.

vii.   Selling 400 tons of soya bean.

viii.   All these sales were done either through the Ministry of Agricultural and Natural Resources or direct to the general public.

ix.   Assisting local farmers with knowledge and skills to improve their agricultural yields.

x.   A collaborative Memorandum of Understanding with Kwara State University, Malete to assist the University develop and sustain its practical training, teaching and research activities in 4 years and a decrease in 6 years. The decline is most pronounced in the last three years.

2.4. Capital Investment on the Project

Table 1. The trends in funding the project is shown below

YEAR	N	TREND %
2005	- 8,150,000	-
2006	- 10,500,000	+ 29
2007	- 5,372,997	- 49
2008	6,640,000	+ 24
2009	4,020,000	- 39
2010	6,640,000	+ 39
2011	6,365,277	+ 4
2012	6,000,000	- 6
2013	3,040,132	- 49
2014	2,040,000	- 33
Total	**65,408,129**	**-**

Source: Ministry of Agriculture and Natural Resources.

In ten years, capital expenditure on the project fluctuates. The trend shows a decrease.

3. Research Methodology

The sixth batch of graduate formed the population of this study. A purposive sample of 46 out of 66 graduates was selected in a captive audience in their co-operative meeting. The potential respondents filled a questionnaire which was designed by the researchers. At the end of the exercise, thirty six returned usable copies of the questionnaire.

4. Data Analysis, Findings and Discussion

4.1. Data Analysis

The responses of the questionnaire application were analyzed based on four research questions derived from the four objectives of the study.

Research Question 1: Do the farmer trainees find the monthly allowance adequate?

Table 2 was used to answer the research question.

Table 2. Adequacy of monthly allowance

S/NO RESPONDENTS	EXTENT OF AGREEMENT SCORE	INTERPRETATION
01	3	Agree (A)
02	2	Disagree (D)
03	2	D
04	1	Strongly Disagree (SD)
05	1	SD
06	1	SD
07	1	SD
08	2	D
09	1	SD
10	4	Strongly Agree (S.A)
11	3	A
12	2	D
13	2	D
14	1	SD
15	1	SD
16	3	A
17	3	A
18	3	A
19	3	A
20	2	D
21	4	SA
22	4	SA
23	4	A
24	2	D
25	2	D
26	2	D
27	2	D
28	2	D
29	2	D
30	2	D
31	2	D

32	2	D
33	2	D
34	2	D
35	1	SD
36	1	SD
	Mean = 1.7	SA = 3 (8%) A = 7 (20%) D = 17 (47%) SD = 9 (25%)

From table 2, it is seen that respondents perceived the allowance paid to be insufficient (mean = 1.7). Indeed 72% of them disagreed or strongly disagreed that the allowance was sufficient.

Research Question 2: Are the infrastructure in the Farm Centre adequate?

Table 3 was used to answer the research question.

Table 3. Adequacy of Infrastructure in the Farm Centre

S/NO RESPONDENTS	SCORE ON ADEQUACY	INTERPRETATION
01	3	Agree (A)
02	3	A
03	3	A
04	4	Strongly Agree (SA)
05	4	SA
06	4	SA
07	4	SA
08	4	SA
09	3	A
10	2	Disagree (D)
11	2	D
12	2	D
13	3	A
14	3	A
15	3	A
16	3	A
17	3	A
18	3	A
19	3	A
20	3	A
21	2	D
22	3	A
23	2	D
24	3	A
25	3	A

26	3	A
27	3	A
28	3	A
29	3	A
30	3	A
31	3	A
32	2	D
33	2	D
34	2	D
35	1	SD
36	2	D
	Mean = 3.6	**SA = 05 (14%)** **A = 22 (61%)** **D = 08 (22%)** **SD = 01 (03%)**

From table 3, it is seen that the respondents strongly agreed that the infrastructure in the Farm Centre are adequate (mean = 3.6), in fact 75% of them agreed or strongly agreed that this was 80

Research Question 3: Are the monies paid to the farmer-graduates sufficient?

Table 4 was used to answer the question

Table 4. Adequacy of Monies Paid To Empower Farmer-Graduates

S/NO RESPONDENT	EXTENT ON ADEQUACY	INTERPRETATION
01	2	Disagree (D)
02	2	D
03	2	D
04	2	D
05	2	D
06	2	D
07	2	D
08	2	D
09	3	Agree (A)
10	3	A
11	3	A
12	3	A
13	3	A
14	2	D
15	2	D
16	3	A
17	3	A
18	3	A
19	3	A

20	3	A
21	2	D
22	2	D
23	3	A
24	2	D
25	3	A
26	2	D
27	2	D
28	2	D
29	2	D
30	2	D
31	2	D
32	2	D
33	2	D
34	2	D
35	2	D
36	3	A
	Mean = 1.8	**SA = 0 (0%)** **A = 13 (08%)** **D = 23 (92%)** **SD = 0 (0%)**

From table 4, it is clear that the respondents disagreed that the respondents disagreed that the monies paid to empower them was to empower them was sufficient (mean= 1.8). In fact 92% of the disagreed with the suggestion that the empowerment was adequate.

Research Question 4: Is the infrastructure in the farm settlements adequate?

Table 5 was used to answer the research question.

Table 5. Adequacy of Infrastructure in the Farm Settlements

S/No Respondent	Score on Adequacy	Interpretation
01	3	Agree (A)
02	3	A
03	3	A
04	2	Disagree (D)
05	2	D
06	2	D
07	2	D
08	2	D
09	2	D
10	2	D
11	2	D
12	2	D

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13	2	D
14	2	D
15	2	D
16	2	D
17	2	D
18	3	A
19	3	A
20	3	A
21	1	Strongly Disagree (SD)
22	1	SD
23	1	SD
24	1	SD
25	2	D
26	2	D
27	2	D
28	2	D
29	2	D
30	2	D
31	3	A
32	3	A
33	3	A
34	3	A
35	2	D
36	1	D
	Mean = 2.2	**SA = 0 (0%)** **A = 11 (24%)** **D = 31 (67%)** **SD = 4 (9%)**

The farmer-graduates disagreed that the infrastructure in the farm settlements were adequate (mean = 2.2). Indeed 76% of the graduates said that the infrastructure were not adequate.

4.2. Findings

The following are the major findings of this study:

i. While the defunct Kwara State Agricultural Development Project (ADP) focused on the small subsistence farmers; the current Kwara State Youth Integrated Agricultural Project focused on successor – generation commercial famers.

ii. The Farm Training Centre aspect of the project, established in 2005, has so far trained 650 modern farmers.

iii. The Farm settlement aspect has produced and sold 1,950 tons of maize, cowpea, cassava, rice and soya beans.

iv. The Kwara State Government has invested a total of N65, 408,129 on the integrated agricultural project in the last ten years.

v. Seventy two percent of the sixth batch of farmer-graduates disagreed that the allowance paid to trainees was sufficient.

vi. Seventy five percent of them agreed that the infrastructure in the Farm Training Centre were adequate

vii.   Ninety two percent of the respondents disagreed with the statement that the empowerment package given to them was adequate.

viii.   Seventy percent of the respondents disagreed that the infrastructure in the farm settlements were adequate.

4.3. Discussion of the Findings

It is noteworthy to emphasize two groups of findings namely:

i. The allowance paid to trainees the monies paid to empower farmer-graduates and the infrastructure in the farm settlements was not adequate.

ii. The infrastructure in the Farm Training Centre were adequate.

It is not difficult to see that young people will not be satisfied with respect to allowances paid, which is N8,000 monthly. This is because N10,000 was earlier promised to them. As for empowerment which is in form of loans or grants the young farmers are in a hurry to put the theoretical knowledge and skills to work so they want a lot of money to establish themselves.

The findings that the infrastructure in the Farm Training Centre were adequate means that the State Government had invested adequate capital to acquire and prepared land appoint teachers, as well as buy light and heavy equipment to teach trainees theoretical and practical aspects of modern commercial farming.

5. Summary, Conclusion and Recommendations

5.1. Summary

The purpose of this study was to assess the adequacy of the capital investment decisions of the Kwara State Government on the Kwara State Youth Integrated Agricultural Project. The project has two parts: Youth Integrated Farm Training Centre and Farm Settlements. The Youth Integrated Farm Training Centre has produced 650 farmer-graduates, who are now working in the three locations where Farm Settlements are.

The sixth batch consisting of 66 farmer-graduates provided the population of the study. From this population a purposive sample of 46 potential respondents. These

people filled a researcher-developed questionnaire. Thirty six correctly filled copies of the questionnaire were collected from the respondents.

The responses of the thirty six framer-graduates were analyzed based on four research questions derived from the four objectives of the study. The major findings from this analysis were:

i. The Kwara State Government has invested a total of N65,408, 129 on the Youth Integrated Agricultural Project in the last ten years.

ii. Seventy two percent of the respondents disagreed with the statements that the allowance paid to the trainees was sufficient. Moreover, ninety two percent of them disagreed with the statement that the empowerment packaged given to them to work in the Farm Settlements was adequate. In the same vein, seventy six percent disagreed that infrastructure in the Farm settlements were adequate.

iii. But the respondents agreed that infrastructure in the Farm Training Centre were adequate.

In sum the State Government's capital investment decisions were not enough to make the Youth Integrated Agricultural project an unqualified success.

5.2. Recommendation

Arising from the findings, the following recommendation is made:

i. The Kwara State Government should expand the scope of the Farm Settlements. This can be done by granting the Farmer-graduates adequate empowerment in form of soft loans and grants.

ii. The State Government should expand the scope of the Youth Integrated Farm Training Centre at Malete to offer courses in advanced modern commercial agriculture.

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Financial Development and Energy Consumption Nexus in Nigeria

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Abstract: This paper re-examines the link between financial development and energy consumption in Nigeria both in the long run and the short run. Earlier study reported a negative relationship between financial development and energy consumption in Nigeria which is quite contrary to theoretical expectation and findings for developed and developing economies. The study employed the ARDL Bounds cointegration approach and a sample period of 1971-2014. A significant long-run relationship was confirmed between financial development and energy consumption in Nigeria. It was also deduced that the development of the financial sector exerted positively and significantly on energy demand in the Nigerian economy, both in the short-run and the long-run periods. It is evident that policies aimed at developing the financial sector have direct and far-reaching implications on energy demand in Nigeria. The paper vividly revealed how development in the Nigerian financial sector exerted on energy demand over a period of 40 years.

Keywords: Financial services; energy demand; ARDL Bounds Cointegration

JEL Classification: C32; D53; E44; G21; G32; P28; Q41

1. Introduction

The role of financial development in an economy is widely discussed in the literature. Both cross-country and country-specific studies discussed the significance of financial development in driving an economy (Shahbaz & Lean, 2012, p. 473; Mehrara & Musai, 2012, p. 473). While the literature is replete with studies examining the link between financial development and economic growth, only paltry studies investigated the relationship between financial development and energy consumption, especially for developing countries like Nigeria. Moreover, a number of studies have also examined the link among energy consumption, financial development and economic growth with divergent and inconclusive

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findings (Dritsaki & Dritsaki, 2014, p. 310; Chtioui, 2012, p. 150; Sardosky, 2010, p. 2529).

This study examines the nexus between financial development and energy consumption in Nigeria for a number of obvious reasons. Nigeria has one of the most developed financial sector in Africa. Despite the rapid transformation and the development in the Nigerian financial sector over the years, energy consumption in the country has remained abysmally low compared to those of the contemporary economies. Also, the consumption of energy, particularly petroleum products is very high owing to her teeming urban population. Additionally, since energy consumption is indeed a core component of growth and Nigeria being one the fastest growing economies in Africa, a nexus is anticipated between energy use and the development of the financial sector. And for an economy like that of Nigeria that is developing but not yet service-driven, energy consumption is expected to be very high as production activities have to be energy-driven. It is therefore apt to investigate the effect of the financial sector on energy consumption.

2. Review of Literature

2.1 Theoretical Underpinnings

The development of the financial sector can spur energy consumption via certain channels. Financial development contributes to economic growth by improving investment via *level* and *efficient* effects. The *level* effect relates to the fact that the financial sector facilitates the transfer of idle resources from non-profitable investment to lucrative ventures, through the attraction of both domestic and foreign investments (Sadorsky, 2010, p. 2529). On the other hand, the *efficiency* effect arises when the development of the financial sector facilitates the provision of more financial resources for highly efficient investment, thereby increasing the demand for energy (Mehrara & Musai, 2012, p. 93). Accordingly, Sadorsky (2011, p. 1000) identifies three key avenues through which financial development affects energy consumption: *direct*, *business* and *wealth* effects. The *direct* effect is observed when financial development aids consumers to borrow easily and cheaply to buy durable consumer goods. This is corroborated by Ozturk and Acaravci (2013, p. 262) as they opine that prosperous and efficient financial intermediation make consumers' loan activities very conducive, thereby making it easier for them to buy items like refrigerators, washing machine and cars which obviously increase their demand for energy. The *business* effect arises as improved financial development makes it possible for businesses to have easier and less costlier access to financial capital that are explored in expanding their business. This eventually culminates into higher energy consumption (Sadorsky, 2011, p. 1001; Safaynikou & Shadmehri, 2014, p. 122). In the same vein, developed stock market aids listed

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companies to have wider range of financing channels, minimize financing costs and optimize asset/liability structure, in order to procure new installations and invest in new projects, which ultimately results into increased energy demand (Ozturk and Acaravci, 2013). Moreover, the increased stock market activities usually impact positively on the confidence of consumers and businesses, and thus create the *wealth* effect (Safaynikou and Shadmehri, 2014; Sardosky, 2011).

2.2. Empirical Studies

Sardosky (2010, p. 2534) examines the impact of financial development on energy consumption in 22 emerging economies using the generalized method of moments estimation techniques to control for endogeneity, and finds that increase in financial development (measured using stock market variables) increased the demand for energy. These stock market variables include stock market value traded to GDP, stock market capitalization to GDP, and the stock market turnover. However, other financial development variables like net FDI and deposit money bank assets as a percentage of GDP were found not to have statistically significant effect on energy consumption. Coban and Topcu (2013, p. 87) in a study on EU countries also reported strong evidence of the impact of financial development (emanating from neither the stock market nor the banking sector) on energy consumption for the old member countries while an inverted U-shaped relationship was found between financial development and energy consumption for the new member countries.

Kakar *et al*. (2011, p. 471) found a significant relationship between financial development and energy consumption in the long-run for Pakistan while the relationship in the short-run was insignificant for the period of 1980-2009 using the cointegration and error techniques as well as the Granger causality test. The Granger causality indicates that financial development does affect energy consumption. Similarly, unidirectional causality was found between money supply and energy consumption while bi-directional causality was found between domestic credit and energy consumption. With the aid of ARDL bound cointegration test and the Vector Error Correction Model (VECM), Islam *et al.* (2013, p.441) find that energy consumption is influenced by financial development and economic growth both in the short and long run in Malaysia. A bi-directional causality was also found between energy consumption and financial development in the long run while it runs from financial development to energy consumption in the short run. Also, population exerts a significant positive influence on energy consumption in the long run with its influence found to be insignificant in the short run.

Ozturk and Acaravci (2013, p. 262) also examine long-run and causal analysis of energy, growth, openness and financial development on carbon emissions in Turkey using ARDL and error correction based Granger causality test. They found

evidence of short-run unidirectional causal relationship from financial development to per capita energy consumption, per capita real income and square per capita real income between 1960 and 2007. They inferred that improvements in the financial sector will result into increase in energy consumption and income in Turkey in the short-run.

The link among economic growth, financial development and energy consumption in Tunisia was significant and a positive correlation was found between energy consumption and financial development (Chitioui, 2012, p. 157). Likewise, a cointegrating relationship was found among real GDP, energy consumption, capital stock, oil revenues and financial development In Iran based on ARDL bound test (Mehrara & Musai, 2012, p. 98). Similarly, Safaynikou and Shadmehri (2014, p. 131) report significant relationship among energy consumption, economic growth, financial development and trade openness in Iran using the ARDL model for the period of 1967-2010. The effect of financial development, trade openness and economic growth on energy consumption was mainly positive.

Furthermore, Shahbaz and Lean (2012, p. 478) reveal that financial development, industrialization, urbanization and economic growth, increased energy consumption in Tunisia, especially in the long-run, while they observe the existence of cointegration among these variables. It was also revealed that long-run bidirectional causal relationship existed between financial development and energy consumption. Siddique and Majeed (2015, p. 678) find long-run relationship exist among economic growth, energy consumption, trade and financial development in South Asian countries of India, Nepal, Pakistan, Sri Lanka and Bangladesh. They also established non-existence of link between energy consumption and financial development in the short-run. In the same vein, CO_2 emissions, energy consumption, financial development and economic growth have long-run relationship in the presence of structural breaks in Greece. Financial development is positively related with energy demand while economic growth reduces with energy demand in the economy (Dritsaki & Dritsaki, 2014, p. 318)

A notable study that examined the nexus between financial development and energy consumption in Nigeria was by Ali *et al*. (2015, p. 820). They reported that both economic growth and financial development have negative impact on energy consumption (proxy by fossil fuel consumption) in the short-run and long-run periods. This submission is clearly not in tune with theoretical exposition and is in contrast to findings from empirical studies for many economies, including developing countries. This could have emanated from specification problem as the authors expressed variables that are originally in percentages in logarithmic form. Therefore, this study re-examines the nexus between financial development and energy consumption in Nigeria.

3. Data and Methodology

The sample used is annual data covering the period 1971 to 2014. The data were sourced from the World Development Indicators of the World Bank. Energy consumption is measured energy use per capita (kg of oil equivalent), financial development is measured as the domestic credit to private sector by banks as a percentage of GDP, growth rate of the GDP is the proxy for economic growth and the growth rate of the population is the proxy for the population of the country. This paper examines the link between energy consumption and financial development in Nigeria. Following the studies of Coban and Topcu (2013, p. 82) and Shahbaz and Lean (2012, p. 475), and Islam *et al.* (2013, p. 437), the relationship between energy consumption, financial development, economic growth, and total population is specified in the following model:

$$EN = f(FD, GDP, POP)..(1)$$

The model is specified in econometric form as:

$$\ln EN_t = \alpha_0 + \beta_1 FD_t + \beta_2 GDP_t + \beta_3 POP_t + \mu_t...(2)$$

where EN is energy consumption, measured as energy use per capita (kg of oil equivalent) and it is expressed in logarithmic form; FD is financial development, measured with domestic credit to the private sector by banks as share of GDP;

GDP is Gross Domestic Product, measured as the annual growth rate of the Gross Domestic Product; and POP is the growth rate of the total population.

The autoregressive distributed lag (ARDL) bounds testing approach to cointegration is employed to test the relationship among the series. This approach is applied due to its advantages over other forms of cointegration test. The ARDL cointegration approach is applicable irrespective of whether the series are I(0) or I(1) i.e. the variables need not to be of the same order of integration. Moreover, a dynamic unrestricted error correction model (UECM) which incorporates both the short-run dynamics and long-run equilibrium could be easily derived from the ARDL bound testing.

Since the critical bounds become invalid when the order of integration of any variables exceeds one, then it is very essential to test for the unit root in line with the core assumption of the ARDL cointegration approach. Consequently, the Dickey-Fuller GLS test is used in confirming the order of integration of the variables. We opted for the Dickey-Fuller GLS test due to the inherent problem of the traditional PP and ADF unit root tests. They are considered unreliable for small sample size as a result of their poor size and power properties, and they over-reject the null hypotheses when it is true and accept H_o when it is false (Ozturk &

Acaravci, 2013, p. 264; Shahbaz & Lean, 2012, p. 476). The dynamic unrestricted error correction models (UECM) are expressed in the following equations:

$$\Delta \ln EN_t = \alpha_{0EN} + \sum_{j=1}^{q} \beta_{jEN} \Delta \ln EN_{t-j} + \sum_{k=0}^{r} \beta_{kFD} \Delta FD_{t-k} + \sum_{l=0}^{s} \beta_{lGDP} \Delta GDP_{t-l} + \sum_{m=0}^{t} \beta_{mPOP} \Delta POP_{t-m}$$
$$+ \phi_{1EN} \ln EN_{t-1} + \phi_{2FD} FD_{t-1} + \phi_{3GDP} GDP_{t-1} + \phi_{4POP} POP_{t-1} + \mu_t \dots\dots\dots\dots\dots\dots\dots\dots(3)$$

$$\Delta FD_t = \alpha_{0FD} + \sum_{j=1}^{q} \beta_{jFD} \Delta FD_{t-j} + \sum_{k=0}^{r} \beta_{kEN} \Delta \ln EN_{t-k} + \sum_{l=0}^{s} \beta_{lGDP} \Delta GDP_{t-l} + \sum_{m=0}^{t} \beta_{mPOP} \Delta POP_{t-m}$$
$$+ \phi_{1EN} \ln EN_{t-1} + \phi_{2FD} FD_{t-1} + \phi_{3GDP} GDP_{t-1} + \phi_{4POP} POP_{t-1} + \mu_t \dots\dots\dots\dots\dots\dots\dots\dots(4)$$

$$\Delta GDP_t = \alpha_{0GDP} + \sum_{j=1}^{q} \beta_{jGDP} \Delta GDP_{t-j} + \sum_{k=0}^{r} \beta_{kFD} \Delta FD_{t-k} + \sum_{l=0}^{s} \beta_{lEN} \Delta \ln EN_{t-l} + \sum_{m=0}^{t} \beta_{mPOP} \Delta POP_{t-m}$$
$$+ \phi_{1EN} \ln EN_{t-1} + \phi_{2FD} FD_{t-1} + \phi_{3GDP} GDP_{t-1} + \phi_{4POP} POP_{t-1} + \mu_t \dots\dots\dots\dots\dots\dots\dots\dots(5)$$

$$\Delta POP_t = \alpha_{0POP} + \sum_{j=1}^{q} \beta_{jPOP} \Delta POP_{t-j} + \sum_{k=0}^{r} \beta_{kGDP} \Delta GDP_{t-k} + \sum_{l=0}^{s} \beta_{lFD} \Delta FD_{t-l} + \sum_{m=0}^{t} \beta_{mEN} \Delta LNEN_{t-m}$$
$$+ \phi_{1EN} \ln EN_{t-1} + \phi_{2FD} FD_{t-1} + \phi_{3GDP} GDP_{t-1} + \phi_{4POP} POP_{t-1} + \mu_t \dots\dots\dots\dots\dots\dots\dots\dots(6)$$

where Δ is the first difference operator and the parameters φ_1 to φ_4 are the respective long-run multipliers. Also, the parameters β_j, β_k, β_l, and β_m are the short-run dynamic coefficients of the underlying ARDL model in the equations. while denotes the error terms. The existence and significance of cointegrating relationship among the variables or the joint significance of the coefficients of the lagged level of the variables are confirmed using F-test. The null hypothesis specifying that there is no long-run relationship among the variables i.e. H_0: $\phi_1 = \phi_2 = \phi_3 = \phi_4 = 0$, is tested against the alternative hypothesis i.e. H_1: $\phi_1 \neq \phi_2 \neq \phi_3 \neq \phi_4 \neq 0$

 implying the existence of long-run relationship i.e. they are tested based on equation (2) above. In testing for the existence of cointegration, two asymptotic critical bounds: upper bound I(1) and lower bound I(0) are used. When the F-statistics exceeds the upper level of the bound, it is inferred that the long-run relationship exists among the variables and the null hypothesis is rejected. However, if the calculated F-statistics falls below the lower level of the bound, the null hypothesis of no cointegration cannot be rejected. When it falls within the bounds, the result becomes inconclusive.

4. Empirical Findings and Discussion

The result of the unit root test are shown in Table 1. From Table 1, it could be deduced that the measure of financial development (i.e. domestic credit to private sector by banks as a percentage of GDP) and the growth rate of GDP are both stationary at levels at 10% and 1% level of significance respectively.

On the other hand, energy use (InEN) and population growth rate (POP) are both stationary at first difference at 1% and 10% level of significance respectively. Given the different orders of integration of the variables, we can proceed to the ARDL estimation.

Based on the ARDL Bounds testing results reported in Table 2, we found two cointegrating vectors when energy consumption and the growth rate of the GDP were used as dependent variables. Thus, the null hypothesis of no cointegration is rejected.

Table 1. Results of the DF-GLS unit root test

Levels		1st Difference	
Variables	t-Statistic	Variables	t-Statistic
lnEN	-2.2131	lnEN	-6.1261*(c)
FD	-2.9673***(c+t)	FD	-
GDP	-5.3234* (c+t)	GDP	-
POP	-2.0647	POP	-1.6930***(c)
Critical Values:		**Critical Values:**	
	1% : -3.7700		1% : -2.6212
	5% : -3.1900		5% : -1.9489
	10% : -2.8900		10% : -1.6119

c+t include an intercept and linear trend; c has an intercept but not a trend *, **, *** imply significance at 1%, 5% and 10% respectively.

It also indicates the existence of long-run relationship among energy consumption, financial development, economic growth and growth rate of population in Nigeria.

Table 2. Results of ARDL cointegration test

Model for Estimation	F-statistics	Lower-upper bound at 1%	Lower-upper bound at 5%	Lower-upper bound at 10%
$F_{EN}(EN_t/FD_t/GDP_t/POP_t)$	4.87**	4.29-5.61	3.23-4.35	2.77-3.77
$F_{FD}(FD_t/EN_t/GDP_t/POP_t)$	1.70	4.29-5.61	3.23-4.35	2.77-3.77
$F_{GDP}(GDP_t/FD_t/EN_t/POP_t)$	6.65*	4.29-5.61	3.23-4.35	2.77-3.77
$F_{POP}(POP_t/GDP_t/FD_t/EN_t)$	1.40	4.29-5.61	3.23-4.35	2.77-3.77

The *,**denote the rejection of the null hypothesis at 1% and 5% level of significance respectively. The critical values are provided by default using E-VIEWS 9.

This results is consistent with the findings of Islam et al. (2013, p. 438) for Malaysia. Table 3 reveals that the impact of financial development on energy

consumption is positive and significant. By implication, 1 percent increase in credit by banks to private sector as percentage of the GDP (financial development) increased energy consumption by 0.705 percent.

It could be inferred that financial development promotes household and business activities and could raise energy consumption. This conforms with findings from Sadorsky, 2010, p. 2534; Coban and Topcu, 2013, p. 87; Kakar et al., 2011, p. 471; Islam et al., 2013, p. 441; Ozturk and Acaravci, 2013, p. 262; Chitioui, 2012, p. 157, among other similar studies.

Table 3. Statistical output for long-run regression model

Dependent variable: $InEN_t$

Variables	Coefficient	Std.Error	t-Statistics	p-value
FD_t	0.0075*	0.0014	5.4057	0.000
GDP_t	0.0070*	0.0014	5.0034	0.000
POP_t	-0.1431*	0.0412	-3.4724	0.002
Constant	6.8012	0.1106	61.5008	0.000

* denotes significance at 1%

Also, the effect of growth rate of GDP on energy use is positive and significant at 1 percent. The coefficient of the GDP indicates that 1 percent increase in GDP results into 0.7 percent increase in energy consumption in the long-run. This is akin to the submission of Safaynikou and Shadmehri, 2014, p. 131; Mehrara and Musai, 2012, p. 98; Shahbaz and Lean, 2012, p. 478; Siddique and Majeed, 2015, p. 678.

Therefore, as the economy of Nigeria grows, the demand for energy tends to increase. Table 3 also reveals that the growth rate of population impact negatively and significantly on energy consumption in Nigeria. This is indeed contrary to theoretical expectation and to findings from earlier studies that have investigated the impact of population on energy consumption (see Islam et al., 2013, p. 441).

The short-run results are presented in Table 4. The result from the estimation of the short-run model indicate that financial development impact positively and significantly on energy consumption at 10 percent level. one percent growth in credit to the private sector by banks (i.e. financial development) results into 0.065 percent rise in energy use. Meanwhile, the rate of growth of the economy impact positively but insignificantly on energy consumption in the short-run.

Table 4. Statistical output for the short-run model

Dependent variable: $\ln EN_t$				
Variables	**Coefficient**	**Std. error**	**t-Statistics**	**p-value**
ΔFD_t	0.00114	0.00065	1.74860	0.092***
ΔGDP_t	0.00039	0.00037	1.06983	0.295
ΔPOP_t	-0.06261	0.02427	-2.57993	0.016**
ECT_{t-1}	-0.43752	0.08934	-4.89730	0.000*

The *,**,*** denote the rejection of the null hypothesis at 1%, 5% and 10% level of significance respectively.

On the other hand, population growth rate has negative and significant impact on energy consumption. Furthermore, the coefficient of the error correction term (ECT_{t-1}) is found to be negative and statistically significant and it relates the speed of adjustment from the short-run to the long-run.

With a coefficient of -0.44, it implies that deviation of energy consumption from short-run to the long-run is corrected by 44 percent each year. That is, for an initial error of 1percent, 44 percent of the error would be corrected in one year. A highly significant error correction term is also a further proof of a stable long-term relationship.

The results of the diagnostic tests are shown in Table 5. The table shows that the errors are normal. The model also passes both the Breusch-Pagan-Godfrey heteroskedasticity test and the autoregressive conditional heteroskedasticity (ARCH) test.

Table 5. Statistical output for Sensitivity test

Test	F-Statistics	Prob. Value
Normality test	1.300	0.521
ARCH test	0.717	0.403
Heteroskedasticity	0.833	0.617
Serial Correlation	2.703	0.087
Ramsey reset test	1.367	0.253

The serial correlation test reveals that the model have slight problem of autocorrelation. Meanwhile, the Ramsey reset test suggests that the model is well-specified.

6. Conclusion

The study investigated the nexus between financial development and energy consumption in Nigeria between 1971 and 2014, using the ARDL Bounds testing approach. A significant long-run relationship was confirmed between financial development and energy consumption in Nigeria. It was also deduced that the development of the financial sector exerted positively and significantly on energy demand in the Nigerian economy, both in the short-run and the long-run periods. This vividly implies that the development of the financial sector drives energy consumption by industrial and domestic users in the Nigerian economy. It also implies that policies aimed at developing the financial sector have implications for energy demand in Nigeria.

Therefore, the government and other stakeholders need to evolve policies that will enhance and engender the transmission of the developments in the Nigerian financial sector into level of consumption of energy in the economy.

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Financial Development and Inclusive Growth in Nigeria: A Threshold Analysis

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Abstract: This study investigates the relationship between financial development and inclusive growth in Nigeria for the period 1980 – 2013. The technique of analysis is the quantile regression; which is to obtain a threshold for which the former impacts on the latter. The result shows a threshold level of 90th percentile. Interestingly, the study also found that the impact of financial development on inclusive growth depends on the measure of the former up to the threshold level and not beyond. Through a granger causality test, the direction of causality is through the inclusive growth rather than through financial development; through the financial deepening measure. While the study found that either a low level or high level of openness on trade and capital investment are desirable for inclusive growth in Nigeria, the results also reveal that government involvement in the workings of the Nigeria economy and financial openness are sensitive to the pattern of financial development. With financial deepening, both are negatively related to inclusive growth but positively related to inclusive growth when financial widening is considered. This suggests that government intervention in the activities of the private sector is detrimental when the latter are to drive financial development process. However, the involvement of government in ensuring the appropriate level of financial widening, through the central bank operations, produces a positive impact on growth.

KeyWords: Financial Development; Growth; Threshold Analysis

JEL Classifications: D53; O4; C61

1. Problem Statement

The relationship between financial development and growth has since remained topical in the finance literature and till today, experts have not been able to reach consensus on this nexus. Beginning with the seminal studies of McKinnon (1973) and Shaw (1973), some economists (see Waqabaca, 2004; Chinaemerem & Chigbu, 2012; Nkoro & Uko, 2013 among others) have found positive relationship, results from other studies indicate that the relationship between the two concepts

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are negative (see inter alia Sunde, 2012; Damary, 2006; Gründler & Weitzel, 2013; Maduka & Onwukam, 2013); to some others, the relationship is neither positive nor negative but only due to other extraneous factors (see Pan & Wang, 2013). Interestingly, some studies found mixed results (see for example, Caporale, Rault & Sova, 2009). To make far-reaching policy suggestions, some authors (for example Valíčková, Havránek & Horváth, 2013) have, even, conducted a meta-analysis of the finance-growth nexus. These dynamics of the finance-growth nexus are not only based on old evidences but new interrelationships also reveal the same trend (see Gründler & Weitzel, 2013). While the concept of financial development has not been disputed, the concept of growth has remains grossly controversial to development economists and has even make earlier view of financial development to be less holistic.

The conceptual issues revolving around growth has been evolutional; moving from traditional quantitative measure of economic progress to its modern and more encompassing measures. It began with the various paradigm shifts with which economic growth have undertaken and the new dimension with which it has recently assumed. The measure of economic growth in the literature of development economics is majorly the gross domestic products (GDP) and its variants (see Todaro & Smith, 2011) but having identified the various shortcomings of these measures in reducing the number of people that fall within the poverty-line, development economists began to query the suitability of these measures. The underlining assumption for the use of GDP; and its variants, as measure of economic progress and welfare was predicated on the trickle-down hypothesis but economists found that this assumption is not absolute and then suggested another concept of well-being of the growth variants known as the pro-poor growth. In effect, it was found that economic growth does not automatically translates into widely shared gains (Piece, 2012). The idea of this measure of growth is that growth must be poverty-alleviating. There should be an increasing reduction in the number of poor people. The issue is that the amount generated through expanding and increasing productive activities must be employed to get many people out of the poverty bracket through government interventionist policies of income redistribution and spending instruments.

Again, the increasing rent-seeking economy and expansive government portfolios; due to democratic governance suggested government policies directed towards poverty alleviation have either been ineffective or inadequate or both; therefore, necessitated another paradigm shift in the growth literature to inclusive growth. With inclusive growth, the growth generating process has an inbuilt mechanism to automatically cater for and include the poor in the society. Inclusive growth requires, by definition, both economic growth and inclusion (see Hatlebakk, 2008; Commission on Growth & Development, 2008; Lanchovichima et. al., 2009). According to CAFOD (2014), inclusive growth ensures that everyone can

participate in the growth process, both in terms of decision making for organizing the growth progression as well as participating in the growth itself. On the other hand, it makes sure that everyone shares equitably the benefits of growth. Inclusive growth implies participation and benefit sharing. Participation without benefit-sharing will make growth unjust and sharing benefits without participation will make it a welfare outcome (CAFOD, 2014).

To carpet a robust investigation and clarify the unending controversy trailing the empirical literature on financial development and economic growth, a threshold analysis of the finance-inclusive growth nexus becomes imperative as it seeks to clarify the possible controversy of empirical findings around this relationship. A threshold analysis is the minimum level which serves as the benchmark that financial development could translates to inclusive growth. The study of Adegboyega & Odusanya (2014) indicated that the extent to which the financial sector development ought to have developed has not been accentuated to the best optimum level. Essentially, this study contributes to the empirical literature in two major ways. Firstly, it is the first study that seeks to obtain new evidence of the finance-growth nexus with inclusive growth being the new indicator for capturing growth in the Nigerian contexts. Secondly and consequent upon the first objective, it is to our notice that there is no study that has conducted a threshold analysis of the nexus to find out what level of financial development is required for growth to be inclusive. In addition to this introductory section, this study is further discussed under four other sections. Section 2.0 review extant literature of the finance-inclusive growth nexus, section 3.0 focuses on the theoretical and methodological framework while section 4.0 estimates the empirical model for this study. Section 5.0; being the last, concludes and provides policy suggestions.

2. Literature Review

The concept 'inclusive growth' has not been unanimously defined in the literature; given the evolutional dimension of growth. In fact, some authors (for example, Raniere & Ramos, 2013) believe that inclusive growth is another term for pro-poor growth. A commonly used definition, however, is that inclusive growth is an absolute reduction in poverty associated with a creation of productive employment rather than direct income distribution schemes. It should accommodate both the pace and pattern of growth (World Bank, 2009). It is of shared growth and broad-based in nature. For growth to be inclusive, the nexus of both economic growth and income distribution need be achieved. This is unlike pro-poor growth that focuses largely on the growth-poverty nexus without any recourse to the distribution pattern. Inclusive growth addresses absolute poverty as against the case of relative poverty in pro-poor growth. In effect, inclusive growth is an ex-ante analysis of the growth generating process fused with outcomes of generated growth while pro-

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poor growth is only an ex-post analysis of the outcomes of growth generated (see Klasen, 2010). Putting these together, it suggests that a robust inclusive growth strategy will complement policies to stimulate economic growth with those that foster equality of opportunity, alongside a social security net to protect the most vulnerable. As such, economic policies to promote structural transformation and creative productive employment for the poor people will need be complemented by investments in human capital and other programmes to support social inclusion and equal access to jobs (see Alexander, 2015; McKinley, 2010).

There are numerous empirical studies that have examined empirically the impact of financial development on growth. However, scanty studies have focus on inclusive growth. The available studies in the finance and growth literature have focus on components of inclusive growth such as income inequality and poverty reduction. The empirical findings from past studies in the literature suggest that that the findings in the literature can be categorized into two main strands. The first strand of studies found support for the Greenwood & Jovanovich (1990) hypothesis that financial development help reduce income inequality between the rich and the poor. The poor is expected to have better access to credit to finance their investment such that gaps between the rich and the poor become reduced due to the development of the financial sector. These studies documented negative relationship between financial development, income inequality and poverty reduction. The second strands of studies documented positive relationship between financial development, income inequality and poverty reduction. Kirkpatrick (2000) represents one of the foremost studies that examine the interaction between financial development and poverty reduction in developing countries. The paper submitted that financial market imperfections are key constraints to pro poor growth. He therefore suggested that public policy that are directed towards correcting these market failures are essential to ensure financial development contributes to growth and poverty reduction in developing countries.

Further studies by Jalilian & Kirkpatrick (2002) extended the finance growth studies to capture the impact of financial development on poverty reduction in 42 low-income countries by employing panel data regression method. The findings indicate that financial development help reduce income inequality between the rich and the poor as the poor is expected to have better access to credit to finance their investment such that the gap between the rich and the poor becomes reduced due to the development of the financial sector. Further investigation of the Greenwood & Jovanovic hypothesis in emerging economy of India by Ang (2008) using the ARDL bound test cointegration method indicates that financial development and financial liberalization helped reduce income inequality while financial liberalization was found to increase or worsen the inequality between the rich and the poor in India. The author noted that underdevelopment of the financial system in India tends to hurt the poor more than the rich therefore submitted that the

Greenwood & Jovanovic (1990) hypothesis that financial development help reduce the income inequality between the rich and the poor is not plausible in India context. The results of this study were found to be robust to different measures of financial development and financial liberalization. As a departure from other previous studies that have employed cointegration methods to capture long run relationship between financial development, income inequality and poverty reduction.

Odhiambo (2009) employed the trivariate causality test to examine the dynamic relationship between financial development, growth and poverty in South Africa. The study reported that financial development and economic growth granger cause poverty reduction. The paper also found economic growth to granger cause financial development and in the process lead to poverty reduction in South Africa. Similar result was found by Quartey (2005) in his study of the relationship between financial development, savings mobilization and poverty reduction in Ghana. He reported that financial development helped reduce poverty in Ghana but does not Ganger cause savings mobilization. However, Odhiambo (2010a) documented that financial development Granger cause savings mobilization and poverty reduction in Kenya. Also, he reported feedback effect between domestic savings and poverty reduction. He found similar result in Zambia when he examine whether financial development Granger cause poverty reduction. Odhiambo (2010b) found financial development to be Granger caused by poverty reduction. The result reported by this study indicated that the outcomes depend largely on the measure of financial development employed in the study. He noted that when M2 as percentage of GDP was used as measure of financial development, it was found to be Granger caused by poverty reduction, but when private credit as percentage of GDP was employed to proxy financial development, unidirectional causality was reported between financial development and poverty reduction. These findings imply that the relationship between financial development and poverty reduction is sensitive to the measure of financial development employed by the study (Uddin et al., 2014).

Clarke et al (2002) reported that financial development and income inequality was found to be negatively related. This suggests that the development of the financial sector provide better financing opportunities for the poor especially access to credit. It also implies that financial development could also help reduce the income gap between the rich and the poor. Similar result was documented by Honohan (2004). He reported negative relationship between financial development and poverty reduction. This finding is similar to the result documented by Shahbaz (2009) on financial development and poverty reduction in Pakistan. He also reported negative relationship between financial development and poverty level but found financial instability to increase poverty level in Pakistan. Beck et al. (2004) in a cross country study used the instrumental variable method to investigate whether financial development disproportionately increases the income of the poor

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and alleviate their poverty. The study results indicated that the development of the financial sector induces the income of the poor to grow faster than the average GDP per capita. They found income inequality to fall faster and poverty rate to reduce more rapidly with the development of the financial sector.

Akhter & Daly (2009) in their study of 54 developing countries also documented similar finding to the work of Shabaz (2009). They reported that financial development helped reduced poverty but instability that comes with financial development was found to be inimical to the poor. Uddin et al. (2014) investigated the relationship between financial development, economic growth and poverty reduction in Bangladesh. They reported that growth is weakly accelerated by financial development and poverty reduction. The study noted that rising economic growth rate of the 1990s had positive impact on poverty but the increase growth and declining poverty has not brought about a more equitable distribution of income in Bangladesh. Gokan (2011) established positive link between financial development and per capita income. Kim & Lin (2011) tested the non-linearity between financial development and income distribution. They noted that the financial development of banks and stock markets have disproportionately helped the poor and improve their income distribution. They observed that this was possible under certain threshold of financial development.

Rewilak (2012) examined whether the income of the poor grow with average income. The study equally investigated the impact of financial development on income of the poorest quantile. He reported that financial development may alleviate poverty but may not be universal. This was indicated in the findings that shows that financial development has helped alleviated the poverty of the poorest quantile. Shahbaz & Islam (2011) employed the ARDL estimation method to examine the impact of financial development on income inequality in Pakistan. The study documented that financial development reduces income inequality while financial instability was found to aggravate income inequality in Pakistan. Similar study on Pakistan was carried out by Azran et al. (2012) using the ARDL with Error correction method to investigate the impact of financial development on poverty reduction without extending further to capture the impact of financial instability on poverty and the impact of financial development on income inequality. The results indicated that financial deepening (domestic credit to private sector and broad money supply) had impact on consumption per capita used as proxy of poverty. However, domestic bank asset was not found to have long run impact on poverty. Benjamin (2012) used the 2SLS to investigate the impact of financial development on poverty in developing countries. The study reported that increasing the availability of money and deposit opportunities rather than private credit have helped reduced poverty in developing countries. Financial development was observed to have the greatest impact on poverty in the least financially developed countries but was not found to reduce income inequality.

Moreso, Fowowe & Abidoye (2010) carried out a quantitative assessment of the effect of financial development on poverty in sub Saharan Africa using panel GMM estimator. They reported that financial development does not significantly influence poverty in SSA. However, they reported that macroeconomic variables such as low inflation and trade openness that were used as control variables were found to reduce the level of poverty in SSA. Inoune & Hamori (2010) investigated the impact of financial deepening on poverty reduction in India using state-level panel data and GMM panel estimator. Financial deepening and economic growth were found to help in the alleviation of poverty in the various states in India. The result was found to be robust to changes in the poverty ratios in rural areas, urban areas and the economy as a whole. Khan et al (2011) employed unbalanced panel OLS to estimate the impact of financial sector development on poverty reduction. The banking sector variables used as proxy for financial development was reported to be negatively related with poverty. The same negative relationship was reported between stock market development, bond market variables used as proxies of financial development and poverty level. Kendo et al (2008) examine the impact of financial sector development on poverty decomposed by gender in rural sector of Cameroun. The study employed OLS and instrumental variable method. Financial sector development was found to have non-linear impact on gender inequality and poverty reduction in rural Cameroon. Financial sector development was found to be positively related to income growth for both male and female heads of household and reduces inter-gender inequalities.

Furthermore, Dhrifi (2013) examine the impact of financial development on poverty reduction of 89 developed and developing countries using the three stages least squares method. The study found positive and significant effect of financial development on poverty reduction through savings, insurance services and access to credit. These were found to outweigh the indirect negative effects through growth and inequality. He noted that institutional quality plays a crucial role for financial development to have impact on poverty. Imran & Khalil (2012) evaluated the impact of financial development on poverty reduction through the development of manufacturing industry in Pakistan. They employed the error correction model and found positive relationship between financial development and poverty reduction through industrial growth.

The foregoing review of empirical studies indicated that the relationship between financial development, income inequality and poverty reduction have been mixed and inconclusive with limited focus on inclusive growth. The empirical irregularities in the empirical literature informed the need for fresh empirical evidences on the interactions between financial development and inclusive growth in Nigeria. This forms the kernel of this study.

3. Methodology

3.1. Theoretical Framework and Model Specification

Analysis on the determinants of inclusive growth is a recent phenomenon and there has not been a well-developed modeling framework. Basically, however, the social welfare function and social opportunity function remain the two major indicators for capturing inclusive growth (see Anand, Mishra & Peiris, 2013; Ali & Hwa Son, 2007). While the former measure combined a fundamental integration of both growth and equity into one measure to form inclusive growth; the latter measure hinged on two factors of average opportunities available to the population and how these opportunities are distributed in the population. Our measure of inclusive growth aligns with the latter measure as it captures participation; being the most important component of inclusive growth. This is reflected in the GDP per person employed (see WDI, 2014). More so, equity, as incorporated in the former measure, cannot properly be integrated with growth without loss of generality. We conduct a granger causality test to assess if feedback exists from inclusive growth to finance. Majorly, the technique of analysis would be the quantile regression; where we examine the threshold level with which finance would be beneficial to inclusive growth.

Our study reformulated the modeling framework of the financial development – inclusive growth nexus pioneered by Anand et. al., (2013). Anand et. al., (2013) developed a measure of inclusive growth by incorporating economic growth performance with that of distribution of economic growth within a panel regression model. The model they formulated is given as;

$$Y^*_{i,t} - Y^*_{i,t-1} = \alpha_0 + \beta^o_1 \bar{Y}_{i,t} + \beta^o_1 X_{i,t} + \eta_c + \gamma_t + \vartheta_{c,t} \dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Where; $Y^*_{i,t} - Y^*_{i,t-1}$ was taken as the log-difference of $\bar{y}^*$ or inclusive growth in country i at time t, $\bar{Y}_{i,t}$ was the initial level of per capita PPP-adjusted income at the start of 5-year panel period t to reflect conditional convergence, and $X_{i,t}$ was a set of growth and inequality determinants measured as averages of 5-year panel period t. The disturbance term in the regression consists of an unobserved country effect η_c that is constant over time and unobserved period effect (γ_t) that is common across countries, and a component ($\vartheta_{c,t}$) that varies across both countries and years which we assume to be uncorrelated over time. Anand et. al., (2013) identified a number of potential determinants of inclusive growth in their model. These are the initial level of income, education, trade openness, credit to GDP, fixed investments, government consumption, inflation, financial openness, foreign direct investment, ICT and REER deviations.

Predicated on the social opportunity function, however, we incorporate the productive employment opportunity of the Nigerian population as the single most important factor that allows for participations in the growth process (see Lledo & Garcia-Verdu, 2011). While our study will not be the first to adopt the social opportunity function as a framework to study inclusive growth (see Adedeji, Du & Opuku-Afari, 2013; Ali & Son, 2007), our study is about the first to use employment opportunities as an indicator to capture opportunity in contributing to the growth process. This study considered the employment opportunity provided by enabling infrastructure, sound government fiscal and macroeconomic policies more broad-based than education and health that other studies focused on (see Adedeji et. al., 2013). This lends credence to the submission that productive employment opportunity is a growth-sustaining parameter (Commission on Growth & Development, 2008); hence, a reformulation of the model stipulated in equation (1).

$$\bar{y}_t^{*} = \alpha_0 + \beta_1 \bar{Y}_t + \beta_2 X_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(2)$$

Where; $\bar{y}_t^{*}$ is the GDP per person employed as a measure of productive employment; indicating inclusive growth in Nigeria; $\bar{Y}_t$ is the lagged Gross National Income which denotes the initial level of income; X_t is the vector of control variables while ε_t is the error term. In the case of the Nigerian economy, the control variables found essential are trade openness (TOP), credit to the private sector and broad money (M2) as ratios of GDP, (CPS_GDP) and (M2_GDP) respectively; an indicator for financial development, financial openness (FOP), government consumption (GCONS), FDI, gross fixed capital formation (GFCF) as a measure of fixed investment and inflation (INF) to reflects the internal stability. Therefore, equation (2) is reformulated as;

$$GDPE_t = \alpha_0 + \beta_1 GNI_{t-1} + \beta_2 TOP + \beta_3 FOP + \beta_4 FD + \beta_5 FDI + \beta_6 GFCF + \beta_7 INF + \beta_8 GCONS + \varepsilon_t$$
(3)

For robustness sake, the variable of financial development (FD) is decomposed into two components of financial deepening (proxied as CPS_GDP) and financial widening (proxied M2_GDP) yield the following two empirical models of equations (4) and (5) respectively;

$$GDPE_t = \alpha_0 + \beta_1 GNI_{t-1} + \beta_2 TOP + \beta_3 FOP + \beta_4 CPS\_GDP + \beta_5 FDI + \beta_6 GFCF + \beta_7 INF + \beta_8 GCONS + \varepsilon_t$$
(4)

$$GDPE_t = \alpha_0 + \beta_1 GNI_{t-1} + \beta_2 TOP + \beta_3 FOP + \beta_4 M2\_GDP + \beta_5 FDI + \beta_6 GFCF + \beta_7 INF + \beta_8 GCONS + \varepsilon_t$$
(5)

Prior to this, we provide a systematic procedure of the inclusive growth analytics with three basic steps. Step 1 relates to the background analysis of growth and poverty-reducing trends in Nigeria, step 2 provides a profile of economic actors in the growth generating process while step 3 identifies various inclusive growth constrained factors in the country. The scope of analysis for this study span 1980-2013 and data are obtained from the World Development Indicator (WDI, 2014); the Central Bank of Nigeria Statistical Bulletin (various issues); SMEDAN and NBS Collaborative Survey (2013); National Bureau of Statistics (NBS, 2014). This period is found suitable for our study as it is considered long enough to trace the interaction between financial development and inclusive growth in Nigeria.

3.2. Technique of Analysis

The technique of analysis for this study is the quantile regression. We seek to undertake a threshold analysis of the financial development – inclusive growth nexus. It is this that assists us to ascertain the level that financial development in the Nigerian economy should be inclusive growth enhancing and otherwise.

Generally, the quantile regression is specified its simple form as;

$$y_t = X_t^{'} \beta_\tau + \mu_\tau \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(6)$$

and;

$$Quantile_\tau(y_t|X_t) = X_t^{'} \beta_\tau \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(7)$$

Where; y_t equals the dependent variable (GDPE – GDP per person employed; as an indicator for inclusive growth); $X_t^{'}$ equals a vector of independent variables; β_τ is the vector of parameters associated with the τth quantile (percentile), and μ_τ equals the unknown error term. The distribution of the error term, μ_τ, remains unspecified as indicated in equation (5). We only require that the conditional τ^{th} quantile of the error term equals zero, that is, $Quantile_\tau(\mu_\tau|X) = 0$. $Quantile_\tau(y_t|X_t) = X_t^{'} \beta_\tau$ equals the τth conditional quantile of inclusive growth given financial development with $\tau \in (0,1)$. By estimating β_τ, using different value of τ, quantile regression permits different parameters across different quantiles of financial development. In other words, repeating the estimation for different values of τ between 0 and 1, we trace the distribution of y conditional on X and generate a much more complete picture of how financial development affects inclusive growth in Nigeria.

Compactly, the quantile regression estimate β_τ solves the minimization problem of the form;

$$\min_{\beta} \left[\sum_{i \in \{i: y_t \geq X_t \beta\}} 2\tau \left| y_t \geq X_t \beta \right| + \sum_{i \in \{i: y_t < X_t \beta\}} 2(1-\tau) \left| y_t \geq X_t \beta \right| \right] \dots\dots\dots\dots\dots(8)$$

Equation (6) implies that the quantile regression minimizes a weighted sum of the absolute errors, where the weights depend on the quantile estimated. The solution involves linear programming, using a simple-based algorithm for quantile regression estimation (see Koenker & d'Orey, 1987).

4. Empirical Estimations

4.1. Trend Analyses of Financial Development and Inclusive Growth Dynamics

The conceptual literature on inclusive growth suggests that a complete inclusive growth analytics has the following components: productive jobs and labour; economic transformation; infrastructure; human development; fiscal policy; social protection and institutions (see Alexander, 2015). This aligns with the systematic approach with which this study tends to follow for inclusive growth analysis. As depicted in figure 1 below, the extent of financial widening – being an indicator for financial development (measured as the ratio of money supply to the gross domestic products; proxied as M2_GDP) in Nigeria between the periods of 1970 – 1974 and 1990 – 1994 were barely at the same level; having shown a noticeable trend of inconsistency between the two periods. Since the period 2000 – 2004, however, the degree of financial widening consistently increased. However, another measure of financial development is the financial deepening; as measured by the ratio of credit to the private sector to the gross domestic product (proxied as CPS_GDP). The trend shows that the CPS_GSP continuously increased since the period 1970 – 1974 and stabilizes at an unnoticeable dip in the period 1985 – 1989. It is, however, instructive to note that both the financial widening and financial deepening have their highest levels in the period 2005 – 2009 and also that both recline appreciably in the period 2010 – 2013. The stock market development; which is indicated by market capitalization, also shows this trend. The various reforms that began in the financial sector around 2005 can explain for the noticeable increase in financial development in the country while the effects of the global financial cum economic crisis; beginning 2009, can account for the recline noticed afterwards (see Figure 1).
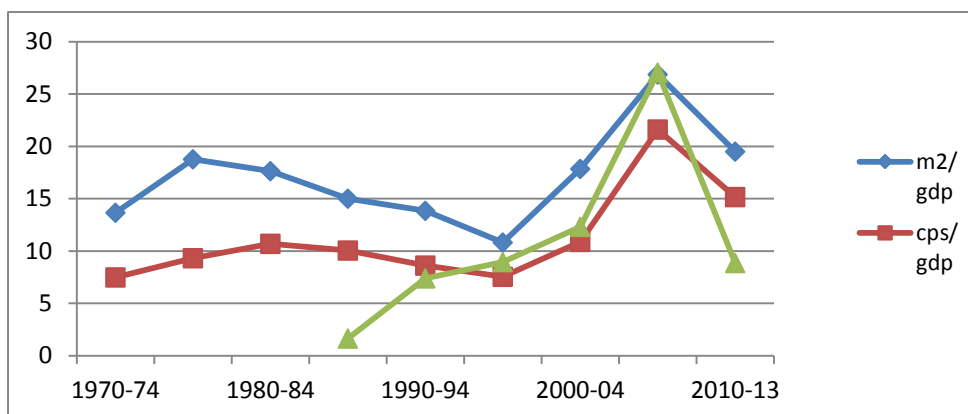
Figure 1. Trends of Financial Development in Nigeria (1970-2013)

Source: Authors

In the analysis of inclusive growth dynamics, we have considered a number of indicators. Since inclusive growth addresses both the patterns and pace of growth, it becomes imperative that the analysis of productive employment and labour market dynamics are undertaken. In doing this, we relied on the collaborative survey conducted by the Small and Medium Development Association of Nigeria (SMEDAN) and the National Bureau of Statistics (NBS) in 2013; as detailed in Table 3 below. This survey shows that four major sectors drive the Nigerian economy; accounting for barely 85 percent of ownership distribution. These sectors are the education, wholesale/retail trade, manufacturing and accommodation and food services; in that successive order. Education accounts for 38.10 percent; wholesale/retail trade accounts for 20.58; 16.54 for manufacturing and 9.77 for accommodation and food services respectively. Other sectors that accounts for around 5 percent include administrative and support services and other services activities while the agriculture, construction, art, entertainment and recreation, information and communication; among others accounts for grossly negligible ownership distributions of the Nigeria economy; with a combined ownership distribution of less than 5 percent. The implication of these trends is that, except for manufacturing which has both forward and backward linkages and which is capable of employing substantial number of individuals in its value chains, the three other sectors that majorly drive the Nigeria economy and that account for substantial ownership distribution are not capable of making growth to be inclusive for the economy.

Table 2. Form of Ownership of Sectoral Distribution of Nigerian Economy

Ownership Status	Frequency	Percentage
Sole Proprietorship	53,074	72.9
Partnership	4,800	6.59
Private Limited Liability Company	10,281	14.1
Cooperative	511	7.01
Faith Based Organisation	3,361	4.61
Others	812	1.11
Total	**72,839**	**100.0**

Source: Authors' Computations and SMEDAN & NBS Collaborative Survey (2013)

The form of ownership of these sectoral distributions detailed in Table 2 substantiates the outlook of the ownership distribution of the Nigerian economy among the various sectors. This is quite revealing since the major sectoral drivers are owned by individuals; the sole proprietorships, who are often constrained by legal, regulatory, institutional frameworks in their employment contents. By law, the sole proprietorship business can only employ between 1 – 9 staff and are also usually financially constrained; as the sources of obtaining capital for maintenance and expansion are limited to friends, relatives and associates. This is distantly followed by the private limited liability company; accounting for 14.1 percent ownership (see Table 2).

Table 3. Sectoral Decomposition and Ownership Distribution of the Nigerian Economy

Economic Sector	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Manufacturing	8.089	92.16	688	7.84	8,777	16.54
Minning and Quarrying	174	85.20	30	14.80	204	0.38
Accommodation and Food Services	4,075	78.62	1,108	21.38	5,183	9.77
Agriculture	1,165	93.02	87	6.98	1,253	2.36
Wholesale/Retail Trade	9,664	88.46	1,261	11.54	10,925	20.58
Construction	209	100.0	0	0.00	209	0.39
Transport & Storage	460	100.0	0	0.00	460	0.87
Information and Communication	280	89.07	34	10.93	314	0.59
Education	12,409	61.37	7,811	38.63	20,220	38.10
Administrative & Supportive Activities	2,409	82.32	440	17.68	2,489	4.69
Arts, Entertainment and Recreation	200	89.72	23	10.28	223	0.42
Other Services	2,204	78.82	592	21.18	2,796	5.27

Activities					
Water Supply, Sewarage, Waste Management & Remediation Act	21	95.24	1	4.76	22	0.04
Total	**40,998**	**77.25**	**12,076**	**22.75**	**53,074**	**100**

Source: SMEDAN and NBS Collaborative Survey (2013)

Basically, the trend on total employment lend credence to the fact that only the manufacturing sector has both forward and backward linkages substantial enough to promote inclusive growth in Nigeria. The sector accounts for 27.72 percent of the total employment in the small and medium scale businesses in the country; which is closely followed by education and then wholesale/retail trade with 25.91 and 17.42 percents contributions respectively (see Table 4). Interestingly, financial intermediation does not account for any percent contribution to the total employment in the small and medium scale industry. But since the Nigerian economy is still considered to be a small open economy which is majorly driven by small and medium-scale enterprises (see Table 5 and Figure 2), this trend does not support that financial intermediation would drive inclusive growth in Nigeria.

Table 4. Total Employment by Sex and Economic Sector

Economic Sector	Male	Female	Total	Percentage
Manufacturing	179,213	348,505	527,718	27.72
Minning & Quarrying	3,500	12,220	15,720	0.83
Accommodation & Food Services	106,525	55,989	162,514	8.54
Agriculture	21,952	67,326	89,279	4.69
Wholesale/Retail Trade	223,100	108,595	331,694	17.42
Construction	6,794	51,319	58,113	3.05
Transport and Storage	12,211	33,267	45,479	2.39
Financial Intermediation	0	0	0	0
Real Estate, Renting, Business Activities	0	0	0	0
Information and Communication	6,656	12,494	19,150	1.01
Education	388,981	104,210	493,191	25.91
Administrative and Support Activities	42,567	48,842	91,409	4.80
Health and Social Works	0	0		0

Arts, Entertainment and Recreation	3,714	2,278	5,992	0.31
Other Services Activities	38,322	24,304	62,626	3.29
Water Supply, Sewarage, Waste Management and Remediation Act	365	569	935	0.05
Total	**1,033,900**	**869,920**	**1,903,820**	**100.0**

Source: SMEDAN and NBS Collaborative Survey (2013)

Table 5 shows the contributions of micro, small and medium scale enterprises (MSMEs) to the national GDP as well as the growth process of the Nigeria economy.

Table 5. MSMEs Contribution to National GDP, 2013

Activity Sector	Micro	Small	Medium	Total
Agriculture	86.53	6.53	3.95	**97.01**
Minning and Quarrying	0.28	0.39	3.60	**4.27**
Manufacturing	14.28	21.27	19.98	**55.53**
Water Supply, Sewarage, Waste Management & Remediation	25.44	6.63	2.51	**34.57**
Construction	0.52	2.02	7.68	**10.22**
Trade	36.34	14.39	8.68	**59.41**
Accommodation and Food Services	4.23	27.98	13.68	**45.90**
Transportation & Storage	50.73	5.60	12.03	**68.36**
Information and Communication	0.00	2.38	9.57	**11.95**
Arts, Entertainment and Recreation	47.35	28.20	22.26	**97.82**
Finance and Insurance	1.05	1.39	3.69	**6.13**
Real Estate	31.00	13.25	11.29	**55.55**
Profession, Scientific and Technical Services	13.25	2.08	5.28	**20.61**
Administrative & Support Services	8.55	15.20	65.76	**89.51**
Education	2.09	14.69	24.48	**41.26**
Human Health and Social Services	18.24	20.06	20.96	**59.25**
Other Services	80.76	17.01	2.23	**100.00**

Source: SMEDAN and NBS Collaborative Survey (2013)

This lends credence to the fact that the MSMEs are the major driver of the Nigeria economy and hence, reinforces of analysis of inclusive growth through this perspective. While MSMEs agricultural GDP contributes 97.01 percent to the national GDP, it is only able to employ 4.69 percent of the total employment in the economy while education that contributes 41.26 percent employs 25.91 percent. Art, entertainment and recreation on a micro, small and medium-scale level contributes 97.82 percent to the national GDP with large scale sector left with 2.18 percent contribution. However, the MSMEs only employ 0.31 percent in that sector. Interestingly, wholesale and retail trade at the MSMEs level accounts for 59.41 percent to its national GDP but only employs 17.42 percent. All these got to show that there exists a serious misalignment as well as lopsidedness in the GDP to – employment proportion of these sectoral contributions. Further, this study seeks to investigate if the low rate of total employment observed in the other sectors of the economy was due to lack of educational opportunities of the individuals in the country. The information detailed in Table 5 shows that the official rate of unemployment hovers around 20 percent for the periods of 2010 – 2014. However, the time-related unemployment and under-employment by education level is not specifically indicative but only shows that unemployment by education level increases from 2012 relative to the two earlier years of 2010 and 2011. Since 2012, the data trend shows that unemployment become more pronounced among individuals with secondary and post-secondary education.

Table 6. Unemployment and Underemployment Rates by Educational Level in Nigeria (2010-2014)

Labour Market Statistics	2010	2011	2012	2013	2014
Unemployed rate	21.4	23.9	23.3	20.1	24.3
Panel A: Unemployment rate by Educational Level					
Never Attended	4.3	5.9	8.8	7.9	6.8
Below Primary	5.6	0.0	6.0	6.7	4.1
Primary	5.2	5.7	6.6	5.5	4.6
Secondary	5.7	7.0	9.4	8.9	6.9
Post Secondary	5.3	4.7	11.4	10.1	7.0
Panel B: Underemployment rate by Educational Level					
Never Attended	13.7	17.8	14.2	13.3	19.8
Below Primary	18.1	0.0	10.7	9.2	11.1
Primary	16.7	17.1	10.9	8.8	13.1
Secondary	18.2	21.2	14.6	12.7	19.0
Post Secondary	16.9	14.1	17.8	11.9	17.7

Source: NBS (2014).

As such, lack of educational opportunities cannot be held responsive for non-inclusiveness. Interestingly, the rate of underemployment by educational level seems to provide more information. Generally, this rate is higher than the unemployment rate in all respect but it is not also indicative of the direction of

unemployment due to lack of educational opportunities. Largely, it shows that it is due to lack of economic activities as people engaged in jobs that are less than their educational attainments. As such, we trend the growth process of the Nigeria economy as indicated by the real GDP growth rate and the trend of inclusive growth; as indicated by the growth rate of GDP per person employed (see figure 2 below). Figure 3 shows that the golden period of Nigeria real growth is during the 1970 – 1974 period. During this period, real GDP growth rate was about 10 percent while the periods of 1980 – 1984 records the worst growth rate of -6.342 (see Table 6). There occurs a downswing in the growth process from 1989 till 1999 where the real GDP growth rate got to a negligible level of 1.14 percent. Since the year 2000, however, there has been appreciable increase in the growth process with the highest increase recorded in the period 2010 – 2013 with 5.86 percent. This trend suggests that increasing growth rate does not automatically translates to inclusive growth as even when growth rate was appreciative in the period 1985 – 1989, growth was not inclusive. Also, between the period 1995 and 1999, growth is found non-inclusive but since the year 2000; except to a significant dip in the period 2010 – 2013, inclusive growth has continued increasing.
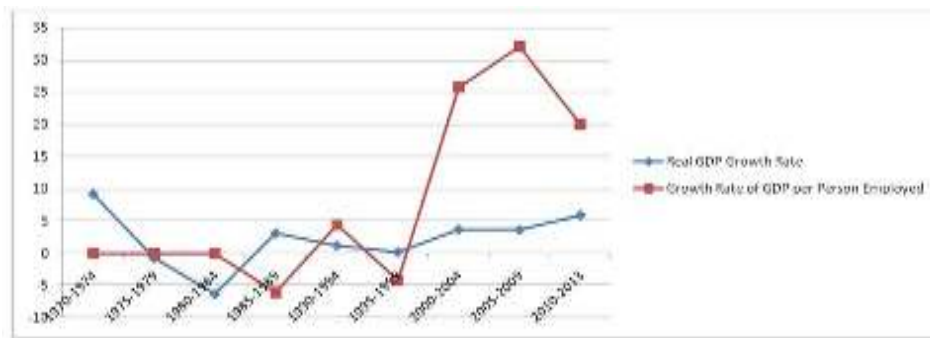
Figure 2. Graphical Trends of Real GDP Growth Rate and Inclusive Growth in Nigeria

Source: Authors

Table 6 essentially addresses the social inclusion and social safety nets programmes of the government to ensure that the vulnerable groups in the society are properly taken care of. When the human capacities of the marginalized and disadvantaged sections of the society are improved, they have more opportunities at their disposal and become socially included. Most of the respondents opined that majority of government policy that affect micro-enterprises are most favourably disposed to road maintenance (17.21 percent of the respondents) and environmental sanitary (16.17 percent of the respondents) and followed by job creation (10.27 of the respondents) with political stability (10.16 percent of the respondents) taking the fourth position in a role. Government effort on financial

development indicator (the banking reform) is the least but one favourable as the respondents (of 5.54 percent) suggested. This suggests that there are no opportunities created by the government towards financial inclusion and its efforts on inclusive growth is not topmost since job creation that allows for productive employment is not considered a priority.

Table 6. Major Government Policy that Affects Micro-Entreprises Most Favourably

Policy	Frequency	Percentages
Environment Sanitary	18,505,191	16.17
Road Maintenance	19,701,440	17.21
Introduction of Raw Materials	9,752,374	8.52
Job Creation	11,754,288	10.27
Taxes	4,869,741	4.26
Exchange Rate	4,120,167	3.60
Intervention Fund	7,783,543	6.80
Power Supply	11,358,723	9.93
Political Stability	11,632,135	10.16
Banking Reform	6,340,532	5.54
Fertilizer Production	8,626,993	7.54

Source: SMEDAN and NBS Collaborative Survey (2013)

4.2. Descriptive Statistics

Table 7. Statistical Properties of Inclusive Growth Determinants in Nigeria (1980-2013)

	CPS_GDP	FDI_GDP	FOP	GDPPE	GFCF	GNI_1	GOVCONS	INF	M2_GDP	TOP
Mean	12.69	3.24	0.20	4125.39	1017417.	218384.2	1069699.	20.57	17.29	9.40
Maximum	36.75	10.83	0.35	6772.00	5137368.	341967.8	4955029.	72.80	38.00	36.09
Minimum	5.92	0.66	0.00	2956.00	8799.480	156921.1	8064.390	5.10	8.60	0.072
Std. Dev.	6.64	2.30	0.12	1214.23	1551160.	57054.61	1625416.	17.89	6.13	10.51
Skewness	2.03	1.69	-0.59	0.91	1.563988	0.927834	1.477438	1.45	1.63	1.02
Kurtosis	7.55	5.86	1.64	2.33	4.045780	2.496733	5.635546	4.07	6.43	3.00
Jarque-Bera	45.87	25.25	4.20	4.84	14.04522	4.775008	11.79965	12.38	28.90	5.54
Probability	0.00	0.00	0.12	0.09	0.000891	0.091859	0.002740	0.00	0.00	0.07

Source: E-Views Output. Note: CPS_GDP is the ratio of credit to the private sector to the GDP; FDI_GDP is the ratio of foreign direct investment to GDP; FOP is the financial openness; GDPPE is the GDP per person employed; GFCF is the gross fixed capital formation; GNI_1 is the lagged gross national income; GOVCONS is the government final consumption; INF is the rate of inflation; M2_GDP is the ratio of broad money supply to the GDP while TOP is the trade openness.

The descriptive statistics show the statistical properties of the various determinants of inclusive growth; with reference to the Nigeria economy. The skewness shows the departure from the expected values and it indicates that, except for the financial openness which is negatively skewed (proxied as FOP), all the variables are

positively skewed. Only the trade openness (proxied as TOP) is normally distributed with a value of 3.00. This is the threshold value for normally distributed series with which this series attained. Relatively too, the lagged gross national income (proxied GNI_1), the gross fixed capital formation (proxied as GFCF) and the involvement of government in the workings of the economy (proxied as GOVCONS) can be taken to be normally distributed. However, the ratio of credit to the private sector to the GDP (proxied CPS_GDP) and the ratio of money supply to the GDP (proxied as M2_GDP); being the two indicators of financial development – financial deepening and financial widening respectively, coupled with the ratio of foreign direct investment to the GDP (proxied as FDI_GDP) are leptokurtic in nature while those of financial openness (proxied as FOP), GDP per person employed (proxied as GDPPE) are platykurtic in nature. While the kurtosis is an informal test of normality which cannot be taking solely for conclusion on normality, the Jarcque-bera test of normality is quite revealing. The probability values for the Jarcque-bera indicate that the null hypothesis of normally distributed cannot be rejected for the series of financial openness (proxied as FOP), lagged gross national income (proxied GNI_1) and the indicator of inclusive growth (proxied as GDPPE) at the 5 percent level with 0.12, 0.09 and 0.09 probability values respectively. But, for all other variables, the null hypothesis of normal distribution is rejected.

Table 8. Granger Causality between Financial Development and Inclusive Growth in Nigeria

Null Hypothesis	F-statistics	Prob.
GDPPE does not Granger cause CPS_GDP	6.491	0.016
CPS_GDP does not Granger cause GDPPE	0.152	0.700
M2_GDP does not Granger cause GDPPE	0.954	0.337
GDPPE does not Granger cause M2_GDP	0.179	0.191

Source: E-views Output. Note: The variables are of lag 1.

The estimates of the granger causality test detailed in table 8 suggests that the direction of causality moves from inclusive growth to financial development since the null hypothesis that GDPPE (an indicator of inclusive growth) does not granger cause CPS_GDP (as indicator of financial development) is rejected with 0.016 probability value but the reverse does not hold as the null hypothesis that CPS_GDP does not granger cause GDPPE cannot be rejected at the 5 percent level of significance. However, for financial widening; as another indicator for financial development, neither inclusive growth nor financial development granger causes one another as the null hypotheses in both cases cannot be rejected; not even at the 10 percent level of significance. This shows that it is rather inclusive growth that would engender financial development in Nigeria and not otherwise.

4.3. Discussion of Findings on Quantile Regression Estimations

In estimating the quantile regression models, we considered the conventional quantiles such as the 25th, 50th, 75th, 85th, 90th and 95th percentiles. The 25th, 50th and 75th quartiles are the first, second and third quartiles respectively. The result obtained shows that financial deepening (indicated as the ratio of credit to the private sector to GDP and proxied as CPS_GDP) positively impact on inclusive growth in Nigeria irrespective of the quantile level while financial widening (indicated as the ratio of broad money supply to the GDP and proxied as M2_GDP) only stabilizes at positive relationship when it got to the 90th percentile. This is the threshold level for financial development to impact on inclusive growth in Nigeria. This is so in that it is at the quantile level that the coefficients obtained for each of these inclusive growth determinants; including financial development indicators, become stationary. Further quantiles estimations at higher levels of 95th and 99th percentile could not yield any different coefficients; both in sign, size and significance (see Tables 11 – 13 and Appendix). The implication is that for government to engendered inclusive growth through financial development, the latter must peaked. At the threshold levels of 85th percentile for financial deepening and 90th percentile for financial widening respectively, we found that the pseudo-R^2 is 0.86. This lends lend credence to the overall fitness of the model that the explanatory variables substantially determine inclusive growth in Nigeria to the tune of 86 percent while only 14 percent is due to extraneous factors. Instructively, our results suggest that the impact of financial development on inclusive growth depends on the measure of financial development (financial deepening or financial widening) used at the non-threshold level but at the point of threshold, a uniformity of positive significant impact of financial development indicators were found on inclusive growth. Although, we found that financial deepening tends to attains threshold level quite before financial widening does. The former reached its threshold at the 85th percentile level while the latter attains its threshold at the 90th percentile level. This study, therefore, resolves the contrasting results in empirical studies that the impact of financial development on inequality and poverty reduction largely depends on the measure used for the former (see Odhiambo, 2009a; Greenwood & Jovanovich, 1990).

Table 9. Quantile Regression Results

	25th Quartile		50th Quartile		75th Quartile	
Variables	**CPS_GDP**	**M2_GDP**	**CPS_GDP**	**M2_GDP**	**CPS_GDP**	**M2_GDP**
C	1612.26	1911.09**	2814.4	2258.7	3514.8**	3512.66**
GNI_1	0.006	0.004	0.002	0.002	-0.0003	-0.0004
TOP	66.27***	61.55*	68.4	62.28	71.05	65.96
FOP	45.16	910.5	-1196.03	-1302.7	-1.82	18.30
CPS_GDP / M2_GDP	21.09	32.55	22.75	56.97	4.79	4.35
FDI_GDP	63.21	37.18	24.96	-9.28	3.39	6.30
GFCF	0.001**	0.002*	0.002***	0.001	0.001	0.001
INF	-4.47	-5.01	-7.40	-3.74	-6.70	-6.92
GOVCONS	-0.001***	-0.001**	-0.001	-0.008	-0.0003	-0.0002
Pseudo-R^2	0.75	0.77	0.80	0.81	0.84	0.84
	85th Percentile		**90th Quartile**		**95th Quartile**	
Variables	**CPS_GDP**	**M2_GDP**	**CPS_GDP**	**M2_GDP**	**CPS_GDP**	**M2_GDP**
C	3220.68**	3480.3	3220.68	3299.8*	3220.68	3299.8*
GNI_1	-0.001	-0.0001	-0.001*	-0.0012*	-0.001*	-0.0012*
TOP	93.55*	72.67	93.55*	79.5*	93.55***	79.5*
FOP	-408.40*	247.2	-408.40*	10.92*	-408.40*	10.92*
CPS_GDP/M2_GDP	48.18	-0.90	48.18*	29.3*	48.18*	29.3*
FDI_GDP	25.66	32.02	25.66*	38.4*	25.66*	38.4*
GFCF	0.002**	-0.0006	0.002*	0.0012*	0.002*	0.0012*
INF	-7.30	-7.70	-7.30*	-9.10	-7.30*	-9.10*
GOVCONS	-0.001***	-0.0003	-0.001*	0.001*	-0.001*	0.001*
Pseudo-R^2	0.86	0.86	0.87	0.87	0.88	0.87

Source: STATA Output on Quantile Regression Estimations. *,**,*** denotes significance at the 1%, 5% and 10% levels.

The results also show that trade openness (proxied as TOP), foreign direct investment (proxied as FDI_GDP) and gross fixed capital formation (proxied as GFCF) positively impact on inclusive growth in Nigeria after the threshold has been attained for both measures of financial development (see Tables 12). This is also the effect for both trade openness and gross fixed capital formation at the 25th percentile level. The implication is that only either a low level or high level of openness on trade and capital investment is desirable for inclusive growth. However, both the lagged gross national product (proxied as GNI_1) and the rate of inflation (proxied as INF) negatively and significantly impact on inclusive growth in Nigeria for both measures of financial development. Interestingly, government involvement in the workings of the Nigeria economy and financial openness are sensitive to the pattern of financial development. With financial deepening, both are negatively related to inclusive growth but positively related to inclusive growth when financial widening is considered. This suggests that regulating the activities of the private sector is not necessary when government engages them to facilitate financial development. However, the involvement of government in financial widening through the central bank produces a positive impact on growth.

5. Conclusion and Policy Recommendation

It is evident that the findings from this study would address some of the controversy between the finance-growth nexus as the relationship appears to produce new evidence and more valid results. The study shows that the impact of financial development on inclusive growth depends on the measure of the former up to the threshold level of 90th percentile. We also found that government roles in financial intermediation should be definite and implemented through the activities of the central bank as the effects of government intervention on private financial development activities is detrimental in nature. Interestingly too, the direction of causality is found to be from inclusive growth rather than through financial development. As such, the following policy suggestions are recommended:

- Productive employment should be encouraged as this would reduce the pace of unemployment and underemployment in the country.

- There should be substantial drive towards financial development activities as more social and safety nets should be provided to financially include the vast majority of the populace.

- The government's focus should largely be concentrated on the micro, small and medium enterprises as these are the major drivers of inclusive growth in Nigeria as against the large scale businesses.

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Southern African Development Community between Economic Advantages and Disparities

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Abstract: The paper is focused on analyzing the present economic disparities across SADC countries and on the opportunity of realizing SADC's goals until 2020 using four representative economic indicators: GDP growth rate, unemployment rate, inflation rate and balance of current account. Comparative analysis, regression, cluster approach and dedicated forecasting procedures are used in order to do it. The main conclusion of the paper is that the economic disparities across SADC countries will increase on short and medium terms. Moreover, the SADC countries should be analyzed under two specific clusters. This approach will be the best solution for the decision makers. The whole analysis in the paper and conclusions are supported by the latest official statistic data, by pertinent tables and diagrams.

Keywords: economic disparities; economic cohesion; cluster approach; economic forecasting; economic comparative analysis

JEL Classification: M21

1. Introduction

Southern African Development Community (SADC) was implemented in 1992 under the generous motto "Towards a Common Future" (Oosthuizen, 2006). Nowadays, it covers 9,882,959 km^2 and a population of 277 million. From the economic point of view, SADC's average GDP/capita was 4309 USD in 2013.

The 15 member states of SADC are focused on economic cooperation and integration. On the other hand, the political and security cooperation is very important.

The global crisis' impact was powerfully across SADC. As a result, the economic recovery is difficulty. On the other hand, the economic disparities between the member states increased.

According to the latest SADC Official Report, the real GDP growth rate fluctuated, from 4.1% in 2008, to 1.5% in 2009, 5.5% in 2010 and 4.7% in 2011to 5.1% in

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2012 (Southern African Development Community, 2012). Unfortunately, it is very difficult to obtain statistic data related to SADC.

Inflation decreased from 13.1% in 2008, to 10.0% in 2009, 8.4% in 2010 and 8.3% in 2011 to 7.9% in 2012, but it was still high.

SADC faced to current account deficits during 2005-2012. These deficits decreased during 2009-2012. There are no data related to the unemployment rates across SADC in the Report. This means that unemployment is a great challenge for the organization.

A great challenge to SADC is its member states which have different economic development levels. According to the latest official statistic data, the Competitiveness Index for all 15 national economies is presented in Table 1 (Schwab, 2014).

Table 1. Global competitiveness index

Country	World rank	Country	World rank	Country	World rank
Angola	140	Malawi	132	South Africa	56
Botswana	74	Mauritius	39	Swaziland	123
DR Congo	No rank	Mozambique	133	Tanzania	121
Lesotho	107	Namibia	88	Zambia	96
Madagascar	130	Seychelles	92	Zimbabwe	124

The above Competitiveness Index is estimated using 12 pillars: institutional environment, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication and innovation.

According to Table 1 data and other economic analyses, Angola, Botswana, Democratic Republic of Congo, Mozambique, Tanzania, Zambia and Zimbabwe cover the transition economies from stage 1 (Factor-driven) to stage 2 (Efficiency-driven).

Lesotho, Madagascar and Malawi are less developed economies (stage 1), while Namibia, South Africa and Swaziland achieved stage 2 of development.

The most developed member states are Mauritius and Seychelles, which are under Transition from stage 2 to stage 3 (Innovation-driven).

The main goal of the research in the paper is to quantify the level and the trend of the economic disparities between SADC's members and to demonstrate SADC's viability.

2. Research Methodology

The analysis in the paper is focused on four representative economic indicators: GDP growth rate, unemployment rate, inflation rate and balance of current account. A real challenge for the analysis was to create the statistic data base for each SADC's member state, because the information is very difficult to obtain.

The analysis is built on three steps. A comparative analysis doubled by a regression one is useful in order to quantify the disparities between member states related to every above economic indicator. The analysis covers 2006-2013 and is focused on two important moments: 2008, as the starting year of the global crisis and 2013. The regression uses the individual values of the four indicators as dependent variables, time as independent variable and ANOVA conditions.

The second step is a cluster approach of the member states, according to the intermediate conclusions of the analysis. The paper uses a TwoStep cluster analysis, where the categorial variables are the above four economic indicators and the distance measure is log-likelihood. The clustering criterion is BIC (Schwarz's Bayesian Criterion) and the distance measure is Euclidean.

Finally, forecasting procedures are used in order to observe the economic evolution of the member states and to highlight if this organization will be able or not to realize the economic cohesion and to decrease economic disparities.

The forecast covers 2014-2020 in order to recover statistical data. The dependent variables in this forecast are the above four indicators' growth rates and the independent variable is time. The forecast method is ARIMA.

All analysis's intermediate and final conclusions are supported by the latest official statistic data and a dedicate IBM-SPSS software.

3. SADC's Current Economic Performances

The economic growth across the SADC members was often contradictory. The evolution of the GDP growth rate is presented in Table 2 (International Monetary Fund, 2014).

Table 2. GDP growth rate

Country	2006	2007	2008	2009	2010	2011	2012	2013
Angola	20.7	22.6	13.8	2.4	3.4	3.9	5.2	6.8
Botswana	8.0	8.7	3.9	-7.8	8.6	6.2	4.3	5.9
DR Congo	5.3	6.3	6.2	2.9	7.1	6.9	7.2	8.5
Lesotho	4.1	4.9	5.1	4.5	5.6	4.3	6.0	5.7
Madagascar	5.4	6.5	7.2	-3.5	0.1	1.5	2.5	2.4

Malawi	2.1	9.5	8.3	9.0	6.5	4.3	1.9	5.2
Mauritius	4.5	5.9	5.5	3.0	4.1	3.9	3.2	3.2
Mozambique	8.7	7.3	6.8	6.3	7.1	7.3	7.2	7.1
Namibia	7.1	5.4	3.4	-1.1	6.3	5.7	5.0	4.3
Seychelles	9.4	10.4	-2.1	-1.1	5.9	7.9	2.8	3.5
South Africa	5.6	5.5	3.6	-1.5	3.1	3.6	2.5	1.9
Swaziland	3.3	3.5	2.4	1.2	1.9	-0.6	1.9	2.8
Tanzania	6.7	7.1	7.4	6.0	7.0	6.4	6.9	7.0
Zambia	7.9	8.4	7.8	9.2	10.3	6.4	6.8	6.7
Zimbabwe	-3.6	-3.3	-16.4	8.2	11.4	11.9	10.6	3.3

As a general point of view, SADC countries faced to fluctuating evolution related to GDP growth rate. A relative increase in 2007 was followed by economic contraction during 2008-2009. Another positive economic trend in 2010 was countered by new contraction in 2011 and so on (see Figure 1).
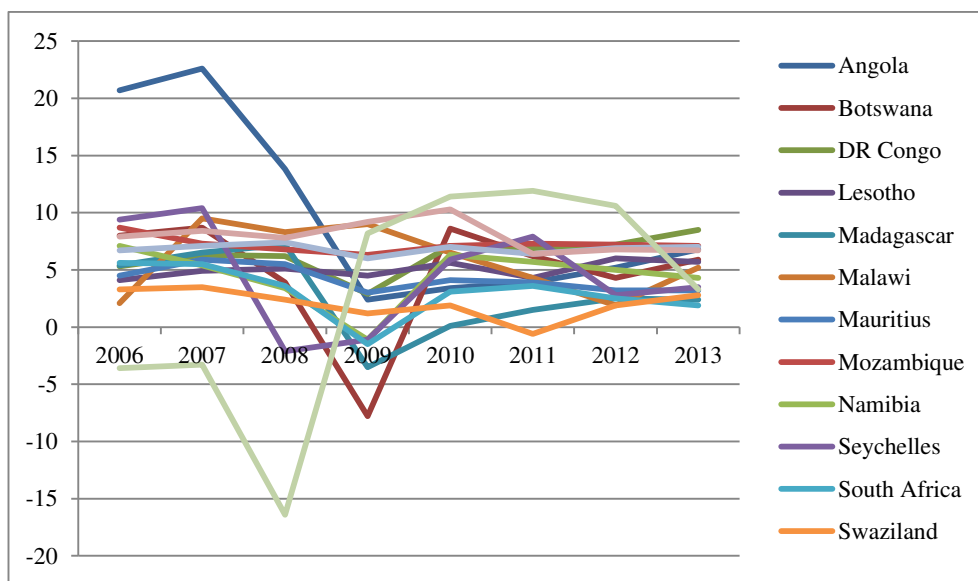
Figure 1. GDP growth rate trend (%)

Source: Personal contribution

At the beginning of the global crisis, SADC countries faced to great disparities related their economic growth rates (see Figure 2).
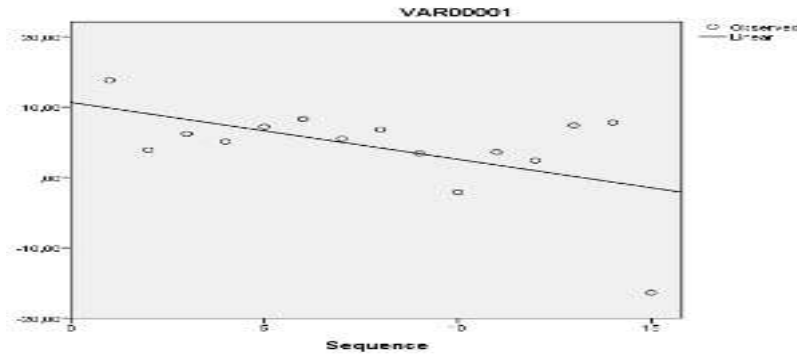
Figure 2. Real GDP growth rate's disparities in 2008

Source: Personal contribution using IBM-SPSS software

According to Figure 2, the analysis in the paper can be built on two clusters: countries with economic growth rates less than 5% (Botswana, Namibia, Seychelles, South Africa, Swaziland and Zimbabwe) and countries with economic growth rates greater than 5% (Angola, DR Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Tanzania and Zambia. The viability of this two clusters approach is demonstrated in Figure 3. The cluster approach quality is good (0.9), even that the ration of the clusters' sizes is high.
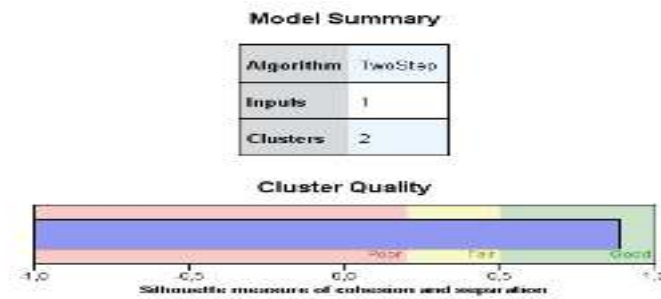
Figure 3. Real GDP growth rate under cluster analysis

Source: Personal contribution using IBM-SPSS software

The same cluster criteria may be applied in 2013. Moreover, 83.33% of the clusters' structure in 2008 is maintained in 2013. On the other hand, the economic growth rates' values are better grouped in 2013 than in 2008.

It is very difficult to obtain data about the unemployment in SADC countries. Useful information can be obtained by comparing the unemployment rates in Sub-Sahara Africa and world average. During 2007-2013, for example, the

unemployment rate was constant higher in SADC countries than world average (see Figure 4) (International Labour Organization (2014).
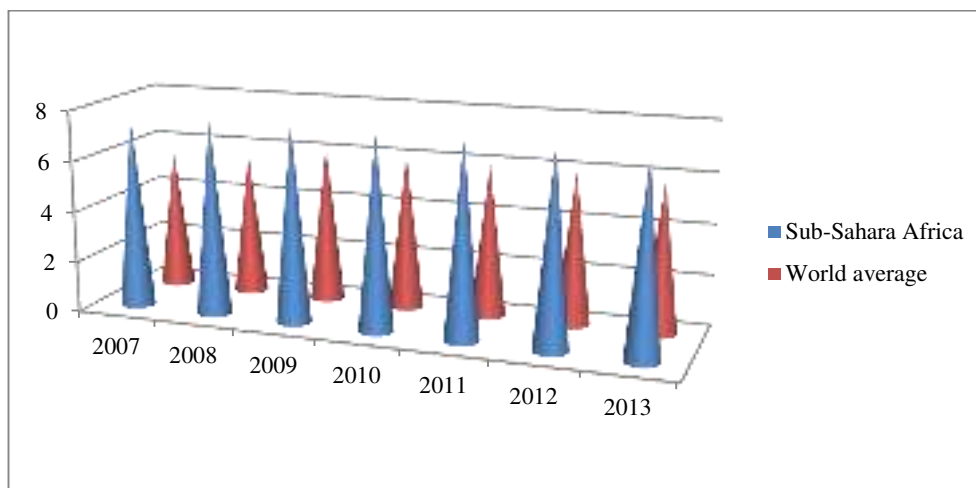
Figure 4. Unemployment rate (%)

Source: Personal contribution

The available data for unemployment across SADC countries are presented in Table 3 (http://www.tradingeconomics.com/). A lot of data in this table are at least controversial.

Table 3. Unemployment rate

Country	2006	2007	2008	2009	2010	2011	2012	2013
Angola	35.0	35.0	25.0	25.0	25.0	25.0	26.0	26.0
Botswana	23.8	23.8	17.5	17.5	17.5	17.5	17.8	20.0
DR Congo	49.6	49.6	47.2	47.2	60.8	60.8	51.4	46.1
Lesotho	27.3	27.3	25.3	25.3	25.3	25.3	25.3	25.3
Madagascar	3.7	3.7	3.7	3.7	3.8	3.8	3.8	3.8
Malawi	7.0	7.0	3.0	3.0	3.0	3.0	3.0	3.0
Mauritius	7.4	7.4	7.4	7.4	7.8	7.8	7.8	7.6
Mozambique	18.7	18.7	17.0	17.0	17.0	17.0	17.0	17.0
Namibia	37.6	37.6	37.6	37.6	37.6	37.6	27.4	27.4
Seychelles	3.6	3.6	1.9	1.9	4.5	4.5	1.7	1.0
South Africa	25.5	25.5	23.2	23.2	25.1	25.1	24.5	24.1
Swaziland	29.2	29.2	29.2	29.2	28.2	28.2	28.5	28.5
Tanzania	12.2	12.2	11.7	11.7	10.7	10.7	10.7	10.7
Zambia	15.9	15.9	15.0	15.0	15.0	15.0	15.0	15.0
Zimbabwe	7.3	7.3	7.3	7.3	10.7	10.7	7.3	7.3

The unemployment rate leads to great disparities across SADC countries. The ratio between the lowest and the highest unemployment rates was 1: 46.1 in 2013. 11 countries had two double-digit unemployment rates in the same year, 2013 (see Figure 5).
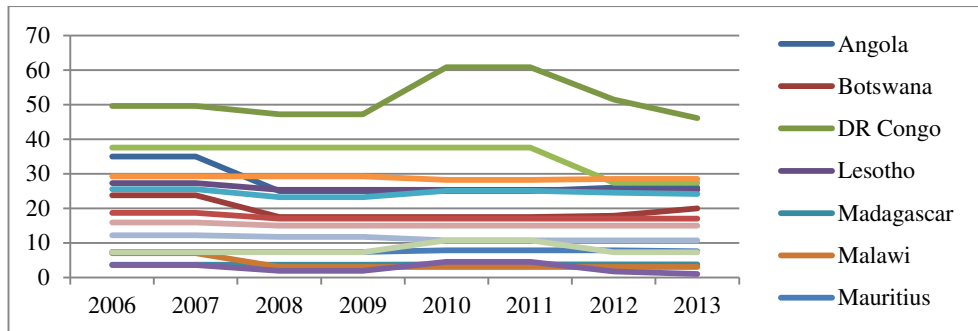
Figure 5. Unemployment rate trend (%)

Source: Personal contribution

The regression analysis supports the same idea (see Figure 6). As a result, two clusters can be built in 2008. First cluster covers those countries with unemployment rates less or equal to 20% (Botswana, Madagascar, Malawi, Mauritius, Mozambique, Seychelles, Tanzania, Zambia and Zimbabwe), while the second cluster is formed from countries which faced to unemployment rates greater than 20% (Angola, DR Congo, Lesotho, Namibia, South Africa and Swaziland).
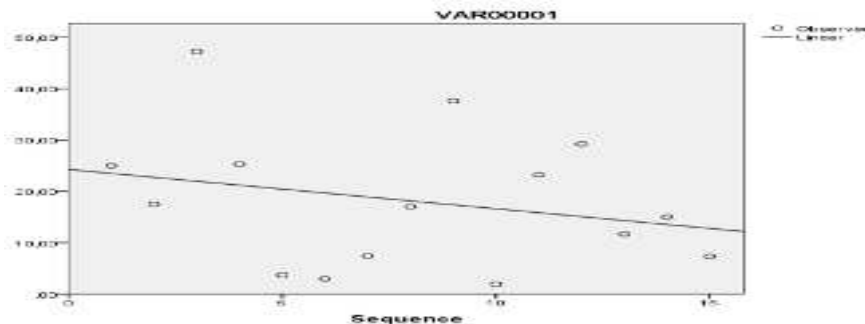
Figure 6. Unemployment rate's disparities in 2008

Source: Personal contribution using IBM-SPSS software

The viability of this new approach is supported by Figure 7. The cluster quality is good enough (0.7). Moreover, the same cluster structure is available in 2013. An intermediary conclusion of the analysis is that the two cluster approach is correct at least for the first two economic indicators.

Model Summary

Algorithm	TwoStep
Inputs	1
Clusters	2

Cluster Quality
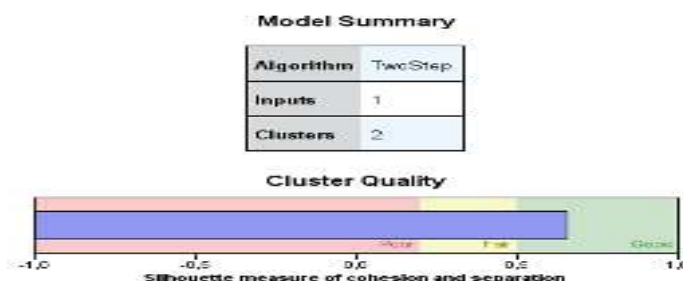
Figure 7. Unemployment rate under cluster analysis

Source: Personal contribution using IBM-SPSS software

The third economic indicator analysed in the paper is the inflation rate. The evolution of this indicator is presented in Table 4 (International Monetary Fund, 2014).

Table 4. Inflation rate

Country	2006	2007	2008	2009	2010	2011	2012	2013
Angola	12.3	11.2	11.5	12.7	13.5	12.5	9.3	7.8
Botswana	10.6	6.1	11.6	7.1	5.9	7.5	6.5	4.8
DR Congo	12.2	15.7	17.0	45.2	22.5	14.5	1.1	-0.2
Lesotho	5.1	7.0	9.7	6.4	2.6	4.0	5.2	4.3
Madagascar	9.8	9.4	8.2	8.0	8.3	9.0	4.8	4.8
Malawi	12.9	7.0	7.7	7.4	6.4	6.6	20.3	27.3
Mauritius	7.9	7.8	8.7	1.5	1.9	5.5	2.9	2.5
Mozambique	12.2	7.2	9.3	2.3	11.7	9.4	1.1	3.2
Namibia	4.0	5.5	8.1	8.5	3.9	4.0	5.7	4.6
Seychelles	-2.9	-9.6	36.0	30.7	-3.4	1.6	6.1	3.3
South Africa	3.7	6.1	10.5	6.1	3.3	4.0	4.7	4.8
Swaziland	4.2	7.1	11.7	6.4	3.5	5.1	7.9	4.6
Tanzania	6.3	6.0	9.3	11.1	6.2	11.7	15.0	6.9
Zambia	8.0	9.7	11.4	12.4	7.5	7.7	5.6	6.0
Zimbabwe	32.0	-73.7	156.0	5.2	2.0	2.5	2.7	0.6

There is no rule in the inflation's trend in SADC countries during 2006-2013. High inflation rates are followed by low rates or disinflation (see Figure 8).
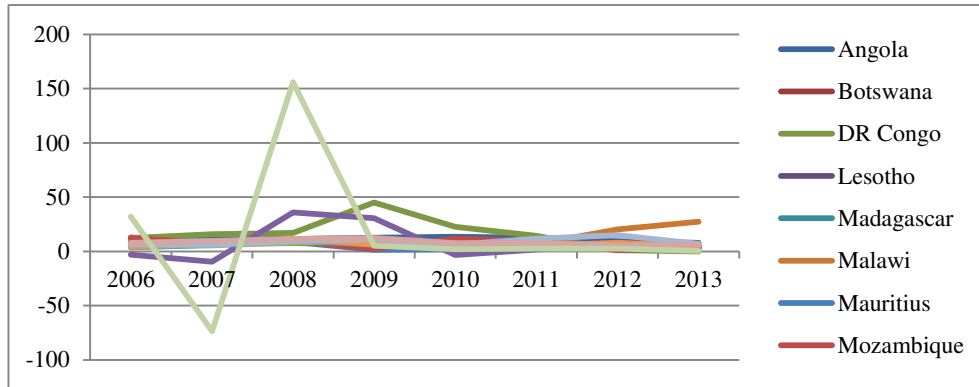
Figure 8. Inflation rate trend (%)

Source: Personal contribution

As a result, the inflation rate disparities are fantastic. The regression analysis' result is relevant in this respect (see Figure 9). In 2008, for example, the obsolete disparity is 1: 20.26. The situation improved in 2013, when only Malawi faced to two-digit inflation rate and DR Congo to disinflation.
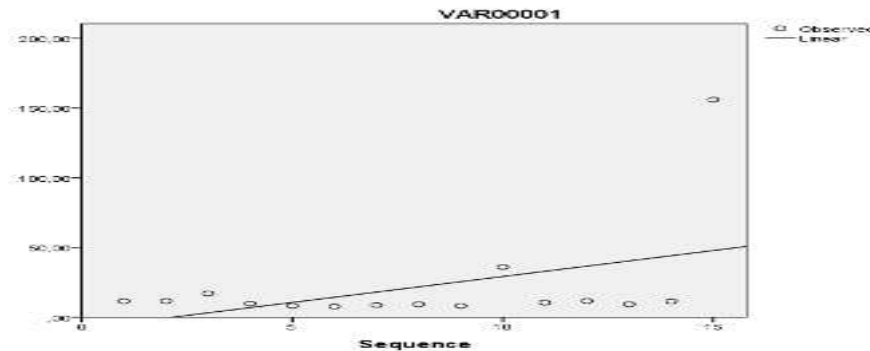
Figure 9. Inflation rate's disparities in 2008

Source: Personal contribution using IBM-SPSS software

The initial assumption of grouping SADC countries in two clusters leads to: countries with inflation rates lower than 10% (Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia and Tanzania) and countries facing to inflation rates higher than 10% (Angola, Botswana, DR Congo, Seychelles, South Africa, Swaziland, Zambia and Zimbabwe).

The improving of the monetary policy in 2013, led to new clusters criteria: countries with inflation rates lower than 5% (Botswana, DR Congo, Lesotho, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, South Africa,

Swaziland and Zimbabwe) and countries facing to inflation rates higher than 5% (Angola, Malawi, Tanzania and Zambia). 71.43% of the clusters' structures in 2008 are maintained in 2013. The viability of this new cluster grouping is demonstrated by the cluster quality (0.95) in Figure 10.
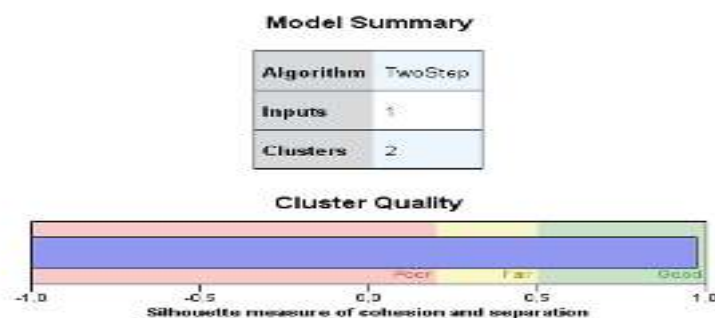
Figure 10. Inflation rate under cluster analysis

Source: Personal contribution using IBM-SPSS software

The analysis of the inflation rate allows concluding that the high disparities across SADC countries can be quantified using two clusters approach.

The last economic indicator analysed in the paper is balance of current account. The evolution of this account is presented in Table 5.

Table 5. Balance of current account (% of GDP)

Country	2006	2007	2008	2009	2010	2011	2012	2013
Angola	25.6	17.5	8.5	-10.0	8.1	12.6	11.6	5.5
Botswana	19.3	15.0	0.0	-11.2	-6.0	-0.7	-3.8	10.4
DR Congo	0.3	3.2	-0.8	-6.2	-10.6	-5.4	-6.2	-10.2
Lesotho	26.3	24.6	23.4	8.9	-4.7	-8.6	-4.2	-1.2
Madagascar	-3.8	-12.7	-20.6	-21.2	-9.7	-6.9	-6.8	-5.4
Malawi	-11.2	1.0	-0.7	-4.8	-1.3	-5.9	-4.5	-2.8
Mauritius	-9.1	-5.4	-10.1	-7.4	-10.3	-13.8	-7.3	-9.9
Mozambique	-8.6	-10.9	-12.9	-12.2	-11.7	-24.4	-45.4	-39.5
Namibia	13.6	8.5	2.9	-1.4	1.0	-1.2	-2.6	-5.1
Seychelles	-13.2	-18.8	-27.2	-22.4	-22.1	-26.5	-24.7	-16.9
South Africa	-5.3	-7.0	-7.2	-4.0	-2.0	-2.3	-5.2	-5.8
Swaziland	-6.7	-2.1	-7.6	-13.0	-10.0	-8.2	3.8	5.3
Tanzania	-9.6	-10.9	-10.3	-9.8	-9.3	-14.5	-15.9	-13.8
Zambia	-0.4	-5.4	-5.8	3.8	5.9	3.0	3.1	0.7
Zimbabwe	-6.5	-5.4	-16.7	-44.6	-18.0	-29.8	-24.4	-27.4

The current account disparities seem to increase in 2013 comparing to 2008 (see Figure 11).
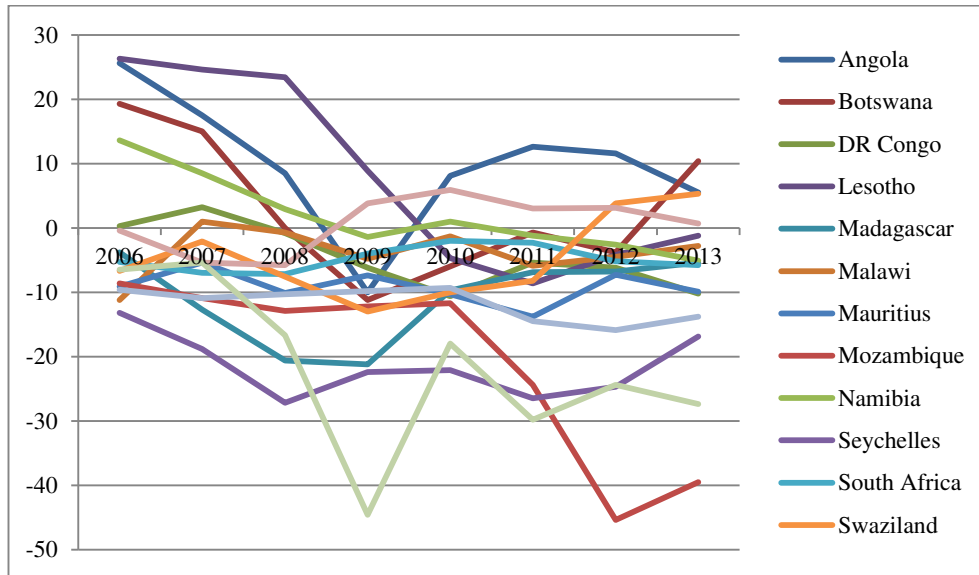
Figure 11. Current account trend (%)

Source: Personal contribution

The global crisis' impact on this economic indicator was high in 2008. Only four SADC countries had positive balances of the current accounts at that moment (see Figure 12).
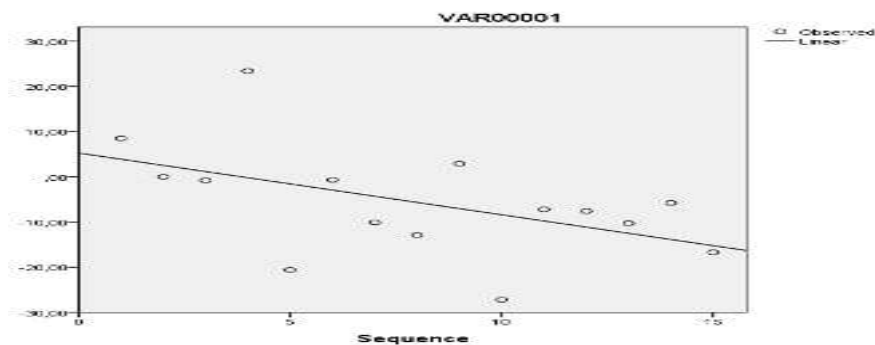

Figure 12. Current account's disparities in 2008

Source: Personal contribution using IBM-SPSS software

On the other hand, Figure 12 supports the idea of using two clusters in analysing the balance of current account for each SADC country. 78.57% of the clusters'

structure in 2008 is maintained in 2013. Moreover, the cluster approach is supported by the result of the cluster analysis in Figure 13. It highlights a cluster quality of 0.7.

Model Summary

Algorithm	TwoStep
Inputs	1
Clusters	2

Cluster Quality

Silhouette measure of cohesion and separation
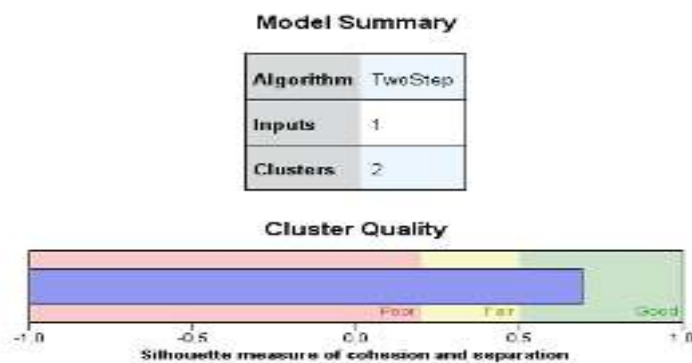
Figure 13. Current account under cluster analysis

Source: Personal contribution using IBM-SPSS software

The analysis in this chapter leads to the intermediate conclusion that the high economic disparities across SADC countries allow the use of the two clusters approach in studying the viability of this regional organization.

4. SADC's Goals Forecasting as Measure of its Viability

The last step of the analysis is to forecast the above four economic indicators in order to highlight if the economic disparities will decrease or not at the end of 2020. The results of the GDP growth rate forecasting were presented in Figure 14.

Angola   Botswana   DR Congo

Lesotho   Madagascar   Malawi

Mauritius   Mozambique   Namibia

Seychelles   South Africa   Swaziland

Tanzania   Zambia   Zimbabwe
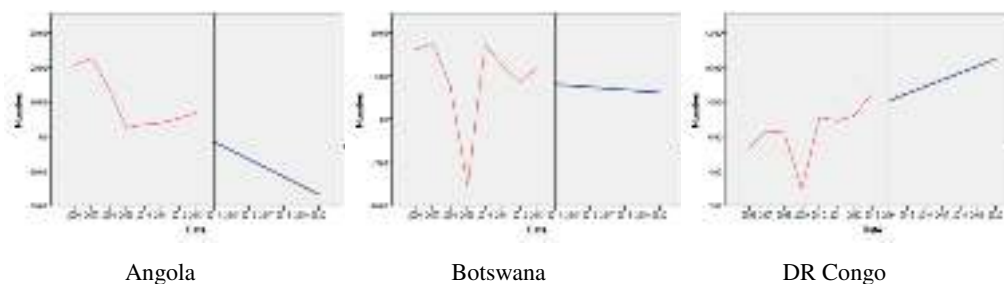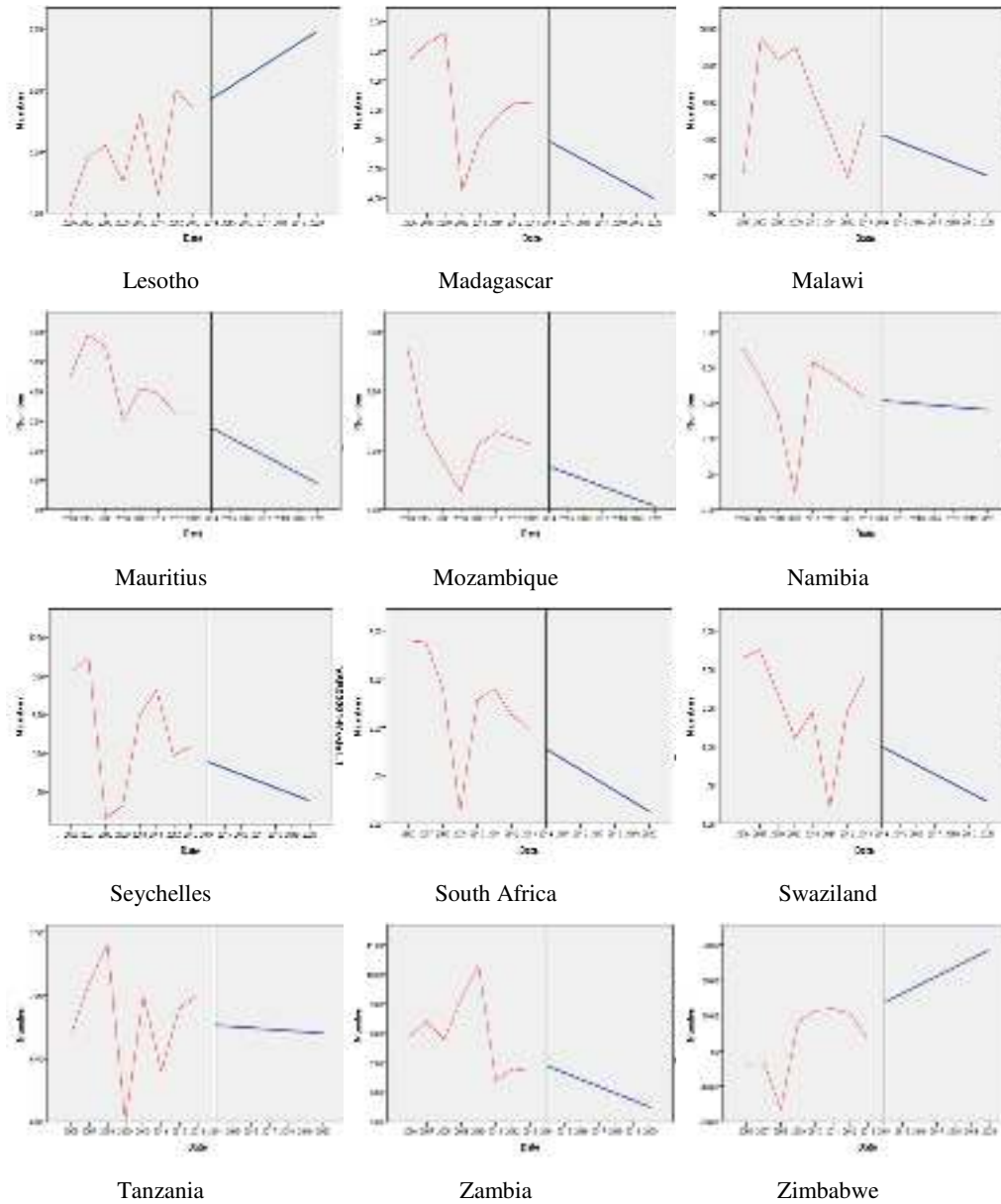
Figure 14. GDP growth rate forecasting

Source: Personal contribution using IBM-SPSS software

5 SADC countries will face to economic contraction in 2020. Using this conclusion, the grouping into two clusters will be available, as well. Moreover,

203

73.33% of the clusters' structure in 2013 will be maintained in 2020. On the other hand, the highest growth rate ratio will increase in 2020.

The unemployment rates varied a lot during 2006-2013 at individual and regional levels. As a result, the unemployment forecasting is difficulty. The unemployment rate forecasting is presented in Figure 15.

Angola   Botswana   DR Congo

Lesotho   Madagascar   Malawi

Mauritius   Mozambique   Namibia

Seychelles   South Africa   Swaziland

| Tanzania | Zambia | Zimbabwe |
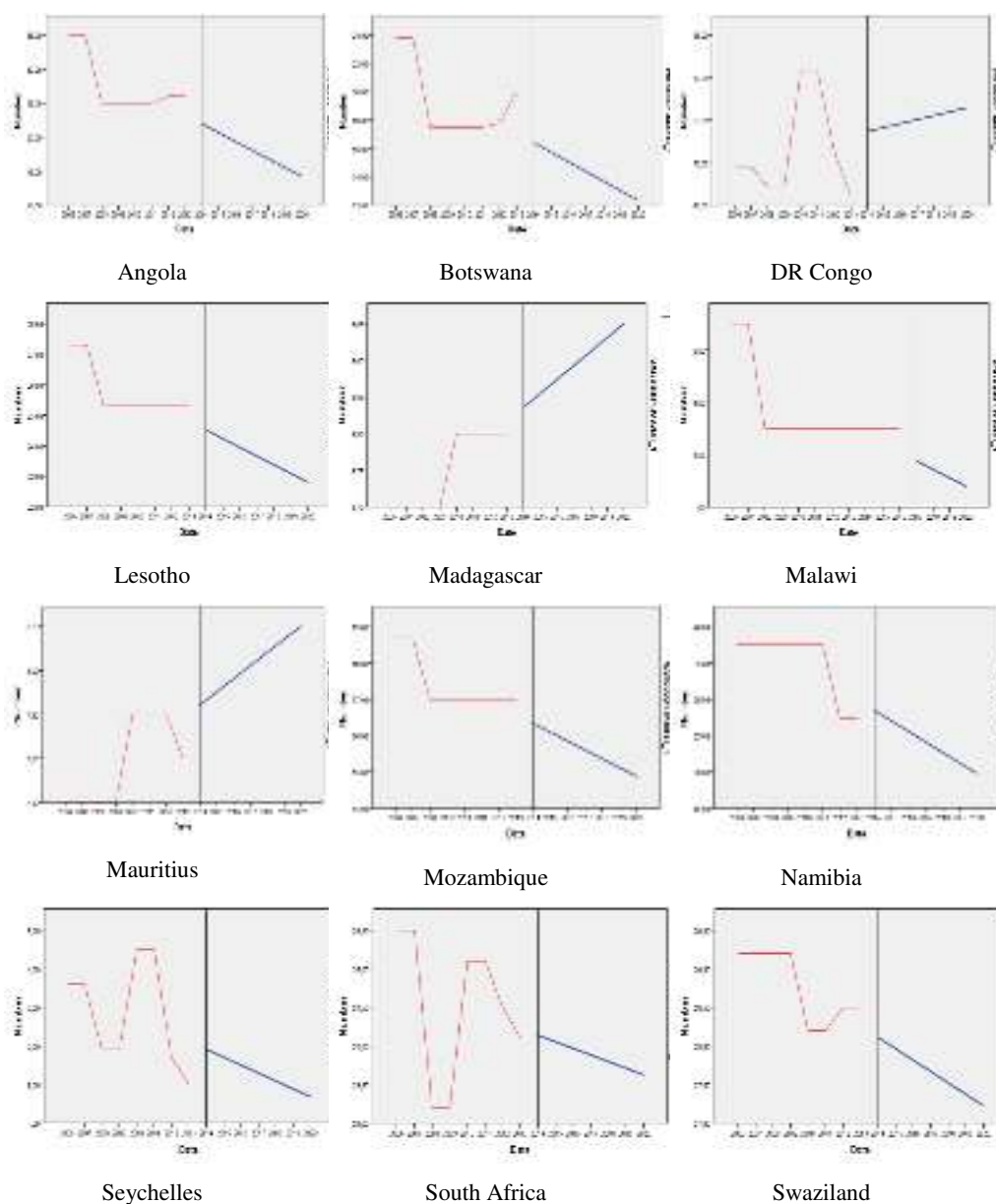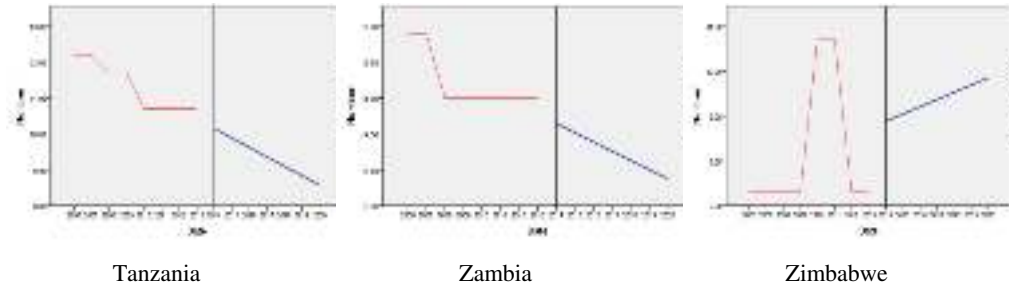
Figure 15. Unemployment rate forecasting

Source: Personal contribution using IBM-SPSS software

The forecasted unemployment rates in 2020 are strange enough. 11 SADC countries will achieve better unemployment rates compared to 2013. Using the "classic" two clusters approach, 86.66% of the clusters' structure in 2013 will be available in 2020, as well.

The forecasting of the inflation rate leads to interesting results (see Figure 16). Only 8 SADC countries will achieve better inflation rates in 2020. Other four countries will face to disinflation. The two clusters' structure in 2013 will be 86.66% the same in 2020.

| Angola | Botswana | DR Congo |

| Lesotho | Madagascar | Malawi |

Mauritius	Mozambique	Namibia
Seychelles	South Africa	Swaziland
Tanzania	Zambia	Zimbabwe
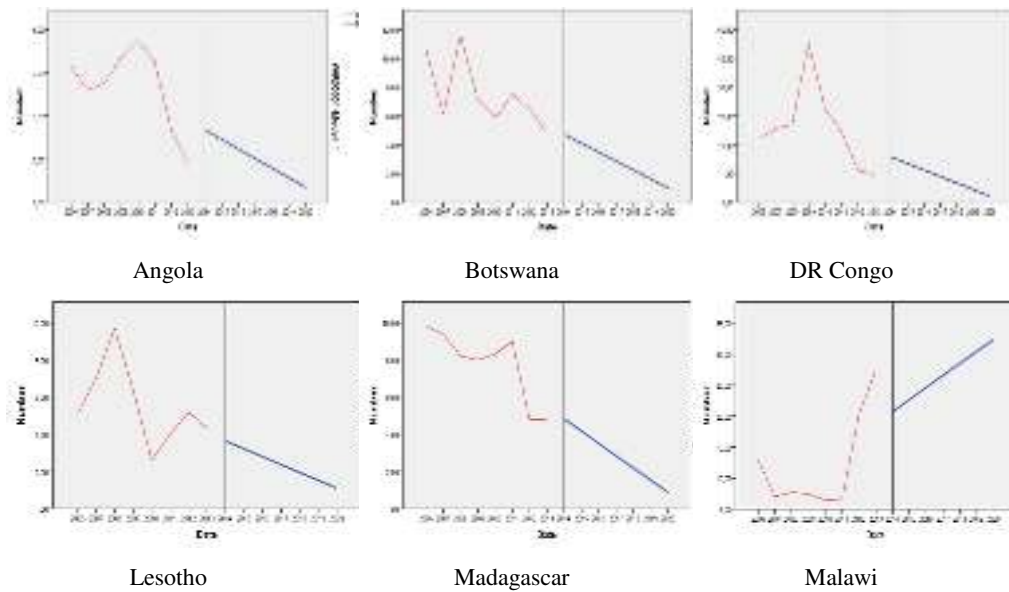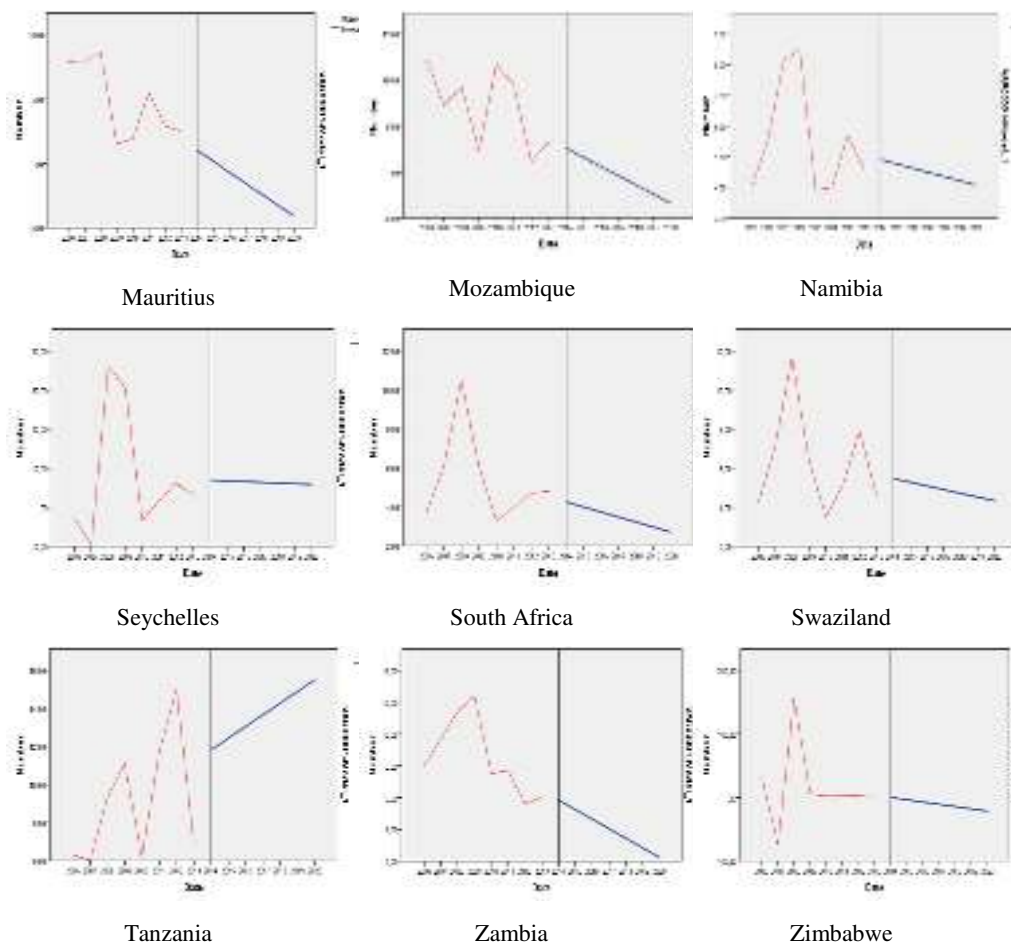
Figure 16. Inflation rate forecasting

Source: Personal contribution using IBM-SPSS software

Finally, the balance of current account forecasting offers a lot of controversy results (see Figure 17). 5 SADC countries will achieve better results for their current accounts. 80% of SADC countries will belong to the same clusters in 2020 as in 2013.

Angola

Botswana

DR Congo

Lesotho

Madagascar

Malawi

Mauritius

Mozambique

Namibia

Seychelles

South Africa

Swaziland

Tanzania   Zambia   Zimbabwe
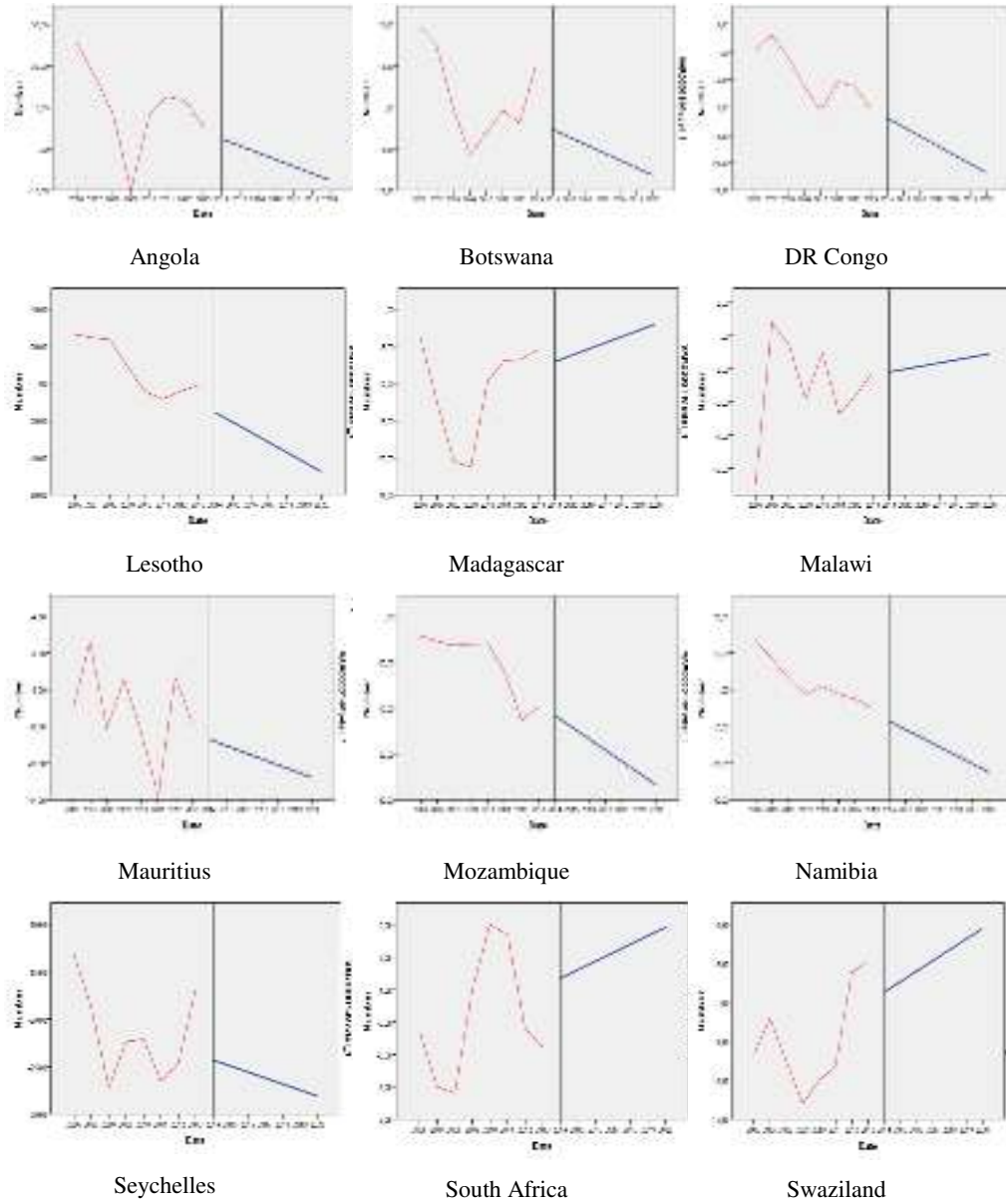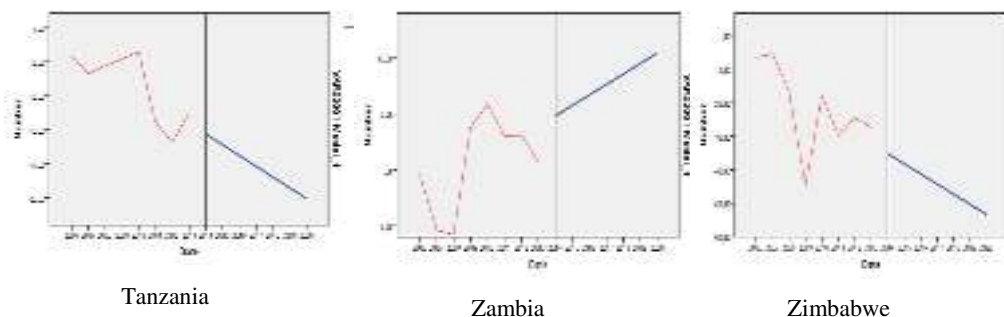
Figure 17. Current account forecasting

Source: Personal contribution using IBM-SPSS software

5. Conclusions

The above analysis highlighted great disparities across SADC countries. According to GDP growth rate, the disparities decreased in 2013 compared to 2008, but increased again in 2020 (see Figure 18).
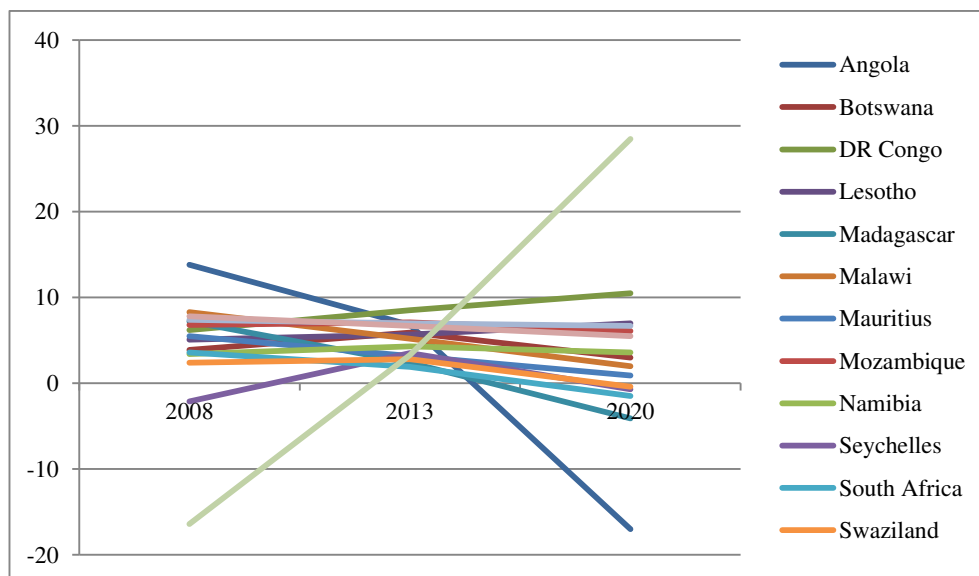
Figure 18. GDP growth rate (%)

Source: Personal contribution

The classic high unemployment rates in 2008 increased disparities in 2013 and 2020 in almost all SADC countries. The highest unemployment rate ratio will be 1:70.6 and represents an alarming situation (see Figure 19).
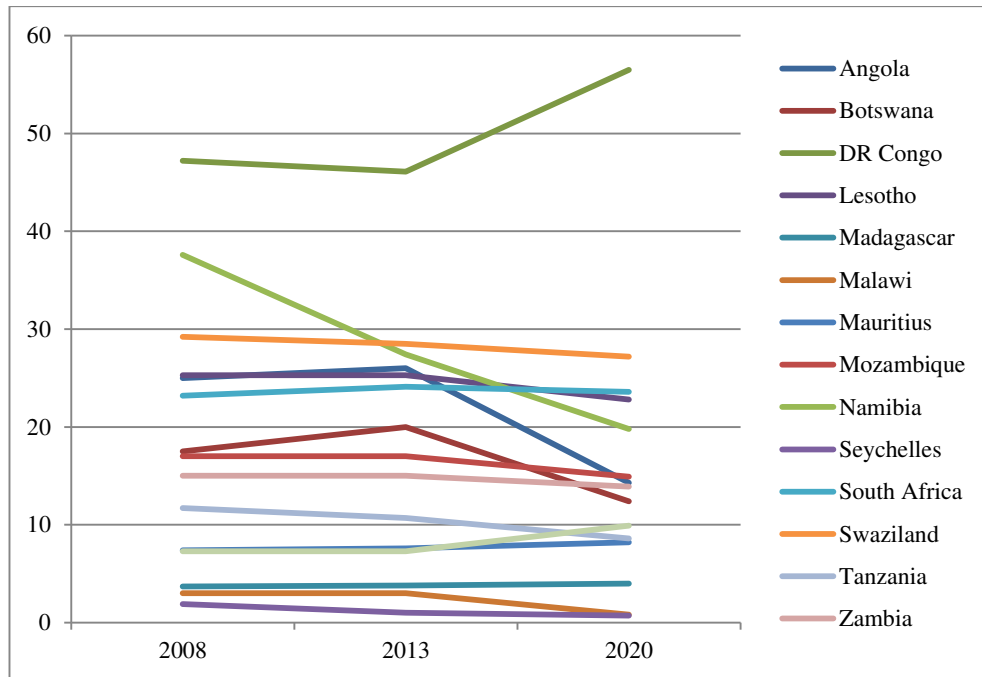
Figure 19. Selected unemployment rate (%)

Source: Personal contribution

The disparities related to the inflation rate decreased in 2013, but will increase more in 2020. Many SADC countries will face to disinflation in 2020 (see Figure 20).
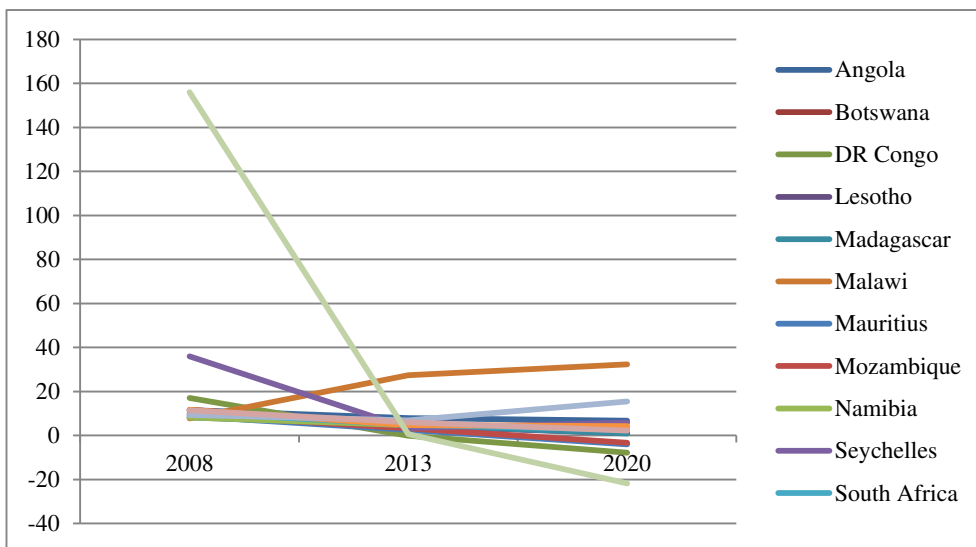
Figure 20. Selected inflation rate (%)
Source: Personal contribution

The balance of current account has a negative trend during 2008-2020. This balance will be more damaged in 2020 in almost all SADC countries (see Figure 21).
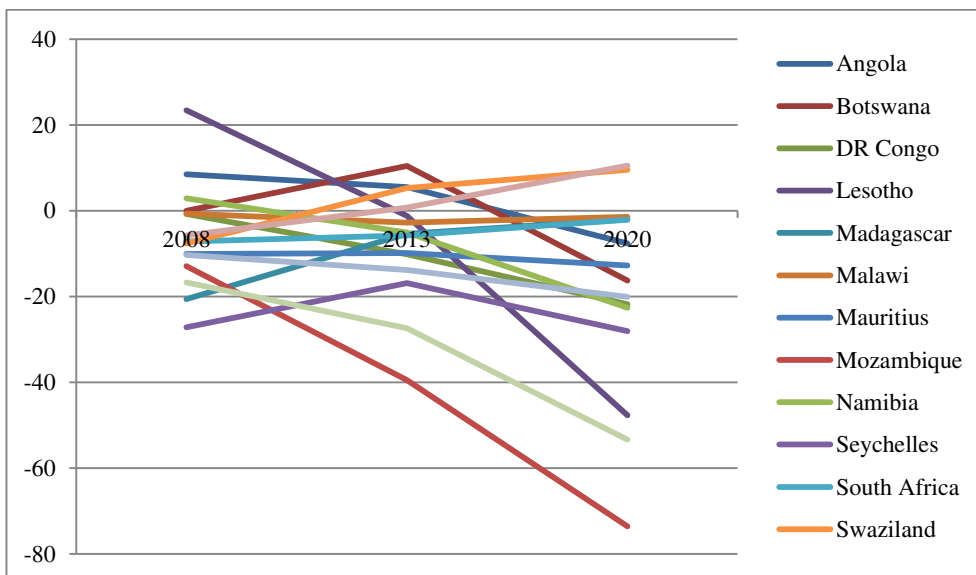
Figure 21. Selected balances of current accounts (% of GDP)
Source: Personal contribution

Basically, no SADC country will be able to achieve better economic results for all above four indicators in 2020. Moreover, at SADC level, the economic disparities will increase in 2020 compared to 2013.

As a result, SADC will not be able to achieve its goals in 2020 and will face to economic difficulties on short and medium terms.

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The Role of International Trade in Lesotho's Economic Growth: A Review

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Abstract: This paper investigates the role of international trade in Lesotho's economy. Over the years, the increasing role of international trade in the economy of Lesotho has become evident, particularly with the impetus from the country's export sector. An exploratory review approach has been used in this paper, in which the discussion mainly focuses on Lesotho's economic growth policy, trade policy, trends in economic growth, and trade performance. The findings point to the connection between Lesotho's economic growth and exports from the manufacturing sector, which driven by trade privileges. There is a further indication from this review that Lesotho's growth policy has been largely shaped by the country's need to pursue export-led growth and private-sector led growth. In recent years, developments in the country's trade policy have moved towards the implementation of a more liberal trade approach, as opposed to the initial import substitution industrialisation that Lesotho adopted in the 1960s. This change in trade policy has resulted in an enforcement of measures that have helped to enhance policy-driven trade. The graphical analysis shows that, generally, trends in Lesotho's economic growth correspond to the performance of the country's trade sector. Nevertheless, while international trade has made some significant contributions to Lesotho's economic growth, a heavy reliance on manufactured exports, which are known to be volatile to global economic downturns, poses some challenges to the country. Therefore, it is recommended that Lesotho relies on a wider range of exports, rather than manufactured exports, in order to strengthen trade-related growth in the country.

Keywords: trade policy; export-led growth; private sector-led economic growth; trade performance; Lesotho

JEL Classification: F43

1. Introduction

The extent of the positive effects of international trade remains an issue of concern, particularly for those economies faced with limited sources of economic growth. Frankel and Romer (1999) posit that international trade does have a quantitatively large and robust positive effect on income; although, the direction of causality between the two is not clear. Lesotho has benefited from international trade for

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some time, particularly in the light of trade privileges that have been introduced since the beginning of the past decade. Evidence shows that following the inception of trade privileges and concessions on textiles under the Africa Growth and Opportunity Act (AGOA) in the year 2000, exports, particularly of manufactured goods, have accounted for a larger share in Lesotho's economy (see Mokhethi & Vögel, 2015).

Trends in Lesotho's trade flows show that there have been marked disparities in the contribution of exports in gross domestic product (GDP) in comparison to that of imports in GDP, whereby imports have always accounted for a larger share in GDP. Between 1960 and 1970 for instance, exports accounted for barely 20 percent in GDP while the share of imports in GDP imports remained above 40 percent (World Bank, 2014). However, in recent years, there has been a stronger growth in the share of exports in GDP, the same applying to that of imports.

Evidence shows that by the fourth quarter of 2015, Lesotho's exports accounted for 50.6 per cent of GDP, compared to the 44.9 per cent recorded in the fourth quarter of 2010 (Central Bank of Lesotho, 2015 and Central Bank of Lesotho, 2010b). During the fourth quarter of 2015, imports, accounted for 97.5 per cent in GDP, compared to 86.2 per cent share in 2010. Given the growing share of exports in GDP, Lesotho's export industries continue to be important drivers of the economy (Central Bank of Lesotho, 2010a). On the other hand, the rising share of imports in GDP signifies Lesotho's heavy dependence on imported goods (Central Bank of Lesotho, 2015).

Looking at Lesotho's economic growth, since its independence in 1966, a number of factors have led to the country's international trade being closely linked to improvements in its economic achievements. Some of the contributing factors to Lesotho's economic achievements are the structural reforms, which have to some degree assisted in improving the external competitiveness in the country. Like other small countries in the Southern African Common Monetary Area, Lesotho relies heavily on structural reforms to improve its external competitiveness and to achieve sustainable growth (Wang et al., 2007).

By tracing Lesotho's structural reforms since its independence in 1966, it can be shown that the adoption of an export-led growth strategy from that time has enabled the country's products to reach bigger and wider world markets. Moreover, the implementation of National Development Plans, that also took place after independence, have made it possible for development plans to act as instruments for the execution of Lesotho's future growth strategy (World Bank, 1975). Through the use of development plans, Lesotho has been able to address, among other things, trade-related matters, especially on key issues that affect the non-agricultural sectors. The third contributing factor has been the mobilisation of the Lesotho National Development Corporation, through which Lesotho has been able

to divert its resources towards assisting its manufacturing and processing industries (World Trade Organisation, 1998b).

Apart from development plans, other strategic frameworks that were implemented in Lesotho over the past two decades have also allowed for developments in the country's trade sector to be transmitted to various sections of the economy the economy. These frameworks include: the Vision 2020, the Poverty Reduction Strategy, the Interim National Development Framework and the National Strategic Plan. These are discussed in the subsequent section of this article.

Against the above background, in this article, we examine the relationship between international trade in Lesotho, with reference to Lesotho's growth policy, and its trade policy, as well as the trends in its economic growth and in its trade flows. An important contribution of this article is that, unlike previous studies that limited their discussion to export constraints (see Mokhethi &Vögel, 2015), or to apparel manufacturers (see Seidman, 2009), the current study extends the existing reviews by tracing the relationship between trade openness and economic growth in Lesotho, while also identifying the factors that affect Lesotho's trade flows. The current study also addresses how these factors pose a challenge to Lesotho's economic growth – an issue that to the best of our knowledge – has not been adequately addressed by previous studies.

This paper is divided into six sections, including the introduction. After the introduction, section two of the paper discusses Lesotho's strategic frameworks, economic growth policies and trends. Section three discusses trade policy and external competitiveness in Lesotho; and this is followed by a discussion on trade regimes in section four. Thereafter, section five discusses trade sector performance; while section six concludes the study.

2. Strategic Frameworks, Economic Growth Policies and Trends in Lesotho

2.1 Strategic Frameworks

Most of Lesotho's strategic frameworks were adopted from the beginning of 2000, with the aim of establishing medium-term and long-term visions for Lesotho. One of such frameworks is Lesotho's Vision 2020, which was formulated in 2000 with aim to facilitate the achievement of sustainable development and growth in Lesotho. Among other strategic actions, Vision 2020 puts emphasis on the strengthening of investment and trade capacity as well as the diversification of Lesotho's exports market (Kingdom of Lesotho, 2000). Following the adoption of the Vision 2020, the introduction of the Poverty Reduction Strategy in 2004

brought a different dimension to the articulation of trade-related matters in Lesotho.

In the area of trade, Lesotho's Poverty Reduction Strategy emphasised two things, which are the importance of eradicating constraints to Lesotho's trade and industry, as well as the relevance of various trade agreements in Lesotho. The strategy also identified four critical trade agreements that could assist the economy in its poverty reduction initiatives. These trade agreements are the Africa Growth and Opportunity Act (AGOA), the Multifibre Agreement, the European Union-Republic of South Africa Free Trade Agreement, and the Sothern African Development Community (SADC) Free Trade Agreement. Overall, the Poverty reduction Strategy acknowledged that in order to achieve the goal of poverty reduction, Lesotho's policy formulation should assist in creating an environment that enables international trade (Kingdom of Lesotho, 2004).

Following the termination of the Poverty Reduction Strategy in 2008, an Interim National Development Framework was developed, which was set out to operate from the fiscal year 2009/10 to 2010/11. The primary aim of the Interim Development Framework was to assist in the attainment of significant private sector-led economic growth. In order to achieve this objective, it became critical that Lesotho sought to promote an environment that is conducive to private sector investment. Moreover, in pursuit of private sector-led growth, it also became imperative for Lesotho's policies to address the removal of constraints to private sector investment (Kingdom of Lesotho, 2009).

After the Interim National Development Framework, the National Strategic Development Plan was implemented for operation during the period 2012/13 until 2016/17. This Plan served as an implementation strategy for the National Vision 2020 (International Monetary Fund, 2012). On international trade, the National Strategic Development Plan highlights the need to enhance productive capacity, export market diversification, as well as trade and investment promotion (Kingdom of Lesotho, 2012).

Despite the implementation of these various frameworks, it has become obvious that some of the goals that are outlined in Lesotho's strategic frameworks need to be complemented by other strategies. In particular, alongside the strategic objectives of the National Strategic Development Plan 2012/13 – 2016/17, Lesotho still needs to supplement its small domestic market with an export-oriented strategy (Central Bank of Lesotho, 2012). However, the challenge with the enforcement of an enhanced export-oriented strategy is that some sectoral changes would also need to be considered. Among other sectoral changes, the removal of some of the binding supply-side constraints to the major growth sectors becomes absolutely necessary in Lesotho (International Monetary Fund, 2012).

2. Economic Growth Policies and Trends in Economic Growth in Lesotho

2.1 Economic Growth Policies in Lesotho

Lesotho's economic growth has been transformed by the different strategies that the country has adopted in order to address sustainable growth and development matters. These strategies include the Poverty Reduction Strategy, the Interim National Development Framework, the National Strategic Development Plan and the Vision 2020. Between 2004 and 2007, Lesotho implemented the Poverty Reduction Strategy Paper with the view to eliminating internal constraints to economic growth. At that time, it became evident that in order for Lesotho to attain increased growth, it was necessary for the country to improve the provision of basic infrastructure and productivity of labour, and also to enhance investment promotion (Kingdom of Lesotho, 2004).

During the period 2009-2011 the Interim National Development Framework came into force in Lesotho. This framework placed a strong emphasis on the need to pursue private sector-led growth. However, the attainment of private sector-led growth needed to be supplemented with appropriate measures. As a result, four measures were developed to address key issues relating to private sector-led growth. The first measure addressed the promotion of private sector investment through the removal of potential constraints. The other measure put emphasis on the development of legal and regulatory institutions that support private sector development. The third measure highlighted the promotion of industrial and Small, Medium and Micro Enterprise (SMME) development. Lastly, it emerged that Lesotho needed to address further development of core productive areas, including tourism, agriculture, infrastructure and human skills (Kingdom of Lesotho, 2009).

In recognition of the need to transform the economy towards employment-creating growth, Lesotho adopted its Growth Strategy in 2012. This Growth Strategy was one of the key strategies that were incorporated in the National Strategic Development Plan. Consequently, new strategic actions were then developed in Lesotho's Growth strategy, which aimed at facilitating stability in the macroeconomic and political environment, savings and investment promotion, economic diversification, and skills development (Kingdom of Lesotho, 2012).

During the past decade, Lesotho's Vision 2020 was formulated with the aim of providing a long-term plan for achievement of sustainable economic growth and development (Central Bank of Lesotho 2004). Vision 2020 consists of seven broad components that highlight the key focus areas. These components include: a stable democracy, a united nation, a peaceful nation, a healthy and well-developed resources base, a strong economy and prosperous nation, a well-managed environment, as well as a well-advanced technology (see Kingdom of Lesotho,

2000). An appropriate implementation of these key components of Vision 2020 is perceived to assist in generating employment-creating growth in Lesotho.

2.2 Trends in Economic Growth in Lesotho

The performance of Lesotho's economy reveals a number of issues. One of the issues concerning Lesotho's economic performance is its heavy dependence on South Africa. Given the dependency on remittance flows from South Africa, the growth rate of Lesotho's Gross National Income (GNI) has substantially varied from those of the Gross Domestic Product (GDP) growth and the GDP per capita growth. In particular, due to strong remittance flows resulting from Lesotho miners working in South Africa, the rate of growth in GNI in Lesotho has been significantly higher than the rate of growth in GDP (World Bank, 2007). Trends in Lesotho's economic growth reveal that during the 1970s and the early 1980s in particular, Lesotho's GNI growth by far exceeded both the GDP growth and the per capita growth (see Figure 1).

As revealed in Figure 1, during the 1970s, the highest GNI growth rate was recorded in 1974 whereby GNI grew by 32.63 percent. On the contrary, in 1974, GDP grew by 10.98 percent while GDP per capita grew by 8.56 percent. The growth in Lesotho's GDP during the 1970s was mostly driven by the agriculture sector, which was the largest contributing sector at that time (Barclays Bank, 1978). Towards the end of the 1970s, Lesotho's economic growth fell significantly. By 1979, GDP growth had decreased from 18.32 percent to 2.89 percent (World Bank, 2014).

Even though Lesotho's economic growth had fallen substantially towards the end of the 1970s, a significant recovery in economic growth occurred during the beginning of the 1980s. In 1982, Lesotho's GDP growth had improved from 0.69 percent to 2.56 percent, while the GNI growth rate had risen from 4.79 percent 22.09 percent (World Bank, 2014). Most of the economic growth in Lesotho during the period between 1980 and 1987 was driven by remittances from the Republic of South Africa (World Bank, 2007).

Moreover, following the implementation of the Lesotho Highlands Water Project around the late 1980s, the performance of Lesotho's economic growth improved further. This improvement in economic growth continued into the first half of the 1990s. At that time, the impetus from the Lesotho Highlands Water Project improved Lesotho's revenue (Ministry of Development Panning, 2000). Following the inception of the Lesotho Highland Project, between 1988 and 1994, Lesotho's GDP grew between 3.33 percent and 8.56 percent, while GDP per capita grew between 1.31 percent and 6.85 percent. Over the same period, the GNI had fallen considerably, with negative growth rates being recorded in 1991 and 1993. The declining share of miner remittances contributed to the decrease in Lesotho's GNI during the 1990s (World Bank, 2007).

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Over the past decade, Lesotho's economic growth has been exhibiting a more stable trend in comparison to its performance in the previous periods. This improvement in Lesotho's economic growth was marked by some evident progresses in the performance of the GDP growth and the GDP per capita growth. The GNI growth has, however, been declining, particularly between 2002 and 2011. The improvement in Lesotho's GDP growth during the past decade corresponded to the increased share of exports from the manufacturing sector.

The increased share of manufacturing exports during the past decade followed the introduction of the Africa Growth and Opportunity Act, which led to a substantial increase in Lesotho's exports (Southern African Development Community, 2002). Generally, in recent years, the growth in Lesotho's GDP has been driven by different factors. These include the increased contribution of construction, transport and communications as well as the recovery of the textile clothing sub-sector sector (African Economic Outlook, 2014). Figure 1 illustrates the trends in economic performance in Lesotho during the period 1970 to 2013.
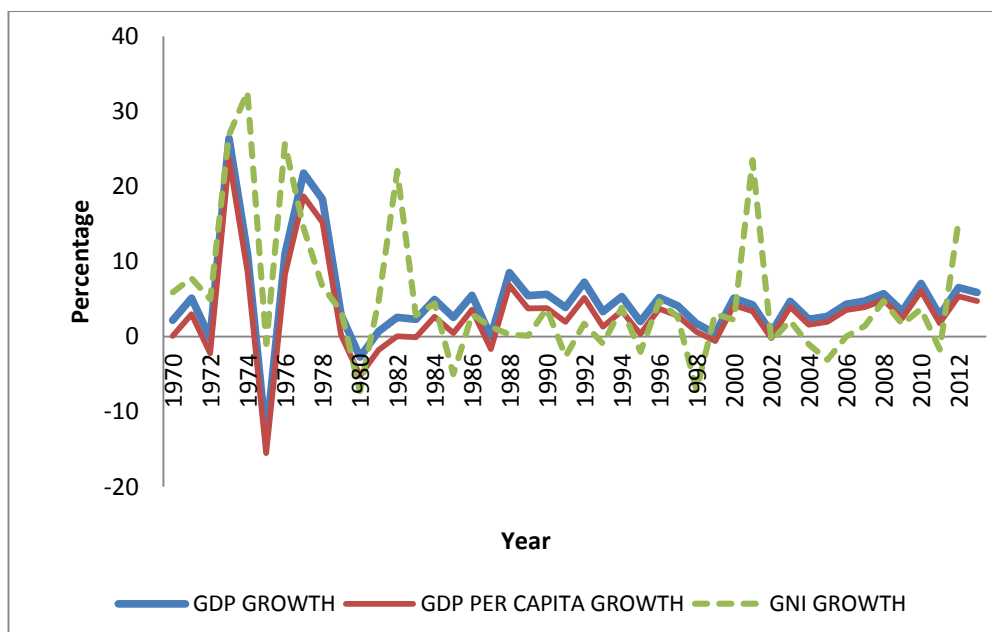

Figure 1. Trends in economic growth in Lesotho

Source: World Bank, World Development Indicators (2014)

3. Trade Policy and External Competitiveness in Lesotho

Lesotho belongs to the Common Monetary Area of Southern Africa, in which its currency has been pegged to the South African currency, the rand. As a result, movements in the rand-exchange rate have a direct and significant impact on Lesotho's external competitiveness (Wang et al., 2007). Considering Lesotho's trade policy, because of its membership to the Southern African Customs Union (SACU), Lesotho's tariff rates are to a large extent influenced by the SACU Agreement. Therefore, as a result of the SACU Agreement, Lesotho does not apply any customs or import duties to products originating from other SACU member states, namely, Botswana, Namibia, Swaziland and South Africa. However, goods imported from countries outside the Union are subject to import duties in accordance with SACU's common external tariff (Southern African Customs Union, 2014).

There are different policy instruments that are applied in Lesotho's trade policy. These include quotas, tariffs and taxes. Generally, the tariff rates in Lesotho range between zero percent and 45 percent (International Trade Administration, 2011). Apart from tariffs, most imports entering Lesotho are also subject to the Value Added Tax (VAT), which is set at 14 percent (Lesotho Revenue Authority, 2004). However, while this VAT is imposed on every taxable supply and every taxable import, there are certain exemptions that are granted to items such as specified supplies and imports, education services and financial services (Kingdom of Lesotho, 2001).

Although tariffs are the most commonly used instrument of trade policy in Lesotho, other instruments of Lesotho's trade policy have brought about radical changes in the country, thereby enhancing performance in certain sectors of the economy. For instance, the Multifibre Arrangement, together with duty-free access to the United States granted under the African Growth and Opportunity Act, have acted as major policy instruments in influencing further developments in Lesotho's textiles and clothing sub-sectors (United Nations Conference on Trade and Development, 2012). In addition to the changes brought by the trade policy instruments, the reform process in the Lesotho's trade policy also brought a regime shift in the country's trade policy orientation.

During the 1990s, Lesotho's trade policy went through a reform, which was also informed by the implementation of various strategic actions in the country. Within some of Lesotho's strategic plans, particularly development plans, a strong emphasis on adjusting the country's trade orientation trade was made. Hence, with the implementation of Lesotho's Fifth Development Plan, which operated from 1990/91 until 1993/94, Lesotho's trade policy turned towards greater export orientation and promotion of foreign direct investment (World Trade Organisation, 1998a).

One of the outcomes of reforms in Lesotho's trade policy was the liberalisation of the agricultural sector that commenced in 1996. As part of the liberalisation process in the agricultural sector, price-fixing and quantitative restrictions were removed (World Trade Organisation, 1998b). This liberalisation in Lesotho's agricultural sector resulted in a gradual shift away from a highly regulated inward-looking strategy, towards a liberalised outward-looking strategy (World Trade Organisation, 2009). Afterwards, later developments in the agricultural sector comprised the abolition of import controls (Southern African Development Community, 2002).

Despite the developments in Lesotho's trade policy, between 1990 and 2003, Lesotho was still regarded as having the highest level of tariffs in the world, which were more than twice the world average at that time (Rodriguez 2007, p. 12). This rendered Lesotho's trade policy to be regarded as restrictive; although, on the basis of the trade ratio criterion, Lesotho could be regarded as an open economy (see African Economic Outlook, 2015).

Considering Lesotho's current position, there have been marked developments in the country's trade policy in other non-agricultural sectors. These developments are related to developments in trade policy that have been largely facilitated by the adoption of export and growth strategies. In the manufacturing sector, the adoption of export and growth strategies has led to the diversification of export products and markets, the removal of trade distortions, as well as the promotion of international competitiveness (World Trade Organisation, 1998a). As results of various developments in Lesotho's trade policy, Lesotho's tariff rates are somehow compatible to the ones that are applied in other SACU countries. In 2015, the simple applied average Most Favoured Nation (MFN) tariff rate for Lesotho's was 7.6 per cent, which was close to the MFN rates that are applied in other SACU countries (see World Trade Organisation, International Trade Centre & United Nations Conference on Trade and Development, 2015).

4. Trade Regimes in Lesotho

Following its independence in 1966, Lesotho adopted import substitution strategy as a strategy for industrial development (see Table 1). Within this import substitution regime, protective measures were enforced, which included import controls, quantitative restrictions, and price-fixing. Later in 1967, the Lesotho National Development Corporation (LNDC) was established. The LNDC brought a different dimension to Lesotho's initial import substitution industrial strategy. Unlike the import substitution strategy, the LNDC focused on export-led growth its key strategy. Later in 1978, the Trade Promotion Unit was established in order to assist the exporters (World Trade Organisation, 2009).

During the 1980s, no major developments concerning trade-related interventions occurred in Lesotho, until the implementation of the Structural Adjustment Programmes in 1988. In the same year, the Lesotho National Development Corporation introduced the Export Finance Scheme as a facility to assist the local exporters with export finance. However, in general, the trade-related interventions that Lesotho adopted before the 1990s did not address the issue of trade integration adequately. It was with the adoption of the Sixth National Plan in 1996 that trade integration became more pronounced.

As a step towards trade integration, during the 1990s and most of the 2000s, Lesotho signed a number of trade agreements with countries in sub-Saharan Africa, Europe, and North America. Among other things, these trade agreements aimed at fostering enhanced market access. In sub-Saharan Africa, Lesotho became part of the 2002 SACU Agreement concluded with Botswana, Namibia, Swaziland and South Africa. Lesotho also became a signatory to the Southern African Development Community Free Trade Protocol, which was implemented in 2000.

There have also been other developments concerning the trade agreements concluded between Lesotho and other major economies outside sub-Saharan Africa. These developments include the African Growth and Opportunity Act, which grants market access to the United States, and the Free Trade Agreement concluded with the European Community. Apart from fostering trade partnerships, Lesotho has, since the mid-1990s, undertaken measures aimed at opening up the economy to trade. This initiative to open up the economy has been evidenced by the liberalisation of the major sectors, the diversification of export markets, and the creation of enabling environment for private sector participation. Table 1 presents Lesotho's trade regimes from 1966 until 2009.

Table 1. Sequencing of trade regimes in Lesotho, 1966 – 2009

Year	Intervention	Measures introduced
1966	Adoption of import substitution strategy	Import controls, price-fixing in agriculture sector, quantitative restrictions
1967	Establishment of the Lesotho National Development Corporation	Initiation, promotion and facilitation of development of manufacturing and processing, mining and commerce; adoption of export-led growth as key strategy.
1969	Inception of the 1969 SACU Agreement	Application of customs and excise duties, and other related measures and laws set by South Africa.
1978	Establishment of the Trade Promotion Unit	Promotion, coordination and development of exports; provision of technical assistance and advice to exporters.

1988	Introduction of the Export Finance Scheme	Assistance to exporters with access to credit.
1988	Implementation of Structural Adjustment Programmes, supported by the International Monetary Fund.	Shaping of the practices affecting exports and import flows.
1996	Adoption of the Six National Development Plan	Emphasis on deepening of regional economic integration; emphasis on expansion of markets and better access to capital markets in the region.
1996	Liberalisation of the Agriculture sector	Liberalisation of price of whole maize and wheat; removal of quantitative restrictions on importation of maize and wheat.
1997	Undertaking of the "Red Tape Analysis"	Review of the major administrative barriers to investment; review of Companies Act of 1967; reduction in the import and export licensing system.
2000	Formulation of Vision 2020	Collaboration with other countries in trade, investment, and economic advancement; strengthening of Lesotho's investment and trade promotion capacity; diversification of export markets.
2000	Implementation of Economic Reform Programme: Interim Poverty Reduction Strategy Paper (IPRSP)	Adoption of export-led growth strategy; adoption of export promotion as key element of trade policy.
2000	Signing of the Africa Growth and Opportunity Act (AGOA)	Duty-free access granted to Lesotho's exports of clothing to the United States market.
2000	Implementation of SADC Free Trade Protocol	Elimination of barriers to intra-SADC trade; elimination of import duties; elimination of non-tariff barriers; phasing out of existing quantitative restrictions on imports.
2001	New Export Finance and Insurance Scheme	Assistance with export finance; provision of loan guarantee fund
2002	Implementation of the 2002 SACU Agreement	Introduction of new system of managing and sharing of the common revenue pool; general liberalisation of markets; conversion of non-tariff barriers; phased reduction of import tariffs.
1995	Commencement of Privatisation and economic restructuring	Phasing out of government subsidies and state control of commercial enterprises; creation of enabling environment for increased private sector participation.

2004	Signing of SACU-MERCOSUR preferential trade agreement	Provision of tariff preferences for selected goods; diversification of market opportunities.
2008	Implementation of SACU-EFTA	Provision of trade preferences; promotion of trade between EFTA and SACU member states.
2008	Signing of the SACU Trade, Investment and Development Cooperation Agreement (TIDCA) with the USA.	Expansion and diversification of trade between SACU and the United States; promotion of attractive investment climate.
2009	Signing of the Economic Partnership Agreement with the European Community	Enhanced access for Lesotho's exports into major markets.

Sources: World Trade Organisation (1998b), (2003) and (2009); International Monetary Fund (2006); Kingdom of Lesotho Vision 2020; Southern African Customs Union (2003a) and (2011); Southern African Development Community (1996).

5. Trade Sector Performance and Economic Growth in Lesotho

The performance of Lesotho's trade sector reflects a number of developments that took place over the years. Initially, the share of exports in GDP remained considerably lower than the share of imports in GDP (see Figure 2). This disparity between Lesotho's exports and imports in GDP is determined by different factors. In particular, during the 1960s, Lesotho's economy largely relied on livestock farming and crop cultivation, but the lack of capital equipment, credit and marketing facilities became one of the constraints to the advancement of the agricultural sector in the country (Africa Institute, 1966). Throughout the 1960s and most of the 1970s, the share of Lesotho's exports in GDP remained below 20 percent. In contrast, the share of imports in GDP remained well above 40 percent during the same period.

During the period commencing from 1980 until the mid-1990s, no significant growth occurred in the share of exports in GDP. It was only around 1995 that the share of exports in GDP doubled to 22.45 percent from its initial value of 11.74 percent that was recorded in 1960. By the year 2000, further improvements in the share of exports in GDP were observed. These improvements were evidenced by the highest rate in the share of exports in GDP of 66.17 percent in 2002.

The introduction of the Africa Growth and Opportunities Act (AGOA) is one of the factors that led to the improved performance of exports in Lesotho during the past decade (Mokhele and Vögel, 2015). This made garment exports under the AGOA to become the main engine of growth in Lesotho, accounting for about 70 per cent of total exports between 2002 and 2004 (Wang et al., 2007). The significance of AGOA in Lesotho's economy is supported by new opportunities that have been

created since the inception of the Act. Evidence shows that since 2001, AGOA provided further opportunities for expansion in Lesotho, particularly in the manufacturing sector (World Bank, 2007).

Despite these improvements in the share of Lesotho's exports in GDP, there has been a significant decline in the share of exports in GDP in recent years. By 2012, the share of exports in GDP had fallen by 17.26 percent from 66.12 percent in 2002 to 48.91 percent (World Bank, 2014). Part of the decline in the share of Lesotho's exports in GDP is attributed to the reduction in manufacturing-related activities, particularly between 2000 and 2004 (Central Bank of Lesotho, 2010a).

The decline in Lesotho's manufactured exports resulted from a number of factors including the real exchange rate appreciation. Because of the real exchange rate appreciation of the South African rand, Lesotho's exports of manufactured clothing have suffered seriously in the past decade. The appreciation of the rand appreciated, which directly affected competitiveness in Lesotho's export sector, made it difficult for existing firms to remain competitive in the garment industry (Morris & Sedowski, 2006). Apart from exchange rate appreciation, another factor that led to a decline in Lesotho's exports is the growing competitiveness of China in the United States, which led to a 15 per cent fall in Lesotho's exports between 2002 and 2006 (Kaplinsky and Messer, 2008).

Considering the performance of imports in Lesotho, Figure 2 reveals that the share of imports increased significantly during the early 1970s. Between 1970 and 1979, the highest share of imports in GDP was recorded, during which imports accounted for 138.63 percent in GDP in 1976. Around 1976, Lesotho's imports mainly consisted of manufactured goods, reflecting a strong orientation of Lesotho's economy towards imported manufactured goods (Barclays Bank, 1978).

During the 1980s, a robust growth in the share of imports in GDP was experienced, which by far surpassed the share of exports in GDP over the same period. However, the performance of imports in GDP fluctuated during the 1990s, followed by a steep decline after 1998. Between 1998 and 1999, the share of imports in GDP fell from 150.46 percent to 138.47 percent. This was the period during which Lesotho went through civil unrest. Subsequently, the performance of imports improved, though another significant reduction in the share of imports in GDP occurred in 2012. Compared to the 2002 performance, the share of imports in 2012 was 30.15 percent lower than in 2002. Figure 2 illustrates the shares of exports and imports in GDP in Lesotho from 1960 until 2012.
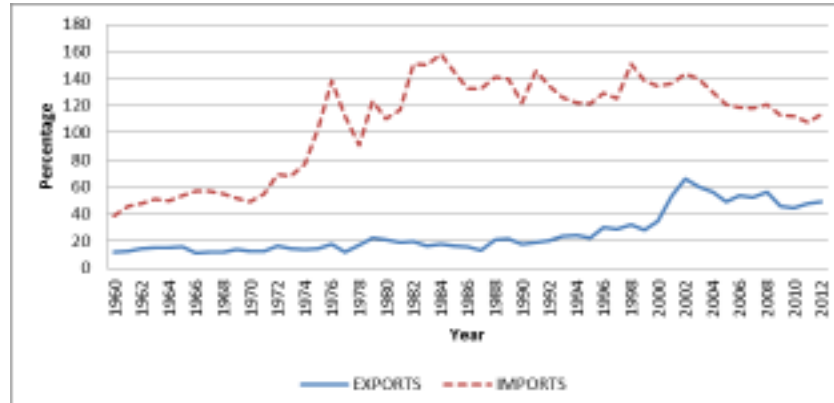
Figure 2. Lesotho's exports and imports as percentage of GDP, 1960 – 2012

Source: World Bank, World Development Indicators (2014)

6. Conclusion

The aim of this paper was to investigate the role of international trade in Lesotho. The exploratory review provided in this paper shows that international trade has been of critical importance to the economy of Lesotho. Over the years, the increasing role of international trade in Lesotho's economy has been reflected in the country's key growth sectors. In particular, exports of clothing and textiles have become the main engine of growth. The contribution of manufactured exports to Lesotho's growth has been driven largely by preferential concessions granted under the Africa Growth and Opportunity Act. This paper has also found that Lesotho's economic success has been closely linked to the country's implementation of strategic frameworks, as well as reforms in its trade policy. By tracking down Lesotho's different growth policies and other trade-related interventions, a number of conclusions have been drawn. Based on the findings of this study, it may be concluded that the adoption of Lesotho's first industrial strategy during the late 1960s brought about different implications to the stance of its country's international trade. At that time, import substitution was adopted as the key strategy for industrial development. As a result, protective measures that were meant to control imports were put in place. These measures included quantitative restrictions and tariffs. The study has also found that the share of Lesotho's exports in GDP and that of imports to GDP have been falling in recent years. This has been largely attributed to the expiry of the MultiFibre Agreement. The study reiterates that the termination of Lesotho's trade privileges poses a major challenge to its economic growth; since manufactured exports have become Lesotho's main source of exports and a vital engine of their economic growth.

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Uncertainty of Output Gap and
Monetary Policy-Making in Nigeria

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Abstract: This paper investigates the effect of output gap uncertainty on monetary policy rate in Nigeria-1991Q1-2014Q4. A major challenge of monetary policy is the attainment of sustainable output level but in setting the optimal monetary policy rate information about output gap and how uncertainty of the gap affects the path of the monetary policy rate is crucial for policy use. Empirical evidence on this phenomenon in Nigeria has been concerned with how monetary policy affects output while evidence on the response of monetary policy to uncertainty of real output is not indepth. Analythical approach in this paper adopts the Generalised Method of Moments econometric technique. Evidence from the study suggest that real output gap and inflation uncertainty are statistically significant with estimated values of $p_y^y \sigma_{yt}^2 < 0$ and $p_\pi^\pi \sigma_{\pi t}^2 < 0$ respectively. The coefficient of the real output variable is significant with a coefficient estimate of $p_{yt} > 0$ while we found no strong evidence to support the effect of inflation on monetary policy rate. The inference from our findings is that monetary policy is less responsive to uncertainty of real output gap and inflation. Thus our recommendation is that the Central Bank of Nigeria should consider uncertainty of both output and inflation variables when setting the policy rate.

Keywords: inflation rate; monetary policy rate; real output potential; generalized method of moments

JEL Classification: E31; E52; E01; C13

1. Introduction

A major challenge of monetary policy in different countries among others is the attainment of sustainable output that is very close to the natural or the potential level of output. The effort of monetary policymakers in archiving this objective requires that the monetary policy rate set by a central bank be optimal in order to encourage investment which contributes to aggregate output in real time. The

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complexity of the available methods and availability of reliable data that estimates the likely natural level of output and the determination of the gap between the potential and the actual output *ex ante* is very essential for monetary management in any nation. Predicting the output gap by monetary policymakers has not been quite easy because the variable is not observable and there is no single approach for the determination of this phenomenon. This has been noted in the literature by Orphanides and van Norden (2002) in Flamini and Martin (2011) who express the view that reliable measure of the output gap is subject to debate. In spite of this, monetary policy must be perceived to be achieving output stability along with other macro objectives for it to be recognised as a welfare seeking policy by the people.

The need to study how macroeconomic uncertainty affects the monetary policy rate has been growing in monetary economics since the scholarly contribution of Brainard (1967). On USA, Smets (1998) conducted a study on how output gap uncertainty measurement error affects efficient monetary policy rules. He used multi equation analysis and found that output gap uncertainty has significant effect on the efficient response coefficient in a restricted instrument rule like that of the Taylor rule. Unlike Smets, Jorda and Salyer (2003) conducted a study on uncertainty and maturity of bonds. They found that uncertainty has significant effects on bonds and it in fact, reduces the yield on short-term and long-term bonds. Martin and Milas (2005) considered how uncertainty affects the Federal Fund Rate (FFR) and found that when uncertainty of inflation is greater, the policy makers respond more to changes in output when adjusting the policy rate. Cogley et al. (2011) in a study focus on how monetary policy could be conducted when confronted with multiple sources of uncertainty. The study considered models which include forward and backward looking representations and found that the Taylor rule type accounts for model and parameter uncertainty. In the study of Mayers and Montagoli (2011) they focused on how uncertainty affects monetary policy using the minutes of decision-making of monetary authority of three European countries (United Kingdom, Czech and Sweden). Their aim was to test whether information about uncertainty as recorded in the minutes of the central bank board meeting of individual country will help in explaining the interest rate setting of the banks. They found that the policy rate of these countries respond to uncertainty of output gap and inflation although the response rate varies across samples.

In Nigeria, the concern about uncertain economic environment by the CBN (2014) monetary policy committee who expressed the notion that knowledge of the behaviour of output and inflation has been imprecise when fixing the policy rate calls for empirical effort on this issue. Incidentally, studies on how the policy rate affects some macroeconomic variables like output and inflation in Nigeria are replete in the literature. Some of such studies include: Kromtit (2015) who found that monetary policy has insignificant positive impact on inflation while ThankGod

and Tamarauntari (2014) found that monetary policy variables do have quick impact on output. Mordi and Amoo (2014) provide evidence to support the view that monetary policy is a major macroeconomic measure used by policymakers to influence the outcome of macroeconomic variables. While findings by Adigwe et al. (2015) suggest that monetary policy exerts positive impact on the GDP and negative impact on inflation. These recent studies did not consider the effects of uncertainty of output on the path of the policy rate in Nigeria.

In this paper, unlike the earlier studies, we employ a non-linear model to investigate the effect of uncertainty of output gap on the path of the monetary policy rate in Nigeria by modelling the current, forward and backward looking situations. The study found that monetary policy is less responsive to uncertainty of output. The rest of the paper is organised as follows. Section two explains the theoretical framework while section three is on methodology. Section four discusses our findings and section five concludes the paper with recommendations.

2. Theoretical Framework

The macroeconomic model on which this paper relies is the New Keynesian "IS" curve propounded by Clarida, Gali and Getler (1999) and the Taylor Rule by Taylor (1993). The macroeconomic model by Clarida et al. (1999) expresses the fact that: real output gap depends on the difference between the log of real actual output and the potential real output. Second, the current real output gap is a function of future output gap and interest rate. Finally the theory posits the Phillips curve which expresses the functional relationship between inflation and real output gap. The equations which express these relationships according to Clarida *et al*. are stated in equations (2.1-2.3)

$$x_t \equiv y_t - z_t \qquad \dots \qquad (2.1)$$

Where x_t real output gap, z_t is the derived value of the actual real output filtered by Hodrick-Prescott approach.

$$x_t = -\emptyset[i_t - E_t\pi_{t+1}] + E_t x_{t+1} + \varepsilon_t \quad . \ . \ . \qquad (2.2)$$

Where i_t is the interest rate, $E_t\pi_{t+1}$, is expected inflation rate in the next period and $E_t x_{t+1}$, is the expected real output gap in the next period. $\emptyset$ is a parameter estimate and ε_t is the error term.

$$\pi_t = \gamma x_t + \beta E_t\pi_{t+1} + \vartheta_t \quad . \ . \ . \qquad (2.3)$$

Where π_t is the inflation rate x_t real output gap $E_t\pi_{t+1}$ is the expected inflation rate. Taylor (1993) propounded an interest rate rule in which a central bank set its bank rate (policy rate) which responds to real output gap and deviations of inflation rate from its target. The Taylor (1993) the rule can be expressed in the form:

$$i_t = \delta_\pi \pi_t + \delta_y y_t + \delta_0 \quad . \quad . \quad . \quad\quad (2.4)$$

Where i_t represent the short term monetary policy rate, π_t stand for the deviation of inflation from its target and y_t is the real output gap while $\delta_\pi, \delta_y,$ *and* δ_0 are parameters estimates of the variables and the error term.

Brainard (1967) posits that uncertainty affects monetary policy as such the central bank can either use a target instrument to address a target objective or use multiple instruments for many objectives. A static liner equation expressed by Brainard (1967) describes that a target variable depends on a policy instrument. This is expressed as follows:

$$\gamma = \alpha P + \varepsilon \quad . \quad . \quad . \quad\quad (2.5)$$

Where γ is the target variable, which is real output, P is the policy instrument that is the monetary policy rate. α and ε are parameter estimate and error term respectively.

Equation (2.5) describes the possible uncertainty facing the policymaker. For example Brainard (1967) postulated that the *ex-ante* monetary policy rate P may respond to an estimate $\bar{\alpha}$ that is substantially different from its expected value due to uncertainty. Similarly, the policy maker is unable to determine the *ex-ante* monetary policy rate that will accommodate the effects of uncertainty due to ε the exogenous factors. In the face of such uncertainty, Brainard (1967) suggest that the central bank should be cautious in fixing the monetary policy rate. This has been variously referred to as the attenuation principle or conservatism theory in the literature.

3. Methodology

3.1 Data Sources and Description

Data were obtained from the Central Bank of Nigeria Statistical (CBN) Bulletin 2014 edition and the statistical data base of the bank. It covers a quarterly period of 1991:Q1-2014:Q4 for the following types of time series data. Real Gross domestic Product (RGDP) is the proxy for the real economic output. Inflation Rate (IR) represents the headline inflation quarter on quarter change for the period of the study. The Nominal Effective Exchange Rate (NEER) is the proxy for exchange rate and Monetary Policy Rate (MPR) is the proxy for monetary policy instrument. The study period started from 1991 because Inflation Target (IT) data was provided in the CBN statistical bulletin commencing from that date and the real output gap estimate was transformed by Hodrick-Prescott (HP) Filter.

3.2 Empirical Model

The empirical model for this paper relies on the theoretical proposition of Clarida et al. (1999) and the Taylor rule (1993). In respect of the empirical model we adapt the empirical work of Martin and Milas (2005) who have used a similar approach for United States of America (USA). The output gap equation for this study is stated in equation (3.1) and the uncertainty estimates based on GARCH (1, 1) analysis was obtained from the residual variances of equation (3.1) as expressed in equation (3.2)

$$y_t = \varphi_0 + \varphi_1 y_{t-1} - \varphi_2 i_{t-1} + \varepsilon_t \qquad . \quad . \quad . \qquad (3.1)$$

$$\sigma_{yt}^2 = \emptyset_1 + \emptyset_2 \varepsilon_{t-1}^2 + \emptyset_3 \sigma_{yt-1}^2 \qquad . \quad . \quad . \qquad (3.2)$$

The inflation equation for this paper is as stated in equation (3.3) and the uncertainty estimates based on GARCH (1, 1) analysis was also obtained from the residual variances of equation (3.3) as expressed in equation (3.4)

$$\pi_t = \alpha_1 \pi_{t-1} + \alpha_2 y_{t-1} + \mu_t \qquad . \quad . \quad . \qquad (3.3)$$

$$\sigma_{\pi t}^2 = \beta_1 + \beta_2 \mu_{t-1}^2 + \beta_3 \sigma_{\pi t-1}^2 \qquad . \quad . \quad . \qquad (3.4)$$

Where y_t and π_t stand for real output gap and inflation variable at time t, i_t is the interest rate, $\varphi_0, \varphi_1, \varphi_2$ are parameter estimates for real output gap in equation (3.1), α_1, α_2 are parameter estimates for inflation variable in equation (3.3) while ε_t, and μ_t are their respective error term that follow a white noise process. The variance equations of the real output and inflation variables in equation (3.2) and (3.4) have a-prior coefficient estimate that is expected to be $\emptyset_1 > 0, \emptyset_2 \geq 0$ and $\emptyset_3 \geq 0$ for real output and $\beta_1 > 0, \beta_2 \geq 0$ and $\beta_3 \geq 0$ respectively. The parameter estimates of $\emptyset_2$ and $\emptyset_3$ and that of β_2 and β_3 are the coefficient values of GARCH (1, 1) for the real output and inflation variables.

The smoothing parameter of the monetary policy rate Clarida *et al.* (2000) in equation (3.5) is a functional relationship in which the current monetary policy rate depends on the weighted average of the previous monetary policy rate.

$$i_t = p_1 i_{t-1} + (1 - p_1) \qquad . \quad . \quad . \qquad (3.5)$$

In other to determine the response of monetary policy rate to uncertainty of real output the paper develops a model which considers three equations that include current, backward and forward looking methods based on augmented Taylor rule and an interest rate smoothing parameter in equation (3.5). The baseline models in this paper are expressed in equations (3.6-3.8)

$$i_t = p_1 + p_{2it-1} + p_y^y \sigma_{yt}^2 + p_\pi^\pi \sigma_{\pi t}^2 + p_{yt} y_t + p_{\pi t} \pi_t + \vartheta_t \quad \dots \qquad (3.6)$$

$$i_t = p_1 + p_{2it-1} + p_y^y \sigma_{yt}^2 + p_\pi^\pi \sigma_{\pi t}^2 + p_{yt} y_{t-1} + p_{\pi t} \pi_{t-1} + \epsilon_t \quad \ldots \quad (3.7)$$

$$i_t = p_1 + p_{2it-1} + p_y^y \sigma_{yt}^2 + p_\pi^\pi \sigma_{\pi t}^2 + p_{yt} y_{t+1} + p_{\pi t} \pi_{t+1} + \varphi_t \quad \ldots \quad (3.8)$$

Where i_{t-1} is the weighted average of the previous monetary policy rate. σ_{yt}^2 and $\sigma_{\pi t}^2$ are measures of uncertainty of real output gap and inflation, p_1, p_2, p_{yt}, $p_{\pi t}$, p_y^y and p_π^π are parameter estimates while ϑ_t, ϵ_t and φ_t are error terms. All other notations are as previously defined. Our empirical model for this paper are equations 3.2, 3.4and 3.6-3.8.

4. Discussion of Results

4.1 Results of Unit Root Test

The results of the unit root test considered both the ADF and KPSS because ADF statistic has limitations of lower power as it tends to reject the null hypothesis of unit roots (Sheefeni and Mabakeng, 2014).The results in Table 1 reveals that all variables for the study are stationary at level except uncertainty of inflation gap which is stationary at first difference.

Table 1. Unit Root Test Results

Variable	ADF Test	KPSS Test	Level of Integration
p_{it}	-2.70	0.099*	1(0)
p_{yt}	-3.62	0.038*	1(0)
$p_{\pi t}$	-6.88	0.103*	1(0)
p_y^y	-4.36	0.068*	1(0)
p_π^π	-8.52*	0.130*	1(1)

Critical Values: ADF - (1%* -4.06) @ [1(1)]

Critical Values: KPSS – (1%* 0.739) @ [1(0)] & (1%* 0.216) @ [1(1)]

Source: Authors (2016)

4.2. Garch Results

The GARCH (1, 1) results in Table 2 show that the real output gap overshoots while the inflation variable is persisting. The persistence of volatility of real output gap is not likely to die out slowly while that of inflation variable may die off slowly. The inference from the results is that the behaviour of real output gap is more uncertain than that of inflation variable.

Table 2. GARCH (1, 1) Results

Variable	Coefficient
Real output gap	
$\emptyset_2$	0.8823* (0.3023)
$\emptyset_3$	0.5739* (0.0769)
inflation gap	
β_2	0.3029** (0.1265)
β_3	0.6613* (0.0996)

The numbers in parenthesis are the standard error

(*) and [**] indicate 1% and 5% level of significance

 Source: Authors (2016)

In Tables 3 the post estimation test of heterosskedasticity for GARCH (1, 1) for real output gap shows that there is no autoregressive conditional heteroskedasticity. Similarly in Table 4 the ARCH effect test also indicate failure to reject the null hypothesis. These test results suggest that the study can rely on the uncertainty estimates for further use.

Table 3. Heteroskedasticity Test: Breusch-Pagan-Godfrey (real output gap)

F- statistic	1.7124	Prob. F (3, 91)	0.1700*
Obs* R-squared	5.0765	Prob. Chi Square (3)	0.1663*

{*} failure to reject the Null Hypothesis at 1% level of significance

Source: Authors (2016)

Table 4. ARCH Effect Test Result (real output gap)

F-statistic	1.2613	Prob. F(1,92)	0.2643*
Obs*R-squared	1.2713	Prob. Chi-Square(1)	0.2595*

{*} failure to reject the Null Hypothesis at 1% level of significance

Source: Authors (2016)

In respect of inflation variable, similar post estimation test results in Tables 5 and 6 also suggest that that there is no autoregressive conditional heteroskedasticity. The ARCH effect test also indicates failure to reject the null hypothesis. These results also affirm the reliability of uncertainty estimate for inflation variable.

Table 5. Heteroskedasticity Test: Breusch-Pagan-Godfrey (Inflation)

F- statistic	0.2310	Prob. F (3, 90)	0.8746*
Obs* R-squared	0.7182	Prob. Chi Square (3)	0.8689*

{*} failure to reject the Null Hypothesis at 1% level of significance

Source: Authors (2016)

<div style="text-align:center">Table 6. ARCH Effect Test Result (Inflation)</div>

F-statistic	0.4707	Prob. F(1,91)	0.4944*
Obs*R-squared	0.4786	Prob. Chi-Square(1)	0.4891*

{*} failure to reject the Null Hypothesis at 1% level of significance

Source: Authors (2016)

4.3. Gmm Results

Table 7 contains the regression results of the GMM estimator. The response parameter in the Table among others suggests that the monetary policy rate adjusts slowly based on the previous rate. The coefficient estimate of the current model at 0.8366 and backward model at 0.9576 conforms to the smoothing parameter theory. This infers that the Central Bank of Nigeria does not change the policy rate arbitrarily and substantially from one period to the next. In all the three options the previous policy rate has significant effect on the current policy rate except the forward model result that overshoots.

<div style="text-align:center">Table 7. Results of Model Estimates based on GMM Analysis</div>

Variable	Current Model	Backward Model	Forward Model
p_1	3.6799 (1.7300)	1.1354 (0.9230)	- 0.9803 (0.7729)
p_{it-1}	0.8366* (0.0558)	0.9576* (0.0316)	1.0378* (0.0304)
$p_y^y \sigma_{yt}^2$	-0.7295* (0.2118)	-0.1533** (0.0634)	- 0.0738** (0.0342)
$\Delta p_\pi^\pi \sigma_{\pi t}^2$	-2.3731* (0.8429)	-0.9492** (0.4183)	- 1.2800* (0.4148)
p_{yt}	1.0144* (0.2007)	0.4064***(0.2242)	0.3544* (0.1223)
$p_{\pi t}$	0.0093 (0.0303)	-0.0481*** (0.0261)	0.0210 (0.0145)
Adj R Sq	0.7908	0.7483	0.7921
J. Statistic	4.8015	5.4525	9.0447
Prob $\chi_{0.050}^2$	14.1	12.6	16.9
Prob of J Statistic	0.6842	0.4872	0.4332

The numbers in parenthesis are the standard error

(*) and [**] {***} indicate 1%, 5% and 10% level of significance

Source: Author (2016)

Uncertainty of real output gap and inflation variables are statistically significant as they affected the policy rate negatively in all the model options. The coefficient

estimate in the three model options for real output gap and inflation variable are $p_y^y \sigma_y^2 < 0$ and $p_\pi^\pi \sigma_\pi^2 < 0$. This implies that monetary policy is less responsive to uncertainty of real output gap and inflation in Nigeria. Our result is similar to what was found in some empirical literature as in Mayers and Montagoli (2011), Naraidoo and Raputsoane (2013) also found for South Africa that inflation and output gap uncertainty significantly affects monetary policy while Martin and Milas (2004) on United Kingdom, found that uncertainty of inflation affects monetary policy but no evidence for such effects was found for real output gap. Table 7 shows that the real output gap variable is statistically significant in the three options. In the current model, in response to a unit per cent increase in real output gap in excess of the equilibrium real output, monetary policy rate will increase by about 1.01 percentage points. In respect of the backward and forward looking models, monetary policy rate will increase by 0.41 and 0.35 percentage points respectively. The effect of inflation is weakly significant in the backward model but we found no evidence of its effects on the monetary policy rate in the current and forward looking models. The inference from these findings is that since the real output variable is significant in explaining the response of the policy rate, monetary authority in Nigeria can use a nonlinear model that include real output gap variable to stabilize output and inflation.

4.4. Diagnostic Test Results

The J statistic and the probability of $\chi^2_{0.050}$ under Table 7 are provided for each of the models. The results show that for each of the models, the estimates of the J statistic are less than the probability of $\chi^2_{0.050}$ we therefore fail to reject our models and conclude that the models of the study is not mis-specified. Furthermore, on the case of over-identifying restrictions for GMM analysis, the estimated value of the J statistic for all the models support that this paper fails to reject the null hypothesis that over identifying restrictions are satisfied.

The results of the diagnostic test in Table 8 are meant to confirm or reject whether the instruments used in each of the models are weak or strong. Since the Cragg-Donald F-statistic is greater than the critical values, this suggests that we accept the alternative hypothesis which states that the instruments are strong even though the parameters are over identified.

Table 8. Diagnostic Test: Weak Instrument Test

Type of Model	Cragg-Donald F. statistic	Critical values (Relative Bias)
current period	31.1219	5%-20.25: 10%-11.39: 20% - 6.69
Backward	47.5789	5%-18.37: 10%-10.83: 20% - 6.77
Forward	22.2714	5%-20.90: 10%- 11.51: 20% - 6.56

Source: Author (2016)

5. Conclusion and Recommendations

In this paper we made attempt to analyse and determine the effect of real output gap uncertainty on monetary policy rate. The GARCH results suggest evidence of uncertainty in the pattern of behaviour of real output gap and inflation variables. The results from the GMM regression analysis show that uncertainty of real output gap and inflation significantly affect monetary. However, we fail to reject the null hypothesis that inflation affects monetary policy while the real output gap variable positively affect monetary policy.

The implication of our findings is that monetary policy is less responsive to uncertainty of real output gap and inflation while it is responsive to real output gap variable. In view of the fact that the real output gap and uncertainty of real output gap are statistically significant in all the models we conclude that this uni-variate variable if included in a rule based model along with some other macroeconomic variables like inflation and exchange rate can be used to determine the optimal policy rate that can stabilize output and inflation in Nigeria. We therefore recommend that it is plausible for the Central Bank of Nigeria to consider the inclusion of real output gap and uncertainty of real output gap in monetary policy models. Due to the paucity of empirical evidence on this issue in emerging and developing economies compared to the developed nations, studies can be conducted in this area for such countries so as to enhance the decisions of the monetary policymakers.

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Trend Analysis of Worldwide FDI Flows in the Context of Promoting Sustainable Development and National Interest

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Abstract: About FDI there are numerous studies, some of them have mostly theoretical character and others mostly practical. This article aims at capturing and analyzing the most important trends in the short, medium and long term on FDI flows worldwide, thus this study has a rather practical approach. Also, the paper aims to discern how FDI flows may influence the sustainable development and the national interest. The analysis starts from studying the past in the most significant developments of the world economy in terms of inflows of investment attraction, drawing marginally some advantages or disadvantages of joining a political entity with regional vocation (e.g. European Union) or a currency area (e.g. E.M.U.). It should also be noted that, beyond the analysis of past trends, the direction towards which worldwide foreign direct investment (FDI) should be considered in relationship with the ability to infer certain areas which in future can attract FDI for a sustainable and balanced national economy development, serving to the national interest. Thus, the article aims, through a broad set of indicators, to seize these structural or cyclical advantages of world economies and, to the extent that can be applied to the Romanian economy, to contribute to the restructuring of objectives of macroeconomic policies in order to mobilize the country's potential to attract FDI.

Keywords: global investment tendencies; FDI indicators; economic development

JEL Classification: F21; F43; F63

1. Introduction

In the last decades, the foreign direct investments are seen as an important source of capital in developing and developed world. Linked to the globalization process, the policies regarding FDI are more and more open in almost all developing countries. This is no surprise especially because those who invest the most through FDI (e.g. United States, China, Switzerland, Germany and Japan), benefiting of the increasingly openness of the economies of the world, are also the ones who receive important inflows of FDI. Thus, according to THE fDi REPORT 2016 the: "Developed economies, and the US in particular, attracted most of the growth in FDI flows in 2015 largely due to inbound M&As (n. mergers and acquisitions).

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FDI flows to the US in 2015 reached $384bn – nearly three times more than FDI flows to China".

Although it is affirmed and promoted in various forms within nation states, the concept of national interest is not formalized to such an extent that it becomes well-established in all countries of the world. Furthermore, national interest is not necessarily the preserve of the state but mostly it is especially the attribute of the citizens, which by their social, economic, cultural and political conduct, can promote their values or even the national interests not only within their country but especially abroad. Thus, FDI can serve as an economic vector (and even beyond that!) in order to achieve the economic targets set by the national interest, but also to promote sustainable development values.

Therefore, analyzing global trends in FDI, undoubtedly it can provide valuable cues about how capital movements are working for global investment. This overall picture may be useful due to the fact that resources are limited and generally placing FDI in various parts of the world not only polarizes financial and technological resources, but also many other resources (including human and informational). Therefore, if in one part of the world is channeled the prosperity to another the massive welfare losses occur, which in part is due to the inability to attract and maintain foreign direct investment. Thus allocation of FDI occurs on a competitive basis (Mazilu, 2004), taking into account certain specific factors, it can be believed that a country attracts foreign direct investment over another, weakening or enhancing the degree of penetration and sedimentation national interest over borders. Early orientation through economic, political, cultural etc. towards the one or more of these "source" countries of equity, values, technology, human resources and knowledge can make the difference between countries with delays in development and developed ones. Therefore, it should not be excluded the idea of "twinning" between various companies from two or more countries or even at the state level through mutually beneficial international or regional agreements, in order to get a good place on the international map of prosperity . But this link must be established carefully – to be sufficiently close to produce the desired fruits, and free or flexible enough to not import altogether with FDI the economic, social and political less favorable conditions of the countries supplying FDI (as in the Greek crisis, Greece having an extended financial sector all over the (Eastern) Europe or euro zone crisis etc.).

Another argument for which the article examines the foreign direct investment inflows in a global framework is that the "moderating" aspect of the geographical directing of FDI and the volume and structure of FDI is often the international economic conjuncture (implicitly the status and the structure of the world financial and banking system). Thus, the economic conjuncture may act in various ways, extremely dynamic, sometimes (especially in the case of the global financial and economic crisis) creating stronger and more unwanted reactions than it would be

the case in relation to the realities of a region or country of the world. For this reason, studying the behavior of global FDI can make us understand why it is so important to analyze FDI inflows in a given country in relation to FDI inflows in the region of that country and even in relation to developments of world's FDI.

At the global level, however it should be mentioned that decreasing commodity prices, more watchful rationalization of public expenditure, decreasing energy costs and maintaining interest rates at low levels can trigger a sustainable increase in GDP growth and an unblock of FDI world movements. This could positively or negatively influence the evolution of FDI inflows and outflows from a developing country.

Some countries, especially the least economically developed manifest after a certain time, the behavior of the region or a wider regional area, sometimes contrary, the local specifics is a determinant in shaping FDI inflows in a country. A country aware of its resources and its economic potential should, at least theoretically, to be extremely less influenced by developments in local, regional or global area, operating not only towards increasing the economic attractiveness for capturing FDI, but also acting in direction of domestic investment potential capitalization and "pushing" its investments abroad, promoting the national interest. Therefore, the article examines at the level of some world countries the development of a few of indicators possible relevant to FDI trends.

2. Literature Overview

Often, foreign direct investments are examined in report to the growth (Findlay, 1978; Blomstrom, Lipsey & Zejan, 1994; De Mello, 1999; Borensztein, De Gregorio & Lee, 1998; Ahn & Hemmings, 2000; Li & Liu, 2005, etc.) or the way in which it can sustain the balance of payment or trade (Bajo-Rubio & Montero-Muñoz, 2001; Shan, 2002; Dritsaki, Dritsaki & Adamopoulos, 2004 etc.). Foreign direct investments are mainly classified into horizontal investments or market seeking (Maskus, 2002, etc.) and vertical investments or efficiency seeking (Braconier & al., 2005 etc.), but the boundary between them is not always very clear. In general, numerous studies attest that FDI are sensitive, in a positive sense, to the issues such as the political stability, the low degree of corruption, the guarantee of property rights, the supporting of the tertiary sector, the high levels of investment in education, research and development (especially to support the „high tech" industry), especially taking into account the level and quality of human capital (Noorbakhsh, Paloni & Youssef, 2001). Some of these aspects are being also tackled by the sustainable development policies.

In connection with social dimension of sustainable development, according to OECD (1999) FDI can, though in small part, stimulate employment (e.g. for the

more educated people or from urban regions), revive or replace the declining market and even grow wages, but also can maintain or grow wage differentials between employee. Regarding the environmental dimension, according to the OECD (2007, pp. 17), there are tendencies in some countries of relaxing environmental standards in order to attract certain types of FDI or to support distinct trade policy objectives. The countries which are undercapitalized and fast-growing are more likely to act in this manner. However, FDI can make possible some investments in the improvement of environmental protection, including through the raising of the standards of environmental regulation (Furtado & al., 2000).

Regarding the national interest, in the study of Bath (2012) it is pointed out that foreign direct investment support national economies but are subject either to an analysis and assessment, case by case, but in a transparent manner and subjected to public debate (e.g. in Australia) or are sifted through a set of regulations which set out detailed criteria for what type of investment should be permitted, encouraged, prohibited or restricted, making the call to the legislation to provisions related to (economic) national security, public interest or national interest (e.g. in China). Finally, the author states that „In both cases, however, the concept of the national interest or national security, national economic security and so on, is essentially undefined and allows the decision-maker considerable discretion to determine whether a transaction may be contrary to the national interest or have an impact on national security."

Other studies analyzed explicitly or implicitly, or punctual, on a specific case of some countries (for U.S., Jackson, 2013, for India, Athreye & Kapur, 1999, etc.) or general (Milea & Ailincă, 2015) the implications, the advantages and disadvantages brought by the FDI on the national security and national interest, and vice-versa.

3. Positive and Negative Developments Worldwide

Globally, if we consider the share of net inflow of foreign direct investment (FDI) in GDP (see figure 1), we can note that while in 2007, all major countries of the world have registered increases compared to previous years, only two countries exceeded the record levels: Hong Kong and Singapore.

In 2013, almost all powerful economies of the world have achieved significant reductions in FDI inflows (being well below 5% of GDP), only Hong Kong and Singapore continued to exceed 20% of GDP, thus it can be noticed the lack of a worldwide uniform distribution of FDI inflows.
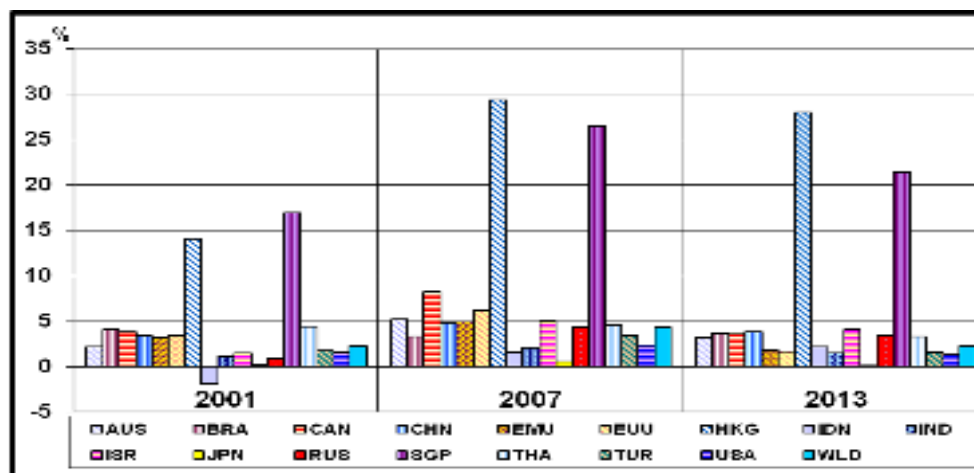
Figure 1. FDI, percentage of GDP at the global level in the years 2001, 2007, 2013 (%)

Source: World Bank database, data expressed in US dollars, author's processing. Remarks:
AUS - Australia, BRA - Brazil, CAN - Canada, CHN - China, EMU - Euro zone, EUU -
European Union, HKG - Hong Kong SAR, China, IDN - Indonesia, IND - India, ISR -
Israel, JPN – Japan, RUS- Russian Federation, SGP - Singapore, THA - Thailand, TUR -
Turkey, US - United States, WLD - World.

Changes in FDI relative to GDP does not seem particularly surprising considering that, according to UNCTAD (2015), on the background of the policy uncertainty for investors, of the global economy fragility and increased geopolitical risks: "Global foreign direct investment (FDI) inflows fell by 16 per cent to $1.23 trillion in 2014" but "Developing economies thus extended their lead in global inflows".

Considering that the evolution of gross domestic product can be an attractor or guarantor element of inward FDI, then the analysis of the elasticity of foreign direct investment relative to GDP should confirm or refute this hypothesis. Looking at the data in Table 1 we can say that, globally, the evolution of the indicator is oscillating without a constant direct or reverse link.

Table 2. FDI elasticity relative to GDP regarding a series of world economies during 2001 – 2013

FDI elasticity relative to GDP	2001	2003	2005	2007	2009	2011	2013
AUS	4.5	-2.9	-12.8	3.2	3.0	3.8	-6.1
BRA	2.2	-4.1	-0.5	5.1	18.8	2.2	-45.0
CAN	63.8	-3.8	-251.1	8.8	5.5	4.0	194.5
CHN	1.4	0.0	4.7	0.9	-1.0	0.9	1.4
EMU	-35.7	-0.6	61.6	3.6	2.8	5.1	10.3

EUU	-44.3	-0.7	53.3	3.1	5.4	5.3	1.5
HKG	46.7	-13.6	2.8	4.1	8.0	1.9	0.5
IDN	12.5	-25.6	30.1	2.2	-8.3	2.1	6.3
IND	14.5	-1.3	1.7	0.9	-1.6	3.3	17.8
ISR	49.8	21.8	10.9	-2.7	17.2	5.7	3.6
JPN	2.1	-3.9	24.7	64379.9	-12.3	-12.4	-2.7
RUS	0.1	5.3	0.0	1.6	1.9	1.1	10.1
SGP	1.2	15.7	-1.2	1.3	1044.8	-0.5	1.1
THA	-8.6	4.6	4.0	1.0	13.3	-6.9	3.2
TUR	-9.1	1.9	11.2	0.4	3.6	13.2	-0.7
USA	-14.7	-5.0	-0.8	3.5	26.2	-0.7	4.6
WLD	73.9	-0.8	10.6	3.2	7.9	2.0	2.7

Source: World Bank database, author's calculations. Remarks: AUS - Australia, BRA - Brazil, CAN - Canada, CHN - China, EMU - Euro zone, EUU - European Union, HKG - Hong Kong SAR, China, IDN - Indonesia, IND - India, ISR - Israel, JPN – Japan, RUS- Russian Federation, SGP - Singapore, THA - Thailand, TUR - Turkey, US - United States, WLD - World.

Another interesting indicator could be the territorial density of foreign direct investment (FDI/km^2), more exactly the concentration of investments in a territory. The territory of a country expresses the possibility and potentiality of territorial development for the investors. A country oversized, extended over an area of continental proportions means more resources, more leeway in terms of investment development potential, the same law, the same social, cultural and political conduct, that same internal environment and thus fewer costs of adaptation in the case of moving along this large territory.

Thus, if we look to the map of the density of FDI worldwide in 2001, 2007 and 2013 (see table 2) we see over time an increase in the concentration of investments in the territory, only Canada, Euro zone, European Union, Japan, Turkey and United States have achieved significant reductions in FDI density in 2013 compared to 2007. Worldwide, territorial density of FDI had also suffered strong decrease in FDI from 18.71 in 2007 to 12.82 thousands \$/km^2 in 2013, fact which may lead to serious concerns about the recovery of investment capacity of the world to the pre-crisis levels.

Table 2. Territorial density of FDI regarding a series of world economies in 2001, 2007, 2013

Territorial FDI density (thousand $ / km^2)	2001	2007	2013
Australia	1.08	5.78	6.43
Brazil	2.69	5.30	9.67
Canada	3.05	13.19	7.43
China	4.71	18.16	37.05
Euro zone	76.83	234.79	87.09
European Union	69.45	247.52	65.81
Hong Kong, China	22644.01	59617.09	72989.22
Indonesia	-1.64	3.82	10.18
India	1.84	8.49	9.47
Israel	81.85	406.57	545.48
Japan	16.98	62.86	10.19
Russian Federation	0.17	3.41	4.31
Singapore	22517.48	68680.88	91103.31
Thailand	9.92	22.17	24.76
Turkey	4.35	28.65	16.72
United States	18.23	37.12	25.78
World	5.6	18.71	12.82

Source: World Bank database, author's conception and calculations

Looking at the ratio of foreign direct investment and population or the inflow of FDI per capita (FDI in thousand $ on number of inhabitants), we see that as this ratio increase, the extent of attracting investment is higher. This indicator along with the GDP per capita could mean the level of development of a country or a region of the world. However, the results should be interpreted with caution in the sense that the population growth (either due to increasing birth rate and frequently due to immigration) does not implies a dramatic and disturbing change in developments of FDI. In general, a larger population means a wider sale market, more human resources and a lot of information, several entities of production, distribution and sale that can be opened throughout the country, so a greater real and potential market.

Worldwide, analyzing this indicator we can see that: in 2013, although in many areas of the world FDI inflows per capita has increased compared to 2007 levels in the euro area fell nearly 3 times, in the EU almost 4 times, in Japan nearly 3 times, in the US close to 1.5 times and almost 2 times in Turkey (see table 3). Considering that the population change is not an important determiner, we can conclude that the divestiture is a reality that affects many economies of the world and in its face, the

national, regional and global authorities must take concrete steps in order to recovery.

Table 3. FDI per capita regarding a series of world economies in 2001, 2007, 2013

FDI/per capita (thousand $/ population	2001	2007	2013
Australia	0.43	2.13	2.14
Brazil	0.13	0.24	0.4
Canada	0.89	3.65	1.92
China	0.04	0.13	0.26
Euro zone	0.63	1.86	0.68
European Union	0.6	2.1	0.55
Hong Kong, China	3.54	8.98	10.66
Indonesia	-0.014	0.03	0.08
India	0.05	0.02	0.02
Israel	0.28	1.23	14.65
Japan	0.49	0.18	0.03
Russian Federation	0.02	0.39	0.49
Singapore	3.65	10.4	11.81
Thailand	0.08	0.17	0.19
Turkey	0.05	0.32	0.17
United State	0.59	1.13	0.75
World	0.12	0.37	0.23

Source: World Bank database, author's conception and calculations.

In general, it can be seen worldwide, but also at the regional level, that countries that receive large volumes of FDI are the most significant FDI exporters. This is, partly, due to the issues that matter fundamental for attracting, but also for the distribution of FDI: – the generous outlet – the regulations and general legislation stable and favorable for the investments – the academic field focused on the issues of research, development and innovation – the well developed territorial infrastructure, and – the satisfactory trade and economic opening. The same elements that are supposed to contribute greatly to attracting FDI are the results of investments in many cases. Basically investment circuit can be a "vicious circle" or conversely a "virtuous" circle in report of the behavior of the FDI receptor, but also of investing companies. We can say that the influx of foreign direct investment can develop a country or region of the world, and to the extent that there is "satiety" of FDI absorption, FDI surplus is directed to other geographic areas of the world.

Thus, when analyzing the influence of exports on global FDI in 2013 (see table 4), we find the following: countries like Australia, Canada, Indonesia, India, Turkey maintains a direct link between FDI and exports; on the other hand, Brazil, China, Euro zone, European Union, Hong Kong, Russia, Singapore, Thailand correlates the flow of foreign direct investment in reverse in report to exports. At the global level the connection between investments and exports is strong and direct, signaling that maintenance of good commercial relations, and particularly exports, is leading to the maintenance of certain attractiveness for FDI.

Table 4. FDI elasticity in report to exports regarding a series of world economies in 2001, 2007, 2013

FDI elasticity in report to exports	2001	2007	2013
Australia	-2.4	18.6	1.95
Brazil	-0.92	-11.92	-23.99
Canada	11.86	-24.63	353.27
China	-1.36	0.71	-1.42
Euro zone	-251.67	13.41	-14.46
European Union	-3623.56	24.8	-0.93
Hong Kong SAR. China	18.65	27.88	-1.07
Indonesia	6.89	-3.67	2.24
India	-14.01	1.15	4.75
Israel	6.59	98.69	N.A.
Japan	3.66	-61.15	N.A.
Russian Federation	0.87	-1.25	-8.29
Singapore	0.71	-0.92	-0.18
Thailand	-43.43	-1.49	-6.27
Turkey	9.97	6.8	2.87
United State	5.54	1.35	N.A.
World	18.76	17.29	N.A.

Source: World Bank database, author's calculation and processing. Note: both foreign direct investment and exports are expressed as a percentage of GDP, N.A. - Data unavailable.

The level of development of an economy can be shown by the evolution of FDI. For example, an economy less restructured brings a low FDI influx, being prevalent the existence and establishment of joint enterprises (external-internal) or acquisitions of companies, particularly as a result of the privatization, Greenfield investment being extremely few. This is due mostly to the problems of corruption, to the importance of local relations, to the trafficking of influence but also to the fluctuating and unstable legal and institutional environment with frequent and

unpredictable changes. As investor confidence increases amid an improved economic structure, the typology of FDI changes in the sense that are more beneficial to host countries, moving from investment in companies with mixed capital to acquisitions and takeovers of companies and finally to Greenfield investments (Meyer, 1996). It is known that FDI can contribute to the economic growth by introducing new techniques and technologies, innovative capital goods, improved managerial skills, new ideas and can increase the capital formation of the recipient economy. In this context, if we want to see the contribution of foreign capital to the investment effort in a country we can analyze the ratio of foreign direct investment (as % of GDP) and gross fixed capital formation (GFCF) (as% of GDP) worldwide (see table 5).

Table 5. The share of FDI in gross fixed capital formation regarding a series of world economies in 2000 – 2013 period

FDI (% of GDP) /GFCF(% of GDP)	2000	2002	2004	2006	2008	2010	2012	2013
AUS	0.12	0.18	0.22	0.15	0.15	0.11	0.13	0.11
BRA	0.28	0.20	0.16	0.11	0.15	0.12	0.19	0.20
CAN	0.43	0.15	0.00	0.19	0.17	0.08	0.10	0.15
CHN	0.09	0.09	0.07	0.11	0.09	0.10	0.07	0.08
EMU	0.30	0.18	0.06	0.17	0.14	0.11	0.07	0.10
EUU	0.34	0.17	0.08	0.23	0.22	0.11	0.09	0.09
HKG	1.31	0.25	0.90	1.04	1.45	1.51	1.13	1.18
IDN	-0.12	0.00	0.03	0.05	0.07	0.06	0.06	0.06
IND	0.03	0.04	0.02	0.06	0.10	0.04	0.04	0.05
ISR	0.31	0.08	0.13	0.51	0.25	0.13	0.15	N.A.
JPN	0.01	0.01	0.01	0.00	0.03	0.00	0.00	N.A.
RUS	0.06	0.05	0.13	0.18	0.18	0.13	0.10	0.15
SGP	0.49	0.27	0.80	1.12	0.21	0.84	0.70	0.74
THA	0.12	0.11	0.14	0.16	0.11	0.11	0.10	0.11
TUR	0.02	0.03	0.04	0.17	0.12	0.06	0.08	0.08
USA	0.13	0.04	0.05	0.09	0.11	0.09	0.07	N.A.
WLD	0.17	0.08	0.07	0.14	0.15	0.11	0.10	N.A.

Source: World Bank database, author's calculations. Remarks: AUS - Australia, BRA - Brazil, CAN - Canada, CHN - China, EMU - Euro zone, EUU - European Union, HKG - Hong Kong SAR, China, IDN - Indonesia, IND - India, ISR - Israel, JPN – Japan, RUS- Russian Federation, SGP - Singapore, THA - Thailand, TUR - Turkey, US - United States, WLD - World. N.A. - Data unavailable.

Thus, according to the table 5, at the global level it can be see that although by 2007 the share of FDI in gross fixed capital formation increased, after this year it occurred a gradual decline. If countries like Australia, China, India and Turkey were registered in 2013 decreases in this indicator compared to the previous year, countries such as Brazil, Canada, Euro zone, European Union, Hong Kong, India, Russia, Singapore and Thailand recorded increases in the contribution of FDI to GFCF.

4. Conclusion

FDI can be an important promoter for both the national interest and especially for the implementation of ideas, technologies and management in accordance with sustainable development principles. Therefore, the trends on global FDI flows can provide important guidelines for the reorientation of public or private policies, towards coupling capital attracted through FDI to the national interests in the short, medium and long term (exploiting theoretical and practical openings of sustainable development).

Referring to the share of net inflow of foreign direct investment in GDP, although the in the period of global economic and financial pre-crisis all major countries of the world showed growth, during the manifestation of the crisis and even in post-crisis period, almost all powerful economies of the world registered and continues to experience significant reductions in FDI inflows express as percentage of GDP, according to World Bank data.

Theoretically, gross domestic product developments can be an element attractor or guarantor of inflows, but elasticity analysis of foreign direct investment relative to GDP regarding a series of world economies in the 2001-2013 periods, shows fluctuations without a clear direct or reverse link. This fact might surprise some positive aspects such as the fact that FDI inflows in any country of the world take into account many other issues beyond the evolution of GDP and a negative trend in GDP possibly circumstantial, is not necessarily an impediment to FDI inflows.

When referring to territorial density of foreign direct investment (FDI/km^2), or the concentration of investments in a territory, we see that during the analyzed period (2001-2013) the global FDI territorial density decreased significantly, which can lead us to worry about the recovery of the investment capacity of the world to the levels before the crisis. A low territorial concentration in a region can mean, on the one hand, a real opportunity to attract FDI in the region, so an important growth potential and, on the other hand, can shape the very inability to attract FDI in the region by many economic, political, social and cultural causes.

Regarding the ratio of foreign direct investment and population (FDI inflow on number of inhabitants), which may indicate the development level of a country or

region of the world, we find that: according to the World Bank in 2013 compared to 2007 in the euro area FDI entries on number of inhabitants fell nearly 3 times, in the EU almost 4 times, in Japan almost 3 times, 1.5 times in the United States. This leads us to the conclusion that the divestiture affects many world economies and before which the national, but also regional and world authorities must take concrete steps to protect the interests of national, regional or world (economic) interests.

In connection with the influence of exports on FDI in the world we can see that: in 2013, countries such as Australia, Canada, Indonesia, India, Turkey maintains a direct link between foreign direct investment and exports, while countries such as Brazil, China, Euro zone, European Union, Hong Kong, Russia, Singapore, Thailand highlights a reverse link between FDI and exports. However, at the world level the connection between investments and exports is strong and direct, signaling that maintenance of good relations, and particularly exports, is leading to maintaining the attractiveness for FDI.

Regarding the relationship between FDI and gross fixed capital formation (GFCF) it can be seen at the global level that after 2007 occurred a gradual reduction in the share of FDI in gross fixed capital formation. However, in 2013 compared with the previous year, countries such as Brazil, Canada, Euro zone, European Union, Hong Kong, India, Russia, Singapore and Thailand have registered increases in the contribution of FDI to GFCF.

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Study Streams and Student Entrepreneurial Intention

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Abstract: Understanding the levels of entrepreneurial intention among university students is particularly critical in Africa where the scourge of unemployment is profound. Alive to this, governments and well-meaning institutions are investing in entrepreneurship development, the gains of which remain to be seen leading to an ebbing of hope in the youth population. To this end the study investigates the entrepreneurial intention of university students in South Africa with an aim to reveal differences arising from study streams. The study consequently extends knowledge by examining entrepreneurial intention within the context of an unemployment-ridden society while leveraging on the theories of planned behaviour. The study executed from a positivist standpoint surveyed 238 students and quantitatively analysed the data principally to test deductively derived hypothesised relationships. The empirical study concludes that there is indeed a difference in entrepreneurial intention levels between the two groups. Empirical in nature, this quantitative study and concludes that there is indeed a difference in entrepreneurial intention levels between the two groups. Interventions aimed at enhancing entrepreneurship can only generate desirable results if the entrepreneurial intentions of the target population are known. This would ensure that the right type of interventions are created and delivered to specific groups as the 'one-size-fits-all' approach continues to fail. Serving a clearly heterogeneous population with seemingly homogenous interventions appears faulty and this reality needs to inform pro-entrepreneurship initiatives in future.

Keywords: Entrepreneurial intention; Entrepreneurship; University; Students; Business

JEL Classification: L260; O550; R110

1. Introduction

The unemployment rate in South Africa is around 24.3% (Statistics South Africa, 2014b, p. 5). Needless to say, this rate has far reaching consequences for the economy and perhaps more so, for youth in the country. To overcome this, education has been touted as a trusted remedy. It seems though that this remedy continues to fall short of the promise that it holds to open up a landscape of

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employment opportunities for those who have been through the universities. Indeed, according to Fatoki (2010:87) university graduates are unable to break into the workforce, as job opportunities are scarce and difficult to acquire. These issues lead to circumstances that foster high levels of crime and poverty (Memani & Fields, 2014:289).

The situation reemphasises the importance of entrepreneurship and venture creation in an economic context (Diaz-Garcia & Jimenez-Moreno, 2010, p. 261) and yet South Africa's continues to struggle to promote entrepreneurial activity amongst its people (Fatoki, 2010, p. 90; Herrington, Kew & Kew, 2014, pp. 30-31). While there may be numerous reasons for this, knowledge of the entrepreneurial intentions of students in South Africa, may be essential for catalysing the country's development (Zain, Akram & Ghani, 2010, p. 35). Such intentions are usual precursors to the establishment of ventures such as SMMEs that hold the answer to South Africa's unemployment problem given their ability to create jobs (Memani & Fields, 2014, p. 287; Ndedi, 2009, p. 464).

Entrepreneurial intentions relate to the desire that an individual nurses to set up a business in the future (Fatoki, 2010,p. 88; Van Gelderen, Brand, Van Praag, Bodewes, Poutsma, & Van Gils,. 2008, p. 540) or the search for specific knowledge in order to fulfil the goal of creating a venture. While previous studies may have delved into the issue of entrepreneurial intentions (Farrington, Venter & Louw 2012, pp. 41-42), within the peculiar South African context, effort has not been committed to investigating the concept in a comparative study of business and non-business students. To this end, the study aims to compare the entrepreneurial intention of business and non-business undergraduates at a leading South African University. The overarching objective is to determine if a relationship exists between students' current study stream and their entrepreneurial intentions.

2. Theoretical Foundation

There has been substantial interest in the idea of entrepreneurial intention (EI) by scholars, over time since the seminal work of Shapero in the seventies. According to Linan and Fayolle (2015), a lot of the work can be broadly grouped into five major categories, namely: Core EI model, Personal level variables, Entrepreneurship education, Context and institutions as well as Entrepreneurial process. While this categorisation appears appealing and useful for purposes of better understanding EI literature, it is worthy to highlight the fact that some studies may cut across the categorisations. Indeed, this research on study streams and EI falls in the inter-category set as it may be viewed from a personal characteristics perspective or alternatively from an entrepreneurship education standpoint.

Essentially though, entrepreneurial intention is seen as the thought process of a person at a particular time, which influences their decision to create their own business. This thought process also impacts the ability to perform in different roles and pursue entrepreneurial activity (Sondari, 2013, p. 48). Entrepreneurial intentions can be divided into cognitive and contextual factors (Franco, Haase & Lautenschlager, 2010, p. 262; Skosana, 2014, p. 140). Cognitive factors are related to an individual's demographics, psychological and personal characteristics, skill sets, social ties and networks (Abbey, 2002, p.70). Contextual factors, conversely, are related to the demographic characteristics of an individual such as gender, ethnicity, age, education and family antecedents (Lee, Lim, Pathak, Chang & Li, 2006, p. 353). Bird (1988) defines EI as a state of mind that directs an individual's attention and action towards self-employment as compared to pursuing employment prospects in an existing organisation. This definition suggests that EI is therefore related to the desire to own a business or become self-employed (Thompson, 2009).

This is indicative of the fact that the extent to which EI studies are reliant on the proposed nexus between intention and action cannot be over-emphasised. According to Eresia-Eke and Gunda (2015), within the specific context of entrepreneurship, it is this relationship between EI and entrepreneurial activity that makes the study of EI useful for purposes of entrepreneurship development though it is noteworthy that having an entrepreneurial intention does not automatically cause an individual to choose entrepreneurship as a career path (Sondari, 2013, p. 47). Studies have shown that factors influencing entrepreneurial intention include education, personality traits, gender, age, family and culture (Ismail, Khalid, Othman, Jusoff, Rahman, Kassim, & Zain, 2009, p. 55; Yeboah, Kumi & Jacob, 2013, p. 37). In order to examine the relationship between entrepreneurial intention and the aforementioned personality and demographic factors, studies have often used behavioural intention models (Raguz & Matic, 2011, p. 39). Kwong and Thompson (2016) support the view by arguing that the decision to start a business venture is clearly an act consistent with planned behaviour. Consequently, two theoretical models dominate extant EI literature - Ajzen's model of planned behaviour and Shapero's entrepreneurial event model.

Ajzen's model of planned behaviour (1991) proposes that behaviour is preceded by intention which itself emerges from a combination of individual attitudes, perceived behavioural control and subjective norms. While attitudes attempt to express the extent to which the individual is favourably disposed to the behaviour, perceived behavioural control is more concerned with the individual's self-assessment of their ability to exercise control over resources and opportunities. Subjective norms relate to boundaries defined by society that elucidate expectations associated with choices that individuals make. The theory of planned behaviour (TPB) developed by Ajzen (2005, p. 117), is clearly premised on the

assumption that a human being's behaviour is rational and so certain intentions of an individual may lead to certain behaviours (Kuttim, Kallaste, Venesaar & Kiis 2013, p. 660). In essence, the theory suggests that entrepreneurial intentions may lead to entrepreneurial actions such as the starting-up of a business.

Shapero's entrepreneurial event model proposes the antecedents of entrepreneurial intentions are perceived ability, propensity to act and perceived feasibility. The model also acknowledges that specific desirables may impact on perceived desirability in the same way as perceived self-efficacy could lead to perceived feasibility. Perceived desirability refers to the attractiveness of starting one's own business. Perceived feasibility, on the other hand, is the degree to which an individual feels comfortable in starting his or her own business (Krueger et al., 2000, p. 419). The propensity to act upon opportunities, then, refers to the disposition to act on one's decisions (Lee et al., 2011, p. 126).

According to Fayolle and Linan (2015) EI is an important research area in the field of entrepreneurship. Consequently, several studies have been conducted on entrepreneurial intentions in both developed and developing economies (Amos & Alex, 2014) belching new knowledge along with collateral questions that need to be addressed (Fayolle & Linan, 2015). Given the peculiar idiosyncrasies of countries and societies, and the fact that intentions seem to be shaped by a number of different factors, it would seem illogical to draw conclusions about a country, based upon studies conducted in another.

Within the student community, a number of EI studies have been conducted with different goals, methodologies and different findings. A cross-country research conducted by Lee, Lim and Pathak (2006, p. 351) revealed the existence of different levels of EI among students in the US, Korea, China and Fiji. Veciana, Aponte and Urbano (2005, p. 172) found a similar occurrence in Puerto Rico and Catalonia. Relatively low prevalence of EI was found by Luthje and Franke's (2003, p.141) as well as Linan, Rodriguez-Cohard and Rueda-Cantuche (2001, pp. 156-157) in the studies conducted among students at Massachusetts Institute of Technology (MIT) and Andalusian students respectively. This finding resonates with the South African situation as Fatoki (2010) found that final year students in a South Africa University had low levels of entrepreneurial intention. Indeed, in South Africa, EI amongst students is so weak that students prefer to work for existing organisations (Farrington, Venter, & Louw, 2012, p. 42; Olufunso, 2010, p. 91).

Rather than consider students as an aggregate research population, Wilson, Kickul and Marlino, (2007, p. 395) disaggregated the group and found that male students displayed higher entrepreneurial intentions than female students. This finding reveals the existence of different levels of EI among students within the same university. In the same vein, it exposes the fact that different degrees of association

may be found between EI and demographic factors of an individual. This is what has made it attractive to investigate the possibility of the existence of different EI levels based upon on a different categorization criterion; in the case of the current study, this being the exposure to business education. This thought derives impetus from the fact that students are generally exposed to different levels of entrepreneurship education (Memani & Fields, 2014, p. 289) and this may create varying levels of knowledge that could in turn bear some correlation with their levels of entrepreneurial intention. Given that there are different categories of students, it would seem worthwhile to attempt to identify groups that bear higher or lower entrepreneurial intentions, so as to fashion interventions targeted at improving existing levels, more effectively. In recognition of this, Ahmed, Nawaz, Ahmad, Sajukat, Usman, Rehman and Ahmed (2010, p. 18), undertook a study that found that the entrepreneurial intentions of a student differed depending on their year of study. It was their realisation that students at higher levels of study displayed more inclination towards entrepreneurial activity. A similar finding was made in Malaysia, where it was found that graduating students have a greater desire to venture into entrepreneurship arguably due to their exposure to entrepreneurial courses (Zain, Akram & Ghani 2010, p. 40). In effect the position appears to be that knowledge or exposure lends itself to improved self-efficacy that can promote EI. This study broadly categorises students into two groups - business and non-business students and is encouraged by the proven relationship between knowledge, self-efficacy and EI to hypothesise that:

H_0: *There is no difference between the EI levels of business students and non-business students*.

3. Methodology

The study is driven by a positivist philosophical inclination given its preference for objectivity and empiricism. The preferred research approach is deductive and so the hypothesis of interest was rationally deduced from existing literature. A survey-strategy was used to access the study's target population, which consisted of current undergraduate students at one of South Africa's leading Universities. Two mutually exclusive and collectively exhaustive groups of business and non-business students were created. Business students are considered to be those whose degrees fall within the faculty of Economic and Management Sciences. Besides this group, all other students are categorised by the study as non-business students. A non-probability sampling approach - quota sampling – was used for the study in a bid to ensure some characteristics of the population are mirrored (Daniel, 2012, p. 102; Zikmund & Babin, 2010, p. 313) in the sample. A total respondent group of 238 students was utilised in the study. The specific method for the distribution and collection of the pre-tested questionnaires was a central-location intercept survey.

The instrument used was that of Liñán, which had been utilised for previous studies (Liñán & Chen, 2009, pp. 612-613; Liñán, Urbano & Guerrero, 2011, p. 215; Jaén & Liñán, 2013, pp. 959-960) and acknowledges that the entrepreneurial intention construct is a multidimensional construct, consisting of the sub-constructs of entrepreneurial activity, skills related to entrepreneurial activity, attractiveness towards entrepreneurship, professional attraction after degree completion and importance of educational courses to entrepreneurship development. The instrument was predominantly made up of 7-point Likert scale statements. In spite of the fact that the instrument had been used for other studies, all the scales of the component constructs of EI were tested for internal consistency. The entrepreneurial activity, skills relating to entrepreneurial activity and attractiveness of entrepreneurship had Cronbach alpha values of 0.94, 0.78 and 0.70 respectively. Other Cronbach alpha values obtained were 0.55 for professional attraction after degree completion and 0.70 for importance of educational courses.

4. Study Results

A total of 238 students responded to the questionnaire. While 46.64% of the group were business students, the remaining 53.36% were non-business (see Figure 1). The gender split was 42% male and 57.6% female; with one respondent not answering the gender question. The majority of students were classified as white (67.2%), while the remaining ethnic groups (black, coloured, Indian) accounted for 32.8% of the group. Two respondents elected not to respond to the race question.
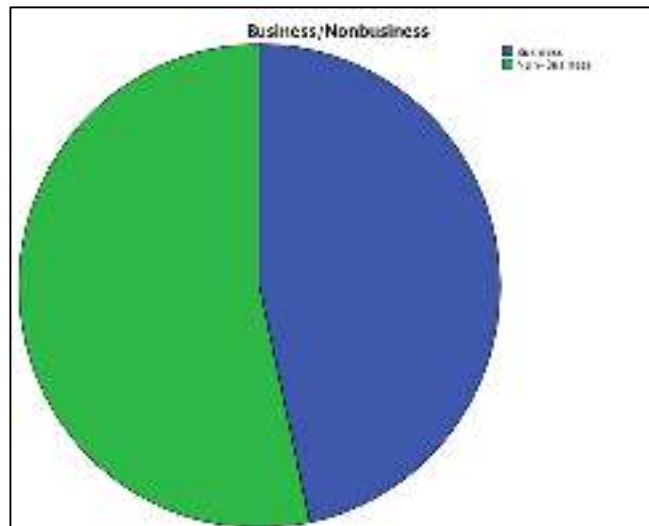

Figure 1. Proportions of Business and Non-Business Students

Respondents utilised in the study came from a number of different study areas. The distribution of students on the basis of study streams is shown in Table 1. The category of business students included only students who were enrolled in the faculty of economic management science. Students enrolled in other faculties were categorised as non-business students. In all, there were 111 business students and 127 non-business students in the study.

Table 1. Distribution of respondents according to faculties

Faculty	Frequency	Percent	Valid Percent	Cumulative Percent
Faculty of Economic Management Science	111	46.6	46.6	46.6
Faculty of Humanities	52	21.8	21.8	68.5
Faculty of Engineering	56	23.5	23.5	92.0
Faculty of Education	13	5.5	5.5	97.5
Faculty of Health Science	1	0.4	0.4	97.9
Faculty of Law	2	0.8	0.8	98.7
Faculty of Nature and Agriculture	2	0.8	0.8	99.6
Faculty of Theology	1	0.4	0.4	100.0
Total	238	100	100	

The study hypothesised that:

H_0: *There is no difference between the EI levels of business students and non-business students.*

This one-tailed (directional) hypothesis was tested at a 5% level of significance ($\alpha = 0.05$). Since the overall entrepreneurial intention construct was measured with Likert-scales on an interval level of measurement, the study was faced with the option to use an appropriate parametric significance test such as the independent samples t-test or turn to the a non-parametric alternative like the Mann-Whitney U test.

The Kolmogorov-Smirnov test for normality was conducted to aid the choice of the appropriate test for the study's hypothesis. Table 2 reports the results of the Kolmogorov-Smirnov test for normality regarding the entrepreneurial intention construct for the business and non-business sub-groups of students.

Table 2. Test of normality of entrepreneurial intention responses of business and non-business student groups

Business/Non-business	Kolmogorov-Smirnov		
	Statistic	Degrees of Freedom	p-value
Business	0.10	111	0.00
Non-Business	0.12	127	0.00

The p-values associated with both sub-groups maintain values that are less than 0.05 which suggests that for both sub-groups, the test variable of interest does not display a normal distribution within the group. Figure 2 below illustrates histograms representing the distribution of the business and non-business sub-groups with regards to the entrepreneurial intention construct.
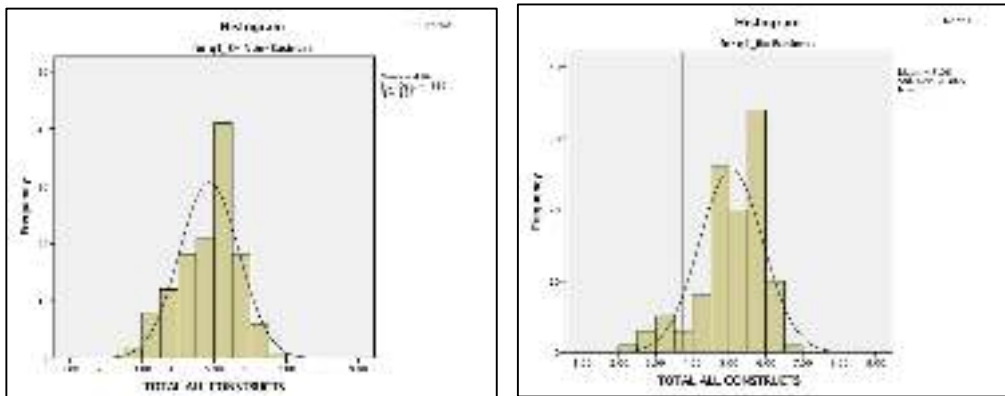

Figure 2. Distribution of EI responses of business and non-business Student groups

The histograms depicted corroborate the results of the Kolmogorov-Smirnov test by depicting non-normal distributions for business and non-business student groups. The results of these tests have showed a violation of the necessary normality assumption required for the application of parametric tests. Consequently, the non-parametric Mann-Whitney U test was employed for the hypothesis test. Table 3 provides the results of the Mann-Whitney U test conducted to test H_0.

Table 3. Mann-Whitney U test results

Hypothesis	Students	n	Results: Mann-Whitney U Test
H_0: There is no difference between the EI levels of business students and non-business students	Business	111	Test statistic: 5957 1-tailed p-value: 0.02 Conclusion: The existence of a significant difference implies that H_0 should be rejected
	Non-Business	127	

The p-value of 0.02, in the context of a 5%-level of significance implies that the null hypothesis that suggests the absence of a difference in the entrepreneurial intention levels of business and non-business students, needs to be rejected. The alternate hypothesis that would in effect suggest a difference between the entrepreneurial intention levels of business students and non-business students is therefore accepted.

As part of the process of analysing the date, responses to items contained in each of the component constructs of EI were aggregated and composite mean (M) and standard deviation (SD) scores for business and non-business category of students were determined. The output of the exercise is presented in Table 4. The standard deviations associated with both business and non-business students are of a similar nature. Nonetheless, the measure of greater importance to the study from table 4 is that which expresses the mean scores of both groups.

Examination of the scores obtained per sub-construct shows that business students obtained a higher average mean for every individual sub-construct of EI, save for the sub-construct of attractiveness towards entrepreneurship. When all the sub-constructs are grouped, on the average, business students at the University obtained a higher overall mean score of 5.06 compared to a collateral score of 4.86 that non-business students obtained. This is suggestive of a higher entrepreneurial intention on the part of business students.

Table 4. Mean scores and standard deviations of EI sub-constructs

Sub-Construct	Students					
	Business		Non-business		Total	
	M	SD	M	SD	M	SD
Entrepreneurial activity	5.20	1.19	4.88	1.18	5.04	1.19
Skills related to entrepreneurial activity	5.64	0.79	5.57	0.68	5.60	0.74

Attractiveness towards entrepreneurship	4.31	1.38	4.40	1.30	4.35	1.34
Professional attraction after degree completion	3.45	1.08	3.10	1.16	3.28	1.12
Importance of educational courses to develop entrepreneurship	5.12	0.93	5.03	0.97	5.07	0.95
Total entrepreneurial intention construct	5.06	0.86	4.86	0.83		

5. Discussion of Findings

Clearly, the findings demonstrate that there is a difference in the level of entrepreneurial intentions of business students as compared to non-business students. Closer examination though reveals that the difference in EI levels between the groups is not huge. This result was unexpected particularly if knowledge lends itself to self-efficacy which in turn fuels intention. Perhaps, it is valuable to posit that expected relationships in many cases hold true only within a particular context which of-course embodies a number of assumptions.

With particular reference to the small difference in EI levels between business and non-business students, it could be that the dire situation of unemployment and poverty that is evident in the country forces students to think more entrepreneurially. This thinking is buoyed by the realisation of how difficult it has been for friends, cousins or colleagues who are graduates to find reasonable employment in established organisations. Confronted by a potential situation of lack of job opportunities, individuals may be forced into thinking of starting business ventures (Chan & Quah, 2012, p. 51; Shariff & Saud, 2009, p. 130).

Furthermore, the small gap in the entrepreneurial levels identified could be a result of the attitudes associated with the younger generation. This homogenous group tends to be more free-spirited and adventurous as compared to older generations who tend to be guided by a more conservative mind-set. Technological advances and its increased availability to the public that aids access to information and networks by university students can stimulate such outcomes; very much in the same way as a traditional formal business education class would have.

There is however a converse argument as it pertains to knowledge and self-efficay that ought to be considered. As a result of the sparse knowledge and understanding of the prerequisites required to start one's own business, non-business students may overestimate their abilities to identify a business opportunity and create ventures of

their own. This would then cause higher-than-expected levels of EI to be found among the group. On the other hand, business students being exposed to business and entrepreneurial courses are armed with an enhanced and holistic understanding of the requirements and challenge that dot the route to becoming a successful entrepreneur. This could essentially lower the mean of business students on the scale of entrepreneurial intention. In the face of all of this, there would be a consequent reduction in the EI-levels gap between business and non-business students.

Nevertheless, the point remains that there is a difference between the levels of EI of the business student group relative to that of the non-business group. This difference, even if it appears little should be considered in the development of entrepreneurial development initiatives, if such interventions are to be efficacious.

6. Implications of Findings

These findings on a sub-group level of information may help to enable government to allocate resources develop initiatives specifically targeted at identified groups. It would there seem logical that interventions for the group with a higher EI should be aimed at transforming intention to action. On the other hand, interventions created for groups with low EI levels should be driven by a goal to increase the intention to venture into business of members of the group. With specific reference to the broad groups created in this study, entrepreneurship education could be aimed at non-business students to fertilise the existing levels of EI among them. For business students with a higher level of EI, granted that this EI level is deemed to be satisfactory, interventions aimed at this group should be created with an intention to change intentions of members of the group to entrepreneurial action (EA). Business incubator services for instance, would be more useful to the cohort of business students relative to the group of non-business students. Such initiatives aimed at enabling start-ups allows for students desirous of self-employment to tap in early to existing support and improve the chances of their businesses surviving the problematic periods where the liability of newness is huge. This route may lead to the creation of jobs for others and ultimately decrease unemployment and poverty in the South African society.

The failure in understanding students' entrepreneurial intention at tertiary level will hinder the intervention programs of educational bodies in aiding the development of training programs and educational courses (Sriram, Mersha & Herron, 2007, pp. 246-247). Therefore, the effort to deploy entrepreneurship as a remedy for high levels of unemployment and poverty will only bear desirable results when adequate consideration is given to existing levels of EI among populations of interest. Knowledge of these would allow for the phasing of interventions that are informed by specific positions of target groups on an entrepreneurial intention –

$\longrightarrow$

entrepreneurial action (EI   EA) continuum. Further, the fact that business students have a higher level of EI suggests that exposure to business or entrepreneurship education could be utilised within universities to fertilise EI among students.

7. Recommendations for Future Research

The study focussed on business and non-business students but other similar broad categories may be created for the purpose of gauging the levels of EI in each group while also exploring the underlying reasons for EI levels in each group. For such studies, the use of a random sampling method is encouraged as this might enable possible generalisation of findings.

It might also be interesting for future research to attempt to determine the conversion rate of student entrepreneurial intention into actual entrepreneurial action epitomised by business start-ups. Such a study could adopt a longitudinal time frame to determine the extent to which high entrepreneurial intentions translated into action.

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Manufactured exports and economic growth in Southern African Development Community (SADC) region: A panel cointegration approach

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Abstract: The purpose of this study is to examine the empirical relationship between manufactured exports and economic growth in SADC. This study applied the recent panel econometric methods to determine the long run equilibrium between manufactured exports and economic growth. The results of this study indicate that there is an existence of long run equilibrium between manufactured export and economic growth during 1980 to 2012. The results show that there is a positive impact of manufactured exports on economic growth in SADC. Furthermore, the study applied causality analysis and it was found that causality is running from economic growth to manufactured exports.

Keywords: manufactured exports, economic growth, and panel cointegration

JEL Classification: B41; C33, C82

1. Introduction

A number of countries have been strongly implementing regional trade agreements as a central objective of their trade policy. Since 1980, Southern African Development Communities (SADC) was established as a loose alliance of seven states in Southern Africa. Currently SADC consist of 15 countries which are Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. One of the SADC aim is to achieve development and economic growth, alleviate poverty and support the socially disadvantaged through regional integration, (Export-Import Bank of India, 2012). SADC economies have been enjoying the benefits associated with trade. Over the past thirty years gross domestic product (GDP) growth performance in SADC was moderate. In terms of GDP growth SADC is the largest contributor to in African region. SADC contribute about 54.3% of the nominal GDP of Sub-Sahara Africa. GDP growth for

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SADC in 2009 stood at 2.3% rebounded to 5.4% in 2010, (Reserve Bank of Zimbabwe, 2011). The growth in the region was mainly supported by increased mining activities as a result of favourable commodities prices, stimulus packages cushion economies against the global financial crisis and improved manufacturing activities. According to Banco Nacional de Angola (2012) SADC GDP growth was estimated at an average of 5.07% in 2011. All the economies in the region recorded a positive growth rates except for Angola, South Africa and Mozambique during the 2011. Chauvin and Gaulier (2002) indicates that for the period 1981-1991, on average GDP growth for D.R Congo, South Africa, Zambia, and Mozambique was below 1%. Countries such as Angola, Malawi, Tanzania and Zimbabwe at average were between 1 to 3%. Lesotho, Seychelles, Botswana, Mauritius and Swaziland were about 4 to 10% at average. During the period 1991-1999 on average GDP growth for Angola, Malawi, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe and D.R Congo was around 3%. Meanwhile, average GDP growth for Botswana, Lesotho, Mauritius and Mozambique was around 4 to 7%. During the period 2000 to 2012 average GDP for Zimbabwe, Swaziland, South Africa, Seychelles, Madagascar and Lesotho was around 1 to 3%. On the other hand, average GDP for Botswana, D.R Congo, Malawi, Mauritius, Mozambique, Namibia, Tanzania and Zambia was around 4 to 7%. The economic literature has emphasised that countries with more diversified exports base are suitable trade contenders (Samen, 2010). According to the literature SADC economies have recorded moderate or downward trend of their export diversification (Chauvin and Gaulier, 2002). Amakom (2012) explains that low growth of manufactured exports has been identified as a major factor for poor economic performance in many Sub-Saharan African economies. The main exports of the SADC region are mineral fuels, oils and their distillation products. These products account 37.5% of total exports of the region. This relative confirms that SADC countries are strongly reliant on primary commodity exports.

Industrialisation is recognised as catalyst for poverty eradication, such an intention requires careful planning precisely in manufacturing industries. This implies that for a country to move from traditional economy is through economic development. One of the indicators for economic development is the percentage of manufacturing in total exports. On average economies such South Africa and Swaziland constitutes more than 50% of manufacturing in their total exports of goods (Umlilo Wemfundo, 2007). For Namibia 41% of exports are manufactured goods. Manufactured goods constitute 20-28% of exports for Zimbabwe, Madagascar and Tanzania, and less than 16% of total exports for Malawi, Zambia, and Mozambique. It should be noted that the growth changes in GDP, total exports and manufactured exports in SADC area changes depending on each country's characteristics and its trade policies adopted. Despite progress and increased trade policies in SADC, manufactured exports expansion remains a challenge. Manufactured exports as a percentage of GDP in SADC accounts 11.15%, which it

indicates that the region still falls far short meeting a target of 25% (SADC, 2009). SADC still lags behind all other regions of developing world such as Asia (30% of GDP) in terms of manufacturing exports expansion. SADC's exports are highly concentrated on a few products, mainly primary commodities. SADC needs to put much more effort into ensuring that manufacturing exports have a strong impact on poverty reduction and employment creation. The expansion of manufactured exports could have a positive impact on growth, which in turn could contribute to create protective employment. The purpose of this study is to examine the empirical relationship between manufactured exports and economic growth in SADC region. For this purpose the following objectives of the study are undertaken: firstly, to determine panel long run equilibrium between manufactured exports and economic growth. Secondly, to test the direction of causality between manufactured exports and economic growth in SADC region. The study is structured as follows: Section 2 is the review of the literature, section 3 is the empirical model specification, whereas section 4 is data and panel framework. Section 5 is the panel empirical results and Section 6 presents the conclusion of the study.

2. Review of Literature

Earlier cross sectional studies such as Amakom (2012), Kilavuz and Topeu (2012), Bbaale and Mutenyo (2011), Lee (2011), Parida and Sahoo (2007), Abu-Qarn and Abu-Bader (2004), Alam (2003), Soderbom and Teal (2002) and Abu-Qarn & Abu-Bader (2001) have found different results on the relationship between manufactured exports and economic growth in cross sectional analyses. In his study of 71 countries, Lee (2011) investigated export specialization in respect of technological manufacturing and economic growth around the world. His finding shows that countries that have specialized in export of high technological content experienced more rapid growth. Conversely, countries that have fallen behind have tended to increasingly specialize in exporting "traditional" or low-technology goods, such as textile and food products. Parida and Sahoo (2007) investigated the relationship between manufactured export and economic growth in four South Asian countries namely India, Pakistan, Bangladesh and Sri Lanka during 1980-2002. Their investigation used the Pedroni's panel cointegration technique to determine the hypothesis of export-led growth in South Asia. Their study confirmed the existence of manufactured export led growth hypothesis. Abu-Qarn and Abu-Bader (2004) applied vector autogressive and error correction models to investigate the validity of the ELG hypothesis in the Middle East and North Africa (MENA) region. The study found that positive causality runs from manufactured export to economic growth for economies with a relatively high share of manufactured exports in total merchandise exports.

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The question that manufactured exports is the key to economic success in Africa was investigated by Soderbom and Teal (2002). Their study found that there is no evidence of correlation between manufactured exports and higher economic growth in nine African countries. Recently study by Amakom (2012) conducted in 10 Sub-Saharan African (SSA) countries recommends manufactured exports in SSA domestic markets. This sentiment root from the fact of small fraction of manufactured exports in total exports in SSA. The influence of diverse classifications of import and export on economic growth in 22 developing countries during 1998-2006 was studied by Kilavuz and Topcu (2012). Their study revealed that developing economies with high-technology manufactured exports experience high economic growth. This means that there is a positive relationship between high-technology manufactured exports and economic growth. This study they suggest that foreign trade policy must be adopted. The study suggested that foreign trade policies that encourage high-tech manufacturing exports are important for sustained economic growth. Furthermore, Bbaale and Mutenyo (2011) carried a study to investigate exports composition and economic growth in Sub-Saharan African and economic growth. The study sampled 35 Sub-Saharan African economies. The technique of generalised methods of moments (GMM) estimator was used for analysis. The study reveals that manufactured exports is positively but not significantly linked to per capita income. More generally a number of factors have been identified in this literature section above. These factors relates to specifically studies conducted in Africa and econometric methods applied. Empirical studies on manufactured exports and economic growth have shown mixed findings on the topic. Most of previous studies such as Amakom (2012), Bbaale and Mutenyo (2011) did not consider the investigation within SADC region. To the best knowledge of this paper it is the recent kind of study in SADC area.

3. Empirical Model Specification

Following a review on empirical literature on the relationship between manufactured exports and economic growth, the modified Abu-Qarn and Abu-Bader (2004) empirical model is specified as follows:

$$GDP_t = \beta_0 + \beta_1 lnGNS_t + \beta_2 lnMIM_t + \beta_3 lnTME_t + \varepsilon_t \qquad 1.1$$

Where: GDP_t = is the economic growth, GNS_t is gross national saving, MIM_t is the imports of goods and service, TME_t is total manufactured exports. Lastly, β_1, β_2 and β_3 are parameters for each variable explain above. All the exogenous variables from the above model they are expected to have a positive impact on economic growth.

4. Estimation Technique

4.1 Data

In order to investigate the relationship between manufactured exports and economic growth in SADC[1] region the following is done. The study uses a panel data for the period 1980 to 2012. Variables to be used are gross domestic product, gross national saving, imports of goods and total manufactured exports. Data for this study is obtained from the International Monetary Fund (IMF), World Development Indicators (WDI) and World Trade Organisation (WTO) websites.

4.2 Econometric Methodology

According to Baltagi (2008) panel data refers to pooling of observations on a cross section over several time periods. Since that it is well documented that the investigation with univariate cointegration fails at some point due to limitations of time series. Gogas, Plakandaras and Papadimitriou (2014) argues that panel data analysis is set in order to allow for the use of more observations and more degrees of freedom on test statistics and appropriate power for the corresponding tests to reject the null hypothesis if possible. The study employ the panel cointegration techniques that can be used to determine if economic growth, gross national saving, imports of goods and service and total manufactured exports in panel system. This study uses the Petroni's panel cointegration test and Kao panel cointegration test. This two panel cointegration types which is Petroni's test and Kao test uses residual based analysis for cointegration and assume one cointegrating vector. Engle and Granger (1987) constructed a test with assumption that when the residual of the regression of variables is I(0) is said to be stationary. In the same sentiments of Engle and Granger (1987) the Petroni's cointegration proposes the residual based test on the following equation:

$$y_{it} = \gamma_i + k_{it} + \lambda_i \chi_{it} + \varepsilon_{it} \qquad 1.2$$

$$\varepsilon_{it} = \psi_i \varepsilon_{it-1} + \omega_{it} \qquad 1.3$$

Where for $i = 1,.., N$ for each unit in the panel, $t = 1, ..., T$. γ_i is the fixed effects and λ_i is the slope coefficient allowed to change across individual units. From equation 1.3 ψ_i is the autoregressive coefficient of the residual ε_{it} from equation 1.2. Petroni's cointegration proposed seven panel cointegration tests which are divided in two dimensions (Petroni, 1995). The first dimension examines the case where equation 1.3 $\psi_i = \psi = 1$ for all units, against the null statement of "no cointegration". The test statistics under the first category (within-dimension) are; panel v-statistics, panel rho-statistics, panel PP-statistics and panel ADF-statistics. Under the second category (between-dimension) is the group PP-statistics, group

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[1] All the SADC countries are included to the sample except for Mozambique and D.R Congo due to data unavailability.

rho-statistics and group ADF statistics. The study is making use of all seven test statistics to make a decision whether there is Petroni's contegration between variables by looking at the majority test statistics that confirmed the existence of cointegration. To confirm the robustness of panel cointegration from Petroni, the study also uses Kao test. The test uses the identical elementary approach as the Petroni test, but the Kao specifies cross-section specific constant and homogeneous coefficients on the first stage regressors. Kao (1999) specified a residual based test of cointegration within the panel data by applying the DF and ADF type tests. As Kao cointegration derives two types of panel cointegration, the first DF test type can be computed from residuals estimated as:

$$\mu_{it} = \rho\mu_{it-1} + \varphi_{it} \qquad\qquad 1.4$$

Where for ADF test type can be estimated in the following model:

$$\mu_{it} = \rho\mu_{it-1} + \sum_{j=1}^{p} \theta_j \, \Delta\rho\mu_{it-j} + \varphi_{it} \qquad\qquad 1.5$$

Where the residuals μ_{it} are obtained from the long run equation. Now the null and alternative hypothesis may be written as follows: $H_0 : \rho = 1$ for all i (null hypothesis) $H_1 : \rho < 1$ for all i (alternative hypothesis). From these hypothesis it can be learned that the null hypothesis specifies that no cointegration (assuming existence of unit root in the residuals) against the alternative assuming stationarity in the residuals.

Once the study has confirmed that cointegration relationship exist among the variables, the following step is to determine the long run parameters. For that reason the current study uses the panel fully modified OLS (FMOLS) and panel OLS (DOLS). Kao and Chiang (2000) argued that these two estimators correct the standard pooled OLS for serial correlation and endogeneity of regressors that are normally present in the long run equilibrium. FMOLS is a non-parametric system and it takes in to consideration the possible correlation between error term and first difference of the regressors. The test also consider the presence of the constant term to deal with corrections of serial correlation. The panel FMOLS estimator for long run parameters is defined as follows:

$$\beta_{i.FMOLS} = N^{-1} \sum_{i=1}^{N} \quad \left[\sum_{i=1}^{T}(x_{it} - \check{x}_{it})^2\right] \quad ^{-1}\left(\sum_{t=1}^{T}(x_{it} - \widetilde{x_\iota})\, y_{it}^* - T\tau_i^-\right) \, 1.6$$

Where:

$y_{it}^* = (x_{it} - \check{y}_i) - \frac{\widetilde{L_{21\iota}}}{\widetilde{L_{22\iota}}}\Delta x_{it}$, described as the transformed variable of y_{it} in order to achieve the endogeneity correction,

$\tau_i^- = \acute{\Gamma}_{21} + \Omega_{21\iota}^{\acute{0}} - \frac{\widetilde{L_{21\iota}}}{\widetilde{L_{22\iota}}}(\acute{\Gamma}_{21} - \Omega_{21\iota}^{\acute{0}})$ also describe as the serial correlation term and L_i is a lower triangular decomposition of Ω_i (i.e. long run covariance matrix) is explained as follows:

$$\Omega_i = \begin{bmatrix} \Omega_{11} & \Omega_{12} \\ \Omega_{21} & \Omega_{22} \end{bmatrix} \qquad 1.7$$

DOLS estimation approach is entirely parametric and it gives a computationally convenient alternative. One of the shortfalls of using the DOLS estimators is that degrees of freedom are lowered by leads and lags. The DOLS estimator is achieved from the following equation:

$$y_{it} = \alpha_i + \beta i X_{it} + \sum_{k=q}^{q} c_{ik} \Delta X_{it+k} + \mu_{it}; \qquad t = 1, \dots T \quad i = 1 \dots \dots N \quad 1.8$$

Where α_i denotes country specific effect and c_{ik} is the coefficient of a lead or lags of first differenced exogenous variables. Lastly; μ_{it} is the error term which assumed to I(0). The parameter estimates of DOLS is as follows:

$$\beta_{i.DOLS} = \left[N^{-1} \sum_{i=1}^{N} \left(\sum_{t=1}^{T} Z_{it} \dot{Z}_{it} \right)^{-1} \left(\sum_{t=1}^{T} Z_{it} y_{it}^* \right) \right] \qquad 1.9$$

Where $Z_{it} = (x_{it} - \bar{x}_i, \Delta x_{it-k}, \dots \dots \Delta x_{it+k})$ is the $2(k+1) * 1$ vector of regressors.

To study the panel causality relationship a vector error correction (VEC) model is estimated. The current study uses panel causality proposed by Holtz-Eakin, Newey and Rosen (1988). Also Pradhan (2009) argues that if variables are I(1) and not cointegrated, the study uses the following models to investigate the relationship:

$$lnGDP_{it} = \theta_0 + \sum_{j=i}^{p} \beta_{1i} lnGDP_{it-j} + \sum_{j=1}^{p} \beta_{2i} lnTME_{it-j} + f_{yi} + \in_{it} \quad 2.0$$

$$lnTME_{it} = \delta_0 + \sum_{j=i}^{p} \gamma_{1i} lnGDP_{it-1} + \sum_{j=1}^{p} \gamma_{2i} lnTME_{it-1} + f_{xi} + \ni_{it} \quad 2.1$$

Where $lnGDP_{it}$ and $lnTME_{it}$ it is a measure for economic growth and total manufactured exports respectively. $i = 1, 2, \dots N$ are cross sectional panel data; $\in_{it}$ and $\ni_{it}$ are error terms; f_{yi} and f_{xi} are individual fixed effects and p is the lag length. When the first difference is considered in order to remove the fixed effect, the models becomes as follows:

$$\Delta lnGDP_{it} = \theta_0 + \sum_{j=i}^{p} \beta_{1i} \Delta lnGDP_{it-j} + \sum_{j=i}^{p} \beta_{2i} \Delta lnTME_{it-j} + ect_{yi-1} + \in_{it}$$
2.2

$$\Delta lnTME_{it} = \delta_0 + \sum_{j=i}^{p} \gamma_{1i} \Delta lnGDP_{it-1} + \sum_{j=i}^{p} \gamma_{2i} \Delta lnTME_{it-1} + ect_{xi-1} + \in_{it}$$
2.3

Where Δ indicate the first difference of the variables under study, ect_{yi} and ect_{xi} are respectively the residuals from the cointegrating equation. Where the above equations 2.2 and 2.3 are estimated in a case where variables under study I(1) and cointegrated. In most time series and panel data analysis it is important to determine the panel order of integration in variables before estimated their cointegration. The literature provides a wide range of tests for panel unit root frameworks. For the current study the tests are employed to investigate the order of

integration in panel data set. The study employs Levin, Lin and Chu (LLC) (2002) and Im, Pesaran and Shin (IPS) (2003) panel unit root tests.

5. Empirical Results

This section gives the results for panel analysis for this study. The study first starts by descriptive analysis to unit root analysis. After understanding the order of integration for each variable the study continues to undertake panel cointegration and causality testing. In most every econometric analysis is very important for a researcher before any in-depth analysis to first explore data. Appendix A and B[1] present the line graphs for each variable at levels and first difference. To test the existence of unit root in panel data, Table 1 present the results from two tests of LLC and IPS unit root test. The upper part is the results for LLC test and below is IPS test results. The equation type is based on individual effect and also individual effect plus trend. Table indicates that both common and individual tests for the variables, except gross national saving variable are non-stationary at levels. They become stationary at first difference, and this means that they are I(1). This implies that GDP I(1), MIM I(1), TME I(1) whereas GNS I(0). The results of the Petroni panel cointegration test are reported in Table 2. The table is divided into three columns, where the first column is the within and between dimension statistics, second column is the panel t-statistics and lastly is panel probability.

Table 2 shows that under the first dimension category all the test statistics are significant at 5% significant level, except for panel rho-statistics which is not significant at 5%. The second category shows the results for between dimension statistics, and indicates that Group PP-statistics and Group ADF-statistics are statistically significant at 5% except for Group rho-statistics which is not. Eventually this results implies that with majority of test statistics there is long run panel cointegration between economic growth, gross national saving, imports of goods and services and total manufactured exports (5 out of 7 test statistics confirmed existence of cointegration).

Table 1. Panel unit root results for variables GDP, GNS, MIM and TME

Levin, Lin & Chu Test	levels		First difference	
	Individual effect	Individual effect + trend	Individual effect	Individual effect + trend
LogGDP	2.165 (0.984) -1.704	-0.405 (0.342)	-13.579 (0.000) ***	-15.237 (0.000) ***
LogGNS	(0.044) ** 3.921	-2.874 (0.002) **	-19.531 (0.000) ***	-16.893 (0.000) ***

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[1] These appendix A and B are available from the author on request

LogMIM	(1.000)	-1.404	-13.454	-11.104
	1.308	(0.080)	(0.000) ***	(0.000) ***
LogTME	(0.904)	0.409	-14.774	-12.836
		(0.659)	(0.000) ***	(0.000) ***
Im, Pesaran and Shin Test	Individual effect	Individual effect + trend	Individual effect	Individual effect + trend
LogGDP	5.508	0.600	-11.444	-12.500
	(1.000)	(0.725)	(0.000) ***	(0.000) ***
LogGNS	-3.943	-3.426	-19.609	-18.159
	(0.000) ***	(0.000) ***	(0.000) ***	(0.000) ***
LogMIM	6.975	-1.235	-14.177	-12.985
	(1.000)	(0.108)	(0.000) ***	(0.000) ***
LogTME	1.818	-1.598	-16.146	-14.582
	(0.965)	(0.054)	(0.000) ***	(0.000) ***

//*// 10% statistically significant //**// 5% statistically significant//***// 1% statistically significant

Table 2. Petroni panel cointegration results

Within-dimension statistics	Panel t-statistics	Panel probability
Panel v-Statistic	2.204	0.013 **
Panel rho-Statistic	-0.818	0.206
Panel PP-Statistic	-2.144	0.016 **
Panel ADF-Statistic	-2.199	0.013 **
Between dimension statistics	Panel t-statistics	Panel probability
Group rho-Statistic	-0.121	0.451
Group PP-Statistic	-3.072	0.001 ***
Group ADF-Statistic	-3.023	0.001 ***

//*// 10% statistically significant //**// 5% statistically significant//***// 1% statistically significant

Table 3. Kao panel cointegration results

Statistics methods	t-Statistic	Probability
ADF	-5.184	0.000 ***
Residual variance	0.018	
HAC variance	0.015	

//*// 10% statistically significant//**// 5% statistically significant//***// 1% statistically significant

Table 3 presents the results for Kao panel cointegration results. The table shows that the first column reports the statistics methods, second column is t-statistics and the last column is the probability values. According to the results, the Kao ADF t-statistics is -5.1846 for panel analysis and it is significant at 1% significant level. This implies that the study reject the null hypothesis that no panel cointegration existing among the variables in the study. This means that there is long term

equilibrium between economic growth, gross national saving, imports of goods and service and total manufactured exports according to Kao panel test.

After the analysis confirming the long run equilibrium relation existing among variables under study. The long run impact of gross national saving, import of goods and total manufactured exports on economic growth is estimated. The study uses the two types of estimation methods which is fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS). According to Tintin (2009) there is no consensus in the literature which method between FMOLS and DOLS can be used instead of the other.

Table 4. FMOLS and DOLS results

Dependent variable: LOGGDP

Independent variables	Parameter coefficients (FMOLS)	Parameter coefficients (DOLS)
LogGNS	0.033 (1.660) *	0.025 (1.2657)
LogMIM	0.780 (15.612) ***	0.709 (14.921) ***
LogTME	0.001 (0.103)	0.002 (0.1819)
Adjusted R-squared	0.999	0.999

/*/ 10% statistically significant /**/ 5% statistically significant, /***/ 1% statistically significant

Table 4 above presents long run coefficients where the dependent variable is economic growth. The first column records the independent variables and the second column is the parameter coefficients of the explanatory variables. From the table above the values in the brackets are probabilities and others are coefficients. The results of FMOLS shows total manufactured exports have a positive impact on economic growth. It can be postulated that a 1% increase in total manufactured exports will lead to 0.0015% increase in economic growth. The results also show that there is a positive relationship between gross national saving and economic growth. A 1% increase in gross national saving will lead to 0.03% increase in economic growth. The results lastly shows that there is a positive relationship between imports of goods and economic growth, the coefficient shows that it is statistically significant at 1%. Table 4 also presents the long run coefficients for DOLS, where the dependent variable is economic growth. The DOLS results show that there is a positive relationship between total manufactured exports and economic growth. Also there is a positive relationship between gross national saving and economic growth and is not statistically significant. The coefficient for imports of goods is 0.70, suggesting that a 1% increase in imports will lead to 0.70% increase in economic growth. Following the results of the study from the two panel cointegration methods, the concept of causality is tested. It is very important to estimate causality within VEC since there is a confirmation of cointegration between the variables under study.

Table 5. Panel granger causality results

Null hypothesis	Chi-square	P-value
ΔLGNS does not granger cause ΔLGDP	1.006660	0.6049
ΔLGDP does not granger cause ΔLGNS	4.446286	0.1097
ΔLMIM does not granger cause ΔLGDP	10.46232	0.0057 ***
ΔLGDP does not granger cause ΔLMIM	35.10436	0.0000 ***
ΔLTME does not granger cause ΔLGDP	1.876968	0.3921
ΔLGDP does not granger cause ΔLTME	9.289324	0.0102 **
Jointly independent variables cause ΔLGDP	14.37702	0.0276 **

//*// 10% statistically significant//**// 5% statistically significant//***// 1% statistically significant

From table 5 above the study presents panel granger causality results for SADC communities. It can be seen from the results that there is causality running from economic growth to total manufactured exports. This means that between the two variables there is uni-directional causality running at 5% significant level. Causality is also running from imports of goods to economic growth and vice versa. This implies that there is bi-directional causality between imports of goods and economic growth in SADC. Lastly the result indicates that jointly the exogenous variables granger cause economic growth at 5% significant level.

6. Conclusion of the Study

The purpose of this study was to investigate the relationship between manufactured exports and economic growth in SADC area. This investigation was motivated by lack of empirical work in this area especially for SADC countries. The investigation of the study covers the period of 1980 to 2012 on an annual basis. The study applied three panel cointegration techniques to rely on a more robust results. The results indicate that in all panel cointegration methods applied they confirmed the existence of cointegration among the variables assumed. In an effort to study the parameters of variables of interest it was found that both the method of DOLS and FMOLS are consistent. The results from panel analysis also confirm that there is a positive relationship between economic growth and total manufactured exports. The study furthermore investigated panel causality, and it was found that causality is running from economic growth to total manufactured exports at 5% significance level. Based on the results of the study it is recommended for policy implication that policy makers in SADC countries should increase total manufactured exports in order to improve economic growth. It appears that manufactured export promotion is a feasible economic growth strategy.

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