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Foreign Direct Investments (FDI) and Economic Growth: Empirical Evidence from Southern Africa Customs Union (SACU) Countries

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ABSTRACT

Foreign direct investment (FDI) has been regarded as one of the important factors that stimulate the economic growth in most of the developing countries. However, fewer studies have explored the issue in the case of African region. This study examines the impact of FDI on economic growth for the Southern Africa Custom Union (SACU) countries namely; Botswana, Lesotho, Namibia, South Africa and Swaziland. Employing panel data from the period of 1980-2010 and using Dynamic Ordinary Least Squares (DOLS), the findings reveals satisfactory evidence that there is a positive and significant impact of FDI on the economic growth for the SACU countries.

Keywords: FDI, economic growth, custom union, dynamic ordinary least squares

INTRODUCTION

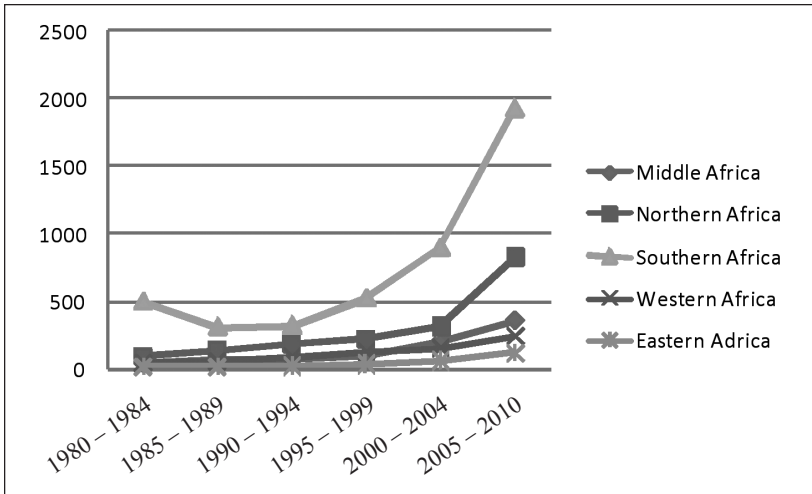
A sustainable economic growth is highly determined by the investment level, which is eventually depends on the extent of saving rate of the country (Solow, 1956). In Africa as a whole, the saving rate is quite low which make it difficult for these countries to finance various development projects to enhance the economic growth of the region. In order to fill this gap, countries' rely mostly on foreign direct investment (FDI) as an alternative measure for domestic investment. In recent years, developing countries implemented various economic reforms to restructure their economies in order to achieve higher economic growth and development. These reforms included liberalizing their economies to allow free inflows of foreign capital, especially from the developed and emerging countries. This resulted in a dramatic increase of FDI inflows to African countries.

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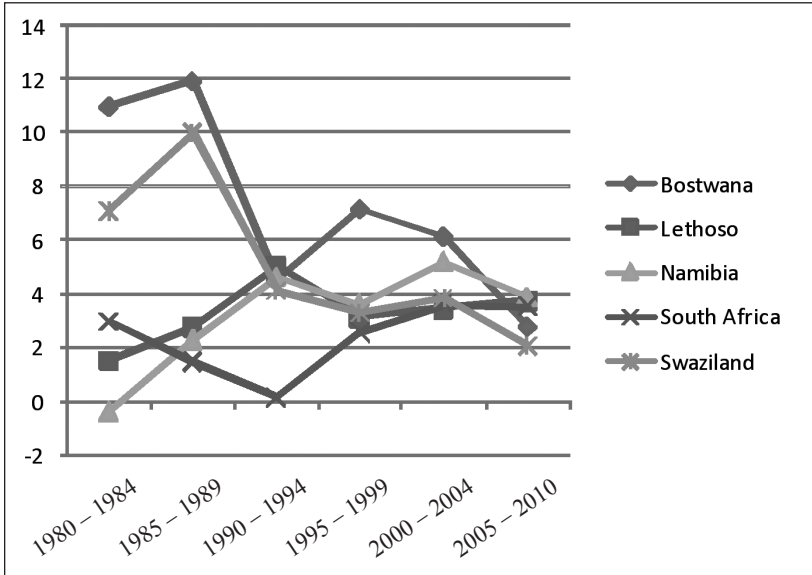
There is consensus among scholars and policy makers that FDI is crucial for economic growth in the developing countries (Magus and Fosu, 2008). This is because there are several positive spillover effects from FDI. FDI transfers several benefits for developing countries through various forms namely; transfer of technology, expertise, and know-how, enhancing domestic production, reducing production cost, efficiency in management, restructuring of the domestic investment, increased competition through merger or acquisition (M & As) and creation of more employment opportunities. All these spillovers eventually stimulate the economic growth of the countries (Dupasquier, 2006).

Current FDI trend shows that African region is receiving relatively less FDI compared to developed and other developing countries. Nevertheless, beginning early 2000s the pattern shows a slight increase in FDI flows into African region especially to resources rich countries. Within the African region as a whole, the inflows of FDI into Southern Africa Customs Union (SACU) region is relative high compared to other regions (Figure 1). However, despite receiving substantial inflows of FDI, the economic performances of the SACU member countries were still low and unstable. In 2008, the region as a whole registered 3.54 percent of growth on average but dropped drastically to -1.73 percent in 2009. In 2010, the economic performance bounced back and recorded 3.03 percent growth. Prior to 1990s, Botswana and Swaziland are the high performers compared to other member countries in the SACU (Figure 2). After 1990s, only Botswana and South Africa experienced tremendous economic growth. For the period of 1995 until 2004, Namibia and Swaziland recorded an improvement while the other member countries experienced declining trend with Botswana registering a massive drop in the growth. In the recent period, all the member countries recorded more or less similar growth with Lesotho and Namibia surpassing the rest by registering slightly higher growth.



Source: UNCTAD Online Database, 2010

Figure 1 Trend of FDI Inflows to Africa Region (US\$ millions), 1980-2010



Source: World Development Indicators Online Database (2010)

Figure 2 Average Growth Rate in SACU Countries (percentage), 1980-2010

The inconsistency between the flows of FDI and the growth rate experienced by the SACU countries shows that there is a need to explore empirically the FDI-economic growth nexus. Theoretically, it is widely acknowledged that FDI contributes to economic growth; however, empirical findings on this issue are rather inconclusive. Therefore, the present study intends to examine empirically the relationship between FDI and economic growth for the SACU countries. This to verify whether the empirical finding is in line with the current trend of FDI and economic growth observed in the SACU countries. This paper is organized as follows. Section 2 provides the review of related literature while Section 3 discusses the empirical methodology, which includes theoretical framework, model specification, data sources, and estimation procedures. Section 4 discusses the empirical results based on DOLS. Finally, Section 5 concludes the paper with some policy implication.

REVIEW OF LITERATURE

FDI-growth nexus is the most debated issue in recent years. While there is consensus on the theoretical outcome of FDI on economic growth but on the empirical aspects the findings seems to be inconsistent or mixed.

Empirical findings consist of both studies that have found positive and negative relationship between FDI and economic growth. For instance, Balasubramanyam *et al.* (1996) analysed the relationship between FDI and economic growth in developing countries using cross sectional data and ordinary least square (OLS). They found that FDI has positive impact on the developing countries that have adopted export-oriented strategy but not on countries that have implemented import-oriented strategy. Meanwhile, Borensztein *et al.* (1998) examine the impact of FDI and economic growth by focusing on the role of technological diffusion on 69 developing countries. The finding indicates that FDI is an important driving factor for the transfer of technology, which eventually contributes more to the economic growth than the domestic investment. This study concludes that FDI has positive impact on economic growth, but the amount of the growth depends on the availability of human capital. By improving the study De Mello (1999) includes both developing and developed countries. He found that there is a positive impact of FDI on economic growth for both the developed and developing country.

Likewise, Li and Liu (2005) using a panel data consisting of 84 countries found that FDI has both direct and indirect impact toward the economic growth. Furthermore, the study pointed out that the positive impact on economic growth is stronger when it is interacted with human capital. Some studies explored the impact of FDI by different economic sector. For instance, Alfaro *et al.* (2004) examine

the impact of FDI on economic growth in three sectors, namely; primary sector, manufacturing sector and services sector. The study found that the benefits of FDI vary greatly across the sectors. FDI in primary sector tend to have negative impact on growth, manufacturing positive and inconclusive for the services sector. Akinlo (2004) in the case of Nigeria using error correction model (ECM) conducted a similar analysis. The results shows that FDI in primary sectors does not enhance the economic growth, but FDI in manufacturing sectors stimulate the economic growth.

Moreover, Andreas (2006) employing both cross section and panel data on 90 countries for 1980-2002 found that FDI inflows contribute positively to economic growth in selected developing countries. Apergis *et al.* (2008) also analyse the importance of FDI inflow on economic growth for 27 transition countries using panel method. They found that FDI inflows exert positive impact on economic growth for those countries with higher income level and substantial privatization. A recent study by Samimi, Rezanejad and Ariani (2010) on 16 OIC countries concludes that FDI has indirect impact on economic growth in these countries.

In contrast, some studies have observed a negative relationship between FDI and economic growth. For instance, Fosu and Magnus (2006) found a negative relationship between FDI and economic growth for Ghana. Meanwhile, Herzer, Klasen and Lehmann (2008) also indicate that the relationship between FDI and economic growth in the selected sample countries is indistinct. Likewise, Apergis *et al.* (2008) also found that FDI exerts a negative impact on economic growth in the countries that have lower income level and ineffective liberalization policies. Similarly, a recent study by Yousaf *et al.* (2011) also observed a negative relationship between FDI and economic growth in the case of Pakistan.

The review clearly shows that, though, there are many studies on the issue of FDI and economic growth, the results are mixed and inconclusive. Moreover, most of the studies focused on either an individual country or a group of countries. However, very few studies have considered African region or countries specifically belonging to economic blocs in African region. Thus, this necessitates further work to be done in order to identify how FDI might affect growth of recipient countries, especially that of poor countries such as SACU countries.

DATA AND METHODOLOGY

Theoretical Framework

Theories on economic growth are largely derived from the classical work of Solow (1956). Due to some weaknesses on the key insights of Solow's exogenous model, Romer (1986) and Lucas (1988) introduced endogenous growth theory to complement the neoclassical growth model. Endogenous growth model is regarded

as more appropriate and relevant in explaining the sources of growth. The theoretical growth model begins with an aggregate production with three basic components namely output (Y), labour (L) capital (K) and technology (A) as below:

$$Y = AK^\alpha LAB^{(1-\alpha)} \quad (1)$$

Romer (1986) and Lucas (1988) argued that Solow model should be augmented to include human capital, as human capital is crucial for technology absorption and stimulation of the economic growth. The model is represented as follows:

$$Y = K^\alpha (AH)^{1-\alpha} \quad (2)$$

Besides human capital accumulation, the endogenous growth model also allows for inclusion of other variables such as government expenditure, exchange rate, inflation, labour, consumption expenditure, foreign aid, FDI, corruption, financial development, institutional quality, education, population growth and life expectancy (Barro; 1998, Anaman; 2004 and Kogid at el., 2010). The model specification for this study is derived from the production function formulated as follows:

$$Y_{it} = A_{it}K_{it}^\alpha LAB_{it}^\beta \quad (3)$$

Where Y_{it} is total output, Y_{it} represents total productivity factors, K_{it} represents capital, α is the output elasticity of capital; LAB_{it} represent labour force and β point out to be the output elasticity of labour force. From the equation (3), A refers to total productivity factors. It is observed that the factors have effects on the output through implementation of new technology. Since total productivity factor has an impact on total output (GDP) and depends on technology and efficiency to raise the output growth, it means that the impact of Foreign direct investment (FDI) towards economic growth can possibly be monitored through total productivity factor via the transfer of capital to the host country (Fosu and Magus, 2006 and Yousaf *et al.* (2011)). Transfer of the capital would take place through trade openness. Since, the objective of the study is to analyse the impact of FDI on economic growth; FDI and trade (TRD) were assumed as the function of total productivity factors. The model can be specified as follows:

$$LGDP_{it} = D + \beta_1 L K_{it} + \beta_2 LLAB_{it} + \beta_3 LTRD_{it} + \beta_4 LFDI_{it} + \varepsilon_{it} \quad (4)$$

Where GDP is real GDP per capita, K indicates capital stock, FDI is the Foreign Direct Investment, TRD is trade, LAB represents labour force, β represents the slope of coefficient of each variables which shows the amount of unit change in

the dependent variable to the one unit change of the independent variable and ε_{it} is the stochastic error term.

Variables Definition

Foreign Direct Investment (FDI)

FDI is believed by many policy makers particularly in Africa and developing countries to be a catalyst that stimulates economic growth in the regions. Empirical reviews have been showing positive relationship between FDI and economic growth (De Mello; 1999, Borenzetein *et al.*; 1998, Herzer *et al.*; 2008, Lumbila; 2005 and Samimi *et al.*; 2010). On the other hand, there are also scholars who found negative relationship between FDI and economic growth (Fosu and Magna 2006, Apergis *et al.*; 2008 and Yousafa *et al.*, 2011). FDI is measured by value of inflow in US\$. The expectation of this study is to have a positive and significant relationship between the two variables. Since there is higher inflow into SACU region, it is expected that the economic growth has increased in tandem.

Trade

Trade allows the movement of capital between the countries. Therefore, it is expected that import and export stimulates growth performance of a country. While import brings capital into a country, export results in outflow of raw material, oil and mineral as the primary factors for economic growth in most African countries. The study used the export and import to ratio of GDP to measure trade in SACU region (Akinlo, 2004; Fosu *et al.*, 2006; and Kotrajaras, 2010). The expectation from the result is for trade to have a positive impact towards economic growth.

Labour Force

labour force is believed to be one of the key factors that simulate growth. According to Solow, higher population will result in higher labor supply. However, he argued that labour can only stimulate growth in the short run. Empirical studies have also shown both positive and negative impact on economic growth (see, Fuso *et al.*, 2010). The proxy used for labour in this study was the population of middle class citizens. It is expected to have a positive impact towards economic growth in the SACU region.

Capital

Capital is also one of the factors that stimulate growth performance, according to the neoclassical model. According to Solow, an increase in capital will result in a rise in economic growth. The proxy used for capital is gross fixed capital formation. The results are expected to give a positive impact towards economic growth (Balasumramyam *et al.*, 1996; and Fuso *et al.*, 2006).

Data

All the data for this study was extracted from World Development Indicators (WDI) online database and United Nations Conference on Trade and Development (UNCTAD) online statistical database (2010). The period covered for the empirical analysis is from 1980 until 2010. Meanwhile the sample countries for the present study are member countries in Southern African Custom Unions namely Botswana, Lesotho, Namibia, South Africa and Swaziland.

Empirical Methodology

The objective of the study is to examine the impact of FDI on economic growth in SACU countries. The method used for the estimation is Dynamic Ordinary Least Square (DOLS). The application of DOLS consists of three stages. Firstly, a panel unit root tests are employed to check the stationarity of the variables. The unit root tests of Levin, Lin and Chu (2002), Im, Pesaran and Shin (2003) and Fisher Chi-square (ADF) were used to get the robust results. Secondly, if the variables are stationary after first difference, the next stage is to test for cointegration. The method used is Pedroni panel cointegration test (1999). Pedroni panel cointegration consists of two dimensions, which is: (i) within dimension based statistics [contain four tests: panel v -statistics, panel p -statistics, panel t -statistics (non-parametric) and panel t -statistics (parametric)]; (ii) between-dimension [referred as group mean panel cointegration statistics with three tests: group p -statistics, group t -statistics (non-parametric) and group t -statistics (parametric)].

Finally, if the variables are cointegrated, the Panel Dynamic Ordinary Least square (DOLS) is employed to examine the impact of FDI on economic growth. In this paper we used different number of leads and lags in order to get robust results

which are consistent with the theory and empirical review .The estimation model can be formulated as follow:

$$\begin{aligned}
 LGDP_{it} = & D + \alpha LK_{it} + \beta LLAB_{it} + \delta LFDI_{it} + \phi LTRD_{it} + \sum_{j=-q}^p \varphi_{ij} \Delta K_{it-j} \\
 & + \sum_{j=-q}^p \Phi_{ij} \Delta LAB_{it} + \sum_{j=-q}^p \partial_{ij} \Delta FDI_{it} + \sum_{j=-q}^p \varpi_{it} \Delta TRD_{it} + \varepsilon_{it}
 \end{aligned} \tag{5}$$

Where p and q are the numbers of lag and lead respectively. The use of lag and lead is to capture the serial correlation and endogeneity of the regresses so that an unbiased estimation could be obtained. The advantage of using DOLS is that even if the variables are cointegrated and have endogeneity problem, the results will be unbiased. In addition, DOLS do not require the use of instrumental variables and exogeneity assumption.

FINDINGS AND DISCUSSION

In this section, the findings based on DOLS are discussed. Table 1 and 2 show the results for unit root test (ADF, IPS and LLC test). The results indicate that we cannot reject the null hypothesis of unit root at level. However, after taking first difference we are able to reject the null hypothesis of unit root. Therefore, the results strongly indicate that all the variables are stationary at first difference I (1).

Table 1 Panel unit root results (Level)

Variables	ADF test		IPS test		LLC test	
	Statistics	P-value	Statistics	P-value	Statistics	P-value
LGDP	-0.152	0.439	-0.722	0.235	0.404	0.657
LK	0.103	0.541	-0.363	0.358	2.822	0.998
LFDI	0.825	0.198	-1.144	0.126	0.034	0.514
LTRD	1.167	0.878	0.738	0.767	0.730	0.613
LLAB	-0.266	0.395	-0.875	0.191	-20.017	1.000

Table 2 Panel unit root results (First difference)

Variables	ADF test		IPS test		LLC test	
	Statistics	P-value	Statistics	P-value	Statistics	P-value
LGDP	-3.410*	0.000	-3.824*	0.0001	-5.585*	0.000
LK	-4.428*	0.000	-4.598*	0.000	-5.365*	0.000
LFDI	-3.727*	0.000	-4.326*	0.000	4.854*	0.000
LTRD	-1.406**	0.079	-1.780*	0.037	-3.262*	0.000
LLAB	-3.997*	0.000	-1.296**	0.097	-8.592*	0.000

Note: * and ** denotes significance at 5%, 10%, respectively.

Next, we look at the Pedroni panel cointegration results. Table 3 shows both the within and group statistics for cointegration between the variables. The results indicate that we can reject the null hypothesis of no cointegration in panel v, panel ADF, panel PP, group PP, and group ADF statistics at 5 percent level of significance in constant and trend. Table 4 presents the results of FDI-economic growth model for the SACU countries based on DOLS estimator. The estimation requires the inclusion of leads and lags in order to avoid the autocorrelation problem and to capture the endogeneity of the independent variables. Therefore, initially the specified model is estimated using two years lags and two years leads (DOLS (2, 2)). In addition, the estimation used other set of the lags and leads, by using three years lags and one year lead (DOLS (3, 1)) in order to get the robust results. The estimated result shows that there is a positive and significant relationship between FDI and economic growth for the SACU countries. This implies that an increase in FDI inflow in SACU region will increase the economic growth of these countries as suggested by (Borenzetein *et al.*, 1998; De Mello, 1999; Herzeer *et al.*, 2008; Samimi *et al.*; 2010). The finding indicates that the structural economic reformation undertaken by these countries during the mid 1990s, to some extent, has improved the investment climate of the countries and eventually contributes positively to the economic growth as a whole. The results are consistent with the findings of Borenzetein *et al.* (1998), De Mello (1999), Herzeer *et al.* (2008), and Samimi *et al.* (2010).

Table 3 Pedroni panel cointegration results

Panel Cointegration Test		
Dependent variable =LGDP		
Independence variable =LFDI LTRD LLAB LK		
Statistics	Constant	Constant with trend
Panel v	0.150 (0.440)	3.161* (0.000)
Panel rho	0.236 (0.593)	2.534 (0.994)
Panel PP	-0.689 (0.246)	1.327 (0.907)
Panel ADF	-0.401 (0.344)	2.696* (0.003)
Group rho	1.269 (0.898)	-2.911 (0.998)

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Group PP	-0278 (0.390)	3.454* (0.000)
Group ADF	-2.424* (0.007)	-2.549* (0.005)

Note: * and ** denotes significance at 5%, 10%, respectively. Number in parenthesis () indicates p values.

In addition, the result also shows that capital stock and economic growth are significant and positively related. This reveals that an increase in capital stock will increase the economic performance of the region. This finding is supported by a study by Yousaf *et al.* (2011) which highlighted that economic growth will increase if there is an increase in the capital stock. However, the result on trade shows that there is a negative and significant relationship between trade and economic growth in the case of SACU countries. Meanwhile, labour force has a positive but insignificant relationship with economic growth.

Table 4 DOLS estimates of the long run effect of FDI on economic growth for SACU Countries

Variables	Model 1 DOLS (2,2)	Model 2 DOLS (3,1)
LFDI	0.085* (2.40)	0.073* (2.13)
LTRD	-0.359* (-4.89)	-0.340* (-4.63)
LLAB	0.735 (1.27)	0.220 (0.38)
LK	0.118* (2.32)	0.142* (2.76)

Note: ***, **, * reject the null of no cointegration at 10%, 5%, and 1% level respectively. Number in parenthesis () indicates t-statistics

CONCLUSION

This paper examines the FDI-economic growth link in the context of SACU countries. Using dynamic ordinary least square (DOLS), the finding shows that FDI has a positive and significant impact on the economic growth of the SACU countries. Besides FDI, capital stock also contributes positively to economic growth of these countries. This generally implies that, despite receiving less FDI compared to other developing countries in Latin American and Asia, the growth performance of SACU countries are to some extent linked to the flows of FDI. Therefore, this

study suggests that the SACU countries should increase further their integration at the bilateral and regional level to attract more FDI especially in the manufacturing sector, which is widely claimed to have more positive spillover effects on the host countries. Besides that, policy makers also need to put in place all the prerequisites that are conducive and attractive to foreign investors to ensure a stable inflow of FDI. Ensuring the political, economic and social stability are highly important for SACU countries and African region as whole to attract more foreign investment. By this, the economic growth will increase further and eventually helps the countries to achieve all the socioeconomic objectives outlined in the Millennium Development Goals (MDGs).

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