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Determinants of Foreign Direct Investment Inflows in Southern African Development Community (SADC) Member Countries

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Abstract:

We examined the determinants of Foreign Direct Investment Inflows in SADC member countries. The study employed Pooled OLS as the main estimation method and using data from the period 1995–2016. Our results revealed that infrastructure, trade openness and market size are positive and significant determinants of FDI inflows in SADC Countries. Results support the previous theory like Hecksehel-Ohlin (1933) and eclectic paradigm or OLI framework developed by Dunning (1980). However, human capital has positive insignificant and inflation has negative significant with FDI inflows for the SADC member countries. Therefore, SADC countries should promote trade agreements to facilitate exportation which has linked with industrial sectors, In addition, SADC countries should reform investment policy to attract more foreign inflow into SADC countries in the long run. The availability and reliability of the good infrastructure of attract many investors to invest in the region.

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Keywords: Foreign Direct Investment (FDI), Determinants, SADC, foreign inflow, Pooled OLS.

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1. Introduction

The FDI play significant role in the dependence of economic growth and development in many countries. The developing countries are the major beneficiaries of the adoption of the Multinational Corporation (MNC) policies in their countries by integrating the social and economic progress through various aspects such as political freedom, social justice, and environmental soundness, since the combination of these aspects facilitate the better living standard among the citizen within the countries due to economic development of the countries (Abimbola and Oludiran,2018; and Enisan, 2017). In early 1960's post Independence of many developing countries especial in Africa countries, they place the restriction of free trade and MNCs policies especial from developed countries under the sense to overcome the neocolonialism from the capitalism states. During the period of 1980's many developing African counties adopted the centralized economic policies by imposition of restriction of importation of goods and services from developed countries as a policy to protect the national's industries. In recent decade many African countries change the investment perspectives that, they recognize the tremendous benefits of FDI in the economic development by open up the market and adopt the MNCs through direct investment of foreign investors or public private partnership. Most of the policy makers acquired that the FDI has positive spillover effect to the economic development within the developing countries. According to the UNCTAD report 2006, more than 40 African Countries launched 57 new criterion affecting FDI, of which 49 encouraged inward FDI. Recently, developing countries reform their economic policies to achieve the rapid economic development. FDI inflow in Africa is forecast to increase in 2017, about of $65bil, due to increase of oil price in the world market and non-oil producers FDI. Since the establishment of Greenfield FDI in 2016 highly motivated in infrastructure, natural gas, renewable energy and inter regional economic cooperation, such Economic. (UNCTAD, 2017). Moreover, early studies highlighted different FDI determinants that impact the FDI inflow into developing countries such as availability of natural resources, political stability, good infrastructure, market size, human capital [Mupumpila and Okurut, 2012; Suleiman et al, 2015; and Vinesh et al, 2014].

Numerous studies have been done on the determinants of FDI through econometric models and data setting such as panel data and time series on Africa and economic block. They provide inconclusive results, it is necessitate to carry further studies especially regional economic block in Africa to explore the determinants of FDI inflows in SADC countries. This paper is structured as follows: Section 2 provides a review of related literature. Section 3 discusses the methodology, which includes model specification, data sources and estimation methods. Section 4 discusses the empirical results. The final section concludes with some policy implications.

2. Literature Review

Numerous both theoretical and empirical studies have been conducted on the determinants of FDI, including various scopes using different sample countries both developing and developed countries, methodology, time period and variables in examining the factors that determine FDI and failed to provide conclusive results. Theoretically, classical and neoclassical theories on FDI or multinational corporations (MNCs) have been developed by prominent scholars, such as Vernon's (1966) theory of the product cycle, (1973) dynamic comparative advantage, Hymer's (1978) industrialization theory, Kojima's Dunning's (1973; 1980) eclectic paradigm theory, Rugman's (1981) internationalization theory, and Markusen's (1997) knowledge and capital theory. Similarly, classical international trade

theory, such as the Ricardian model and the Hecksher-Ohlin model help to provide theoretical foundation on FDI. Conversely, the first theoretical model on the determinants of FDI or MNCs was developed by Dunning (1973; 1980) which is known as eclectic paradigm or OLI framework. In addition, OLI framework emphasizes three advantages, namely, ownership advantage, location advantage and internalization advantage in explaining the reasons of MNCs expand their business to other countries. Beside the theories highlighted previous scholars, earlier studies have focused on factors like country size, exchange rate, labor cost and political factors, including political instability (Aggarwal, 1980; Schneider and Frey, 1985). In addition, some studies have also emphasized on the role of tax policy, trade policy and foreign investment policy in explaining FDI inflow to host country. For instance, Dondashe, N. and Phiri, A. (2018), examined the determinants of FDI by including variables such as market size, economic growth, trade balance and wage rate. Study conducted by concluded that GDP per capita, the inflation rate, government size, real interest rate variable, and terms of trade have been directly influence the FDI inflow. Likewise Hemed and Suleiman (2017) indicated that the East African countries region should remain their economies open to attract more potential investors for improving economy and to achieve the desired objectives. Abimbola and Oludiran (2018) indicated that the infrastructure development attract the FDI inflow, since the the better the infrastructure the higher the probability of attracting the multinational corporation investment. Furthermore, Suleiman et al (2015) examined the determinant of FDI inflows for the SACU countries and the results reveal that market size, natural resource availability and trade openness are positive and significant determinants of FDI for the SACU member countries. Vinesh et al (2014) indicated that trade openness, gross domestic product, natural resources and secondary school enrolment rate are the most significant determinant of foreign direct investment for Southern African Development Community.

In line with above review, it is evident from the empirical review that numerous studies explore factors influence the inflows of FDI into host countries. Although presence of large number of studies carried out in developing countries, there is no consensus on any particular factor consistently affecting FDI inflow. Inconclusive results are produced from different empirical studies.Thus, the present study intends to complement the existing literature by examining the factors that attract FDI inflows into SADC countries.

3. Methodology

3.1 Theoretical Framework

There are various scholars addressed the various theories on the motive of foreign direct investment (FDI). Hecksehel-Ohlin (1933), on neoclassical theory which explain the factor endowment. The theory explained the comparative advantages to the firms, such as market size influence the foreign investor to inject the capital in host country. Meanwhile some scholars address that the ownership advantage as the one among the determinant for capital inflow from foreigner investors in host country (Buckley and Casson 1976 and Krugman 1980). According to Dunning (1980), developed a frame work called OLI frame work Ownership, Location and Internationalization as important components for FDI, market seeking, resource seeking and efficiency seeking as motive of FDI (Dunning 1993). The ownership advantage is required to be owned by the company itself, by taking the advantage with their competitors especial on the low cost of production and earn the higher profit in relation with their competitors within the market. Location advantages occur when the firm enjoys the market factor, economic factor and political stability factor.

Other theoretical factor developed by Grossman and Helpman (2000), the FDI determinant of FDI is based on the investment risk diversification, according the father of finance W. Buffet on the market portfolio that "don't put all eggs in the same bucket". The concern of serious investor go outside of local market to diversify the risk and attain the highest return, always the investors be sensitive with market risk (controllable and non controllable risk), such as interest rate, inflation and exchange rate risk. The higher the interest rate affect the return on investment and reduce the FDI inflow, the cost of investment of a particular multinational firm will be higher due to appreciation of currency in host country.

3.1.1 Model Specification

As mentioned earlier, the objective of study to identify the determinants of FDI in the 13 SADC countries. Following the theoretical and empirical framework of Ranjan et al. (2011), the model can be specified as follows:

$$LFDI_{it} = \alpha + \beta_1 LMS_{it} + \beta_2 LTO_{it} + \beta_3 LINF_{it} + \beta_4 LHC_{it} + \beta_5 LINFR_{it} + \varepsilon_{it} \quad \text{.....(1)}$$

$LFDI_{it}$ = log of net inflow of FDI in current US$ to the ratio of GDP for country i at time t.
LMS_{it} = market size (log of GDP per capita of country i at time t)
LTO_{it} = trade openness (the sum of export and import to the ratio of GDP for each country i at time t).
$LINF_it$ = inflation rate (annual percentage as proxy of economic stability in country i at time t)
LHCit = human capital (labor as proxy of country i at time t)
$LINFR_{it}$ = infrastructure (number of main telephone lines per 1000 people in a country i at time t).
εit = the error term
The analysis used secondary data from the World Development Indicators database statistical database of 2018 covering period of 1995 to 2016.

3.2 Empirical Methodology

The main method used for estimating the model are static linear panel analysis (pooled OLS, fixed and random effect). Panel data technique consists of three methods, namely; fixed effect, random effect and pooled effects. Fixed and random effects model are homogenous in the slope and each unit (i) is represented by different intercept. The pooled OLS is assumed the countries bear the homogenous characteristics, that no technological difference, locations and other factors. However the random and fixed effect believe that the countries bear the heterogeneity characteristic by introducing the intercept and other parameters which likely to vary among the countries. Since the Breuch Pagan test favor the alternative hypothesis that the countries hold the homogeneity characteristics, since the pooled OLS as best estimator and random effect is insignificant estimator.

If the data are homogenous in intercept and the slope across both time and cross section, this type of data represent pooled model. We can write pooled OLS model as follows:-

$$Y_{it} = \alpha + \beta X_{it} + v_{it} \quad \text{.....(2)}$$

Where *i* represent 1...*N* and *t* represent 1...*T*
Where *yit* the dependent is variable, *Xit* is the independent variable and *vit* is the stand error term. Random effect model has homogenous slopes although the intercepts are not the same both in time and cross section. The panel effect model can be represented by the following.

$$Y_{it} = \alpha + \beta X_{it} + v_{it} \quad \text{.....(2)}$$

$$v_{it} = \lambda_{it} + \mu_{it} \quad \text{.....(3)}$$

$$Yit = \alpha + \beta X_{it} + \lambda_{it} + \mu_{it} \quad \text{.....(4)}$$

Where *i* represents 1…*N* and *t* represent 1….*T*, *λit NIID*~ (o, 2 *vm*), *μit NIID*~ (o, 2 *vn*). In the model, idiosyncratic error (*vit*) is formulated by two items; unobserved effect of *λit* and statistical error term *μit*. The *λit* is assumed to be independent of idiosyncratic error term and explanatory variable where as idiosyncratic and explanatory are also independent of each other at time from cross section (*i*) and time (*t*). This means that E(*Xit* , *λit*) = 0.
At same time Hausman test was conducted to test whether the random or fixed affect hold, the result show that the random effect is the best estimator instead of fixed effect. The serial correlation was conducted to check whether there is correlation between independent variables and error term.

4. Finding and Discussion

The table 3 presents the descriptive statistics. There are 250 number of observation. The highest mean value inflow and lowest mean value are FDI and trade openness respectively and FDI and human capital have highest and lowest standard deviation respectively. The trade openness has negative mean value. The descriptive statistics show that there is variation among the African countries on mean value and standard deviation.

Table 3:Descriptive Statistics

Variables	Mean	St. Deviation	Min	Max
FDI Inflow	18.26	2.79	0	22.62
Inflation	4.20	0.58	1.91	5.41
Infrastructure	1.52	2.76	-4.79	5.09
Trade openness	-0.66	0.58	-2.30	0.80
Market size	15.87	1.86	11.23	18.44
Human capital	4.19	0.28	3.39	4.54

Source: Authors computation

The mean values of inflation, Infrastructure and market size are 4.20, 1.52 and 15.87 respectively. While the standard deviation of 0.58, 2.79 and 1.86 for inflation, infrastructure and market size respectively.

The table 4 shows the regression result from pooled OLS, random effect (REM) and fixed effect model (FEM). The estimation result show that there is significant positive correlation in infrastructure, trade openness and market size by 1%. This imply that increase in one percent of variables mentioned the FDI increased by 0.56%, 1.41 and 0.93% respectively and significant negative correlation in inflation by 1%. In addition, The result is agreed with Dunning frame work that market size influence the FDI inflow that the FDI in East Africa countries is highly influence by market seeking in nature. The finding concurs with the (Petrović-Ranđelović et al, 2017; and Kaliappan, 2015). in addition, The adoption and expansion of trade literation and free trade policies especially adopted mid of 199'0 among the African countries driven the FDI inflow (Suleiman et al. 2015, Kariuki, 2015) by creating the conducive environment that attract the investors to inject the capital.

Table 4: Results of estimated models of determinants of FDI

Variables	Pooled OLS	REM	FEM
Constant	5.75(1.03)	4.91(0.86)	9.36(0.22)
Inflation	−1.88(−2.91)***	−1.62(−2.50)*	0.75(0.87)
Infrastructure	0.59(3.42)***	0.54(3.28)***	0.37(2.20)
Trade Openness	1.41(3.63)***	1.32(3.18)***	−0.92(−1.29)
Market Size	0.93(7.38)***	0.90(6.51)***	0.19(0.07)
Human Capital	1.47(1.53)	1.53(1.53)	0.53(0.38)
R^2	0.7569	0.7553	0.3236
Breuch-Pagan test		0.74(0.2462)	
Hausman test			13.65(0.0180)
No of Observations	35	35	35

***, ** and * denote 1%, 5% and 10% significant level respectively. Values in parenthesis denote the t-values.

The result also indicate that, infrastructures concur with theory of comparative advantage, that the investors prefer to invest in countries which have comparative advantages the coefficient of the variable act as factor for the FDI inflow. The result is consistent with the finding of Kaliappan (2015) and Abimbola and Oludiran (2018). The inflation have negative effect on FDI since negative significant of FDI concur with the finding of (Gharaibeh, 2015; and Arbatl. 2011).

Table 5: Result Pooled OLS using Robust Standard Error
Dependent variables: FDI inflow

Variables	Coefficients
Constant	5.76(0.76)
Inflation	−1.88(−2.80)***
Infrastructure	0.59(2.64)
Trade openness	1.41(2.75)*
Market size	0.93(5.42)***
Human capital	1.47(1.03)
No of observations	35
R^2	0.7569

***, *** and * denote 1%, 5% and 10% as a significant level respectively. Value in parenthesis denote the t-value

Table 5 show the result of pooled robustness standard error, that market size and trade openness are significant at 1% and 10% respectively, the countries with large market size attract the investment in comparison with the countries with low market size. Since the large market the higher the inflow of FDI(Kaliappan et al. 2015; and Suleiman et al. 2015). The countries which implement the trade restriction can discourage the FDI compared with the countries which implement a trade liberation and free trade policies. In contrast, inflation has a negative significant with FDI by 1%, the infrastructure and human capital have positive insignificant with FDI inflows (Mupumpila and Okurut, 2012).

5. Conclusion

We examined the determinants of FDI inflows in SADC countries. We use the panel data analysis, the pooled OLS as main method and the data covered 21 years from 1995 to 2016. Our results reveal that infrastructure, trade openness and market size are positive and significant while human capital is positive insignificant, and the inflation is negative significant with FDI inflow. Results support the previous theory like Hecksehel-Ohlin (1933) and eclectic paradigm or OLI framework developed by Dunning (1980). This implies that the FDI inflow in SADC countries is driven by infrastructure, trade openness and market size. We recommend that the countries should expand market by adoption and liberation of free trade within the African countries. Furthermore, SADC countries should promote trade agreements to facilitate exportation which has linked with industrial sectors, as result will expand the market by reducing the transportation cost, taxes and other duties. such strategy will create employment opportunities to the youth; increase income per capital and national saving. In addition, SADC countries should make an amendment of policies and regulations to attract more foreign inflow into SADC countries in the long run. The availability and reliability of the good infrastructure of attract many investors to invest in the region. Last but not least, inflation has negative correlation with FDI, the higher the price index the lower the multinational corporation within the region, this because the macroeconomic instability always increase the cost of investment and decrease the return on investment within the region. Therefore the countries should control the price index for long term period.

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APPENDIX: List of countries in the sample

COUNTRY		
Angola	Mauritius	Zambia
Botswana	Mozambique	**Zimbabwe**
Congo (DR)	Namibia	Tanzania
Lesotho	South Africa	
Malawi	Swaziland	

Source: Authors

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