

DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN KENYA

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Abstract: *Due to the enormous benefits associated with FDI in the receiving nations, it is essential to understand the factors that affect the flow of FDI to be able to formulate and implement appropriate foreign investment policies. This study investigated the role of real interest rate, trade openness, real effective exchange rate, rural population, urbanization and economic performance of neighboring countries in East African Community on attracting FDI in Kenya. The second objective of the study was to find out the nature of relationship that exists between the independent variables and FDI. The results showed that economic performance of the neighbouring countries, real interest rates and urbanization were found to positively influence the flow of FDI to Kenya though they were insignificant. Urbanization and economic performance of neighbouring nations positively influenced the flow of FDI while rural population had a negative effect on the flow of FDI. Moreover, GDP was found to negatively and significantly affecting the flow of FDI to Kenya contrasting previous studies that found that GDP positively and significantly affected the flow of FDI to Kenya. The Johansen Cointegration showed that the variables affected economic growth in the long-run. The study relied on secondary data from Kenya National Bureau of Statistics (KNBS), Kenya National Treasury and World Development indicators from the World Bank database was used.*

Keywords: *Foreign Direct Investment, Urbanization, Rural Population, Economic Performance*

1.1 Introduction

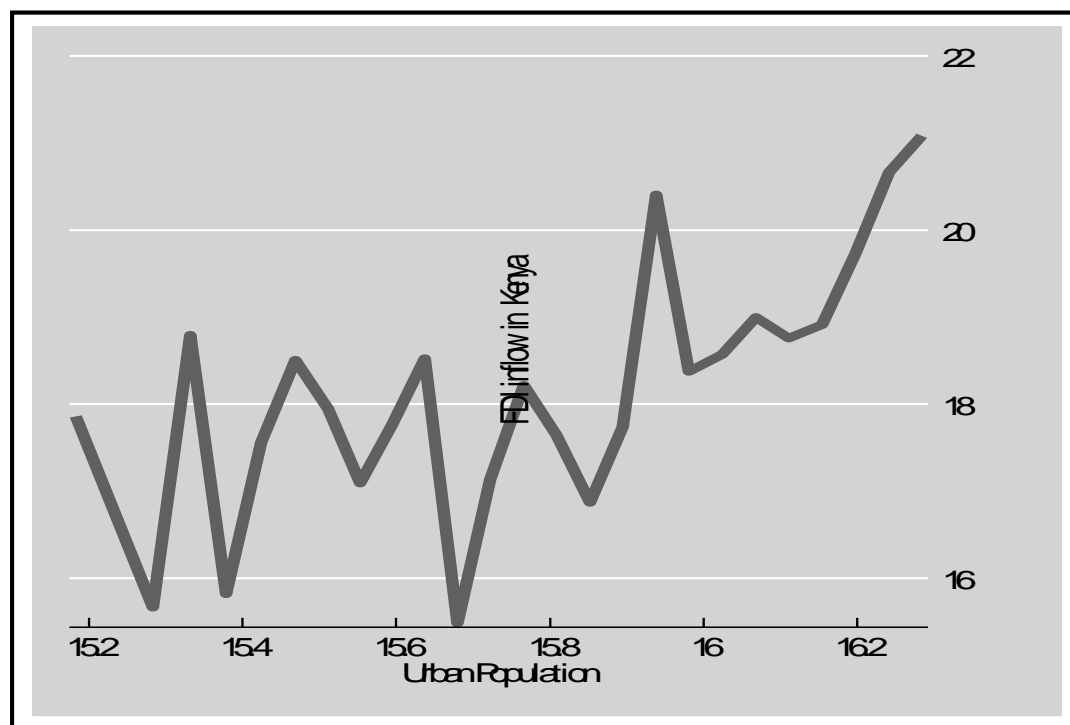
Foreign Direct Investment (FDI) is defined as the net inflows of investment to acquire a lasting management, interesting an enterprise operating in an economy other than that of the investor. This is usually 10% or more of what is referred to as voting stock which offers stockholders the right to vote on matters relating to the company management such as policy, electing members of the directorial board or any other (World Bank, 1996). The idea is that lasting management interest is an indication of the long-term relationship between the investor and the investing enterprises in which the investor is actively engaged in the management of firms.

Much of the investments in Kenya are Belgium, China, India, Israel, Japan, Mauritius, Netherlands, South Africa, the United Kingdom, and the United States. Kenya is the third largest beneficiary of FDI inflow in East Africa after Ethiopia and Tanzania. Ethiopia had \$2.1 billion, Tanzania \$1.5 billion, Kenya \$1.4 billion and Uganda \$1 billion (UNCTAD, 2015) since independence. Also according to World Development Indicators (2009), net FDI to East Africa (Kenya, Tanzania, and Uganda), increased from the US \$8.8 million in 1988 to \$1.9 billion in 2007. However, most of these inflows tend to go to the natural resource sector; according to UNCTAD, out of US \$516.7 million in FDI inflows to Tanzania in 1999, US \$345.3 million went to mining and petroleum. The main sources of FDI UK, US, India, and China.

Urbanization versus flow of FDI in Kenya

Urbanization defined as the process by which people leave the countryside to live in the cities has been seen to change societies in the world and particularly in Africa. Statistics show that African is urbanizing fast. Urban residents have increased from 14% in 1950 to 40% today. It is forecasted that 50% of people in Africa will be dwelling in cities (World Bank, 2016). It is projected that the number of people living in cities will be about 56% in the year 2050. Despite the fact that the urbanization is significantly transforming societies, however, little attention has been paid to effective measures to harness the potentiality (Economic Outlook, 2016). African nations are urbanizing at a fast rate historically and consequently considerable opportunities and challenges. Further, urbanization results to structural transformation, if coupled with productive employment and enough public goods. Divergent African urbanization is evident from one nation to another which that that unplanned urbanization can challenge structural transformation (African Economic Outlook, 2016).

Figure 1: FDI Inflow in Kenya versus Urbanization for the Period 1990-2015



Source: UNCTAD, FDI/MNE database

Figure 1 above shows the relationship between the flow of FDI to Kenya and urban population growth rate for the period (1990-2015). There is a positive relationship with an upward trend which indicates that the FDI increases with the increasing population for the last 25 years. This depicts some kind of influence of FDI flow by the population moving to cities. Current urbanization patterns should be more sustainable for economic, social and environmental development. High costs of environmental degradation in urban areas are large and increasing, adding to the economic and social challenges of urbanization.

Government of Kenya Investment Policies

Due to the important role played by the FDI, Kenyan government has put appropriate policy measures as part of her commitment to attracting more foreign direct investments into the country since independence. Seasonal paper No.10 1965 on African socialism and its application in national planning described policy incentives and

macroeconomic reforms implemented adopted between 1965-1985 and this promoted import –substitution strategy. This was reversed by Session paper No.10 of 1986 which was export oriented strategy concentrating on main exports. In the same year, there was the formation of Investment Promotion Center (IPC) was later renamed Kenya Investment Center(KIC) tasked with promoting FDI inflows by marketing Kenya as the best investment destination through the provision of a necessary environment for doing business and a legal requirement in terms of acquiring business licenses.

There has been a legal framework which was part of the enactment of investment promotion act 2004 in line with vision 2030, described as Kenya's development program for the time period 2008-2030. It is aimed at making Kenya a newly industrialized, middle-income state through providing quality life to all in a clean and secure environment. Some features of this act includes the appropriate tax and customs incentives, wave on the training costs depending on the type of and size of the firm which shows government commitment towards attracting and maintaining the flow of FDI into the country. The act also outlines the ways of removing the internal hindrances into the country which include a favorable business environment for investors. Various institutions mandated to marketing and promoting FDI include Kenya Investment Authority (Ken Invest), Export processing zones Authority and Ministry of Finance. This act further outlines the economic sectors which are restricted such as insurance, telecommunication, and those listed on the NSE. The others are allowed to be fully owned by the foreigners (GoK, 2001).

Macroeconomic reforms which were listed in the Kenya investment guide which was published by Kenya Investment Centre (KIC). This has seen government efforts in maintaining macroeconomic stability and its recovery since 2003. Issues such as low inflation, stabilized exchange rate and low interests rates enhances confidence (GoK, 2003). Efforts by the Kenyan government have borne positive results and as a result, Kenya is the most preferred destination for investments in East Africa.

Role of FDI in Kenya

FDI plays an important role in the receiving country which make it vital in policy formulation. According to Todaro (1977), FDI results to increased efficiency, benefits of free market mechanism, solves the problem of savings deficiency, foreign exchange inadequacy, revenue gap, and issues relating to management. Further, FDI brings about new technology which results to new production techniques as well as diversification of output and production of variety of products which are exported (DeMello, 1997; Mweya, 2009; Feldstein, 2010). Capital investments increased incredibly from USD 914.92 million in 2012 to USD 3,378.98 million in 2013 (Ken Invest, 2014). Indirect functions of FDI in the economy include employment creation to the labour force employed in the foreign firms. For instance, jobs created through FDI in Kenya rose to 8,223 in 2013 from 2,491 in 2012 (Ken Invest, 2014). According to Economic Survey (2014), FDI accounted for 1.2% on Kenya's gross domestic product GDP. Due to the enormous contribution of FDI, appropriate measures should be taken to ensure a constant flow of FDI and hence the study.

Different studies carried out in this area such as (Hasli et al., 2015; Abala, 2014; Blonigen et al., 2014; Ballard et al., 2013; Wanjala, 2001 and Asiedu, 2006) established that FDI and economic growth are market-seeking and requires growing the gross domestic product, political stability, good infrastructure, available markets for the goods, low debt levels, trade openness, low lending rates, rate of return on capital investment, reduced level of corruption and taxation policy. Increased number of crimes and insecurity were found to be great stumbling blocks to foreign direct inflows and economic growth. However, these studies were contradicted by the Kwoba et al., (2016) who found that inflation, exchange rate, and GDP had an insignificant impact on FDI flow and as a result, they concluded that FDI flow was affected by other market forces.

Furthermore, FDI seems to be affected by a myriad of factors in different regions in the world. Previous studies have not exhausted on the key drivers of FDI flow and as a result and Kenya being among many other nations has not reached their desired levels of FDI for optimizing associated benefits. In fact flow of FDI in Kenya has been fluctuating from one period to another (UNCTAD, 1990-2015).

Researchers have adopted different methods of analysis in their studies and data types in their study for the FDI flow. Hasli et al., (2015) using panel data employed fixed effect model, Blonigen et al., (2014) Bayesian statistical technique while, Njoroge (2015) used descriptive analysis for primary collected data. As a result, they have reached to different conclusions. Tools of analysis used could have been the main sources of varying results.

Following the contradiction on the past studies on the role of GDP, exchange rate and the inflation rate in the flow of FDI, this study seeks to provide more insight on their role towards the FDI flow and additionally incorporate urbanization, rural population and economic performance of the trading partners in East Africa region as new factors. Use of different methods and data types could have been the source of different conclusions. Since FDI is time-dependent, this study seeks to use time series data in the analysis with most recent data up to 2015 because it takes into account the concept of time. This makes the results more reliable.

LITERATURE REVIEW

2.1 Empirical Review

Hasli, Catherine et al., (2015) carried out the analysis of the factors that determined FDI inflow in Asia in 1993-2013 using fixed effect model. Panel data was used applying unit root tests, integration analysis, and regression. Their findings established the lending rate, trade openness and money supply have a positive significance to FDI per capita whereas debt, unemployment rate and environmental pollution have a negative significance to FDI per capital. Similarly, Kahouli et al., (2015) established that FDI has major benefits in the host nation such as increasing labor productivity, the creation of employment, the introduction of new technology and productivity. Further, it leads to increased level of incomes.

Blonigen et al., (2014) using Bayesian statistical techniques indicated that cultural distance factors, relative labor endowments of a nation played an important role in attracting FDI. The study by Ballard et al., (2013) using data set with the bilateral foreign direct investments in which twenty-four organizations for Economic Cooperation and Development economies for the period 1985-2007. Their results indicated that nominal and real volatility had a great impact on the flow of FDI. Gross domestic product (GDP) and volatile exchange rate play a critical role in the potential investors to invest in a particular nation. The interest rates on the amount of capital investment. High returns on the capital investments lead to high levels of FDI.

Factors such as natural resources, market size, government policy, institutions and political instability have a role to play in the flow of foreign direct investment to Africa (Asiedu, 2006). Using data from investor surveys and in cooperating twenty-two countries in Africa for the time period 1984-2000 established that restrictions imposed on investments, unstable macroeconomic, levels of corruption and political instability negatively influenced the flow of FDI to Africa. Large markets and natural resources were the recipes to FDI flow. Further, low inflation rates, developed infrastructure, educated human capital, openness, low levels of corruption proper legal system and political stability encourage the flow of FDI.

Batana (2011) noted that the main econometric results obtained in this study showed that domestic investment, literacy and degree of openness affected FDI flows to West African Economic and Monetary Union countries (WAEMU). According to Kwoba et al., (2016), inflation, exchange rate, and GDP did not have a significant

impact on foreign direct investment. The findings seemed to contradict findings by other studies and thus concluded that FDI is affected by other market factors. Time series data were analyzed using SPSS to obtain the relationship between the variables.

An empirical study by Njoroge et al., (2015) established that there was a significant relationship between corporate governance and FDI inflows in the manufacturing sector. Odero (2015) in his study to find out challenges of FDI in Turkana County found political instability to adversely affect the flow of foreign FDI in the country. Abala (2014), for the period 1970-2010 while studying the key drivers of real GDP in Kenya, he found out that FDI and economic growth are market-seeking and requires growing the gross domestic product, political stability, good infrastructure, available markets for the goods and reduced level of corruption in a country.

Ajayi (2007) identified market size and growth, costs and the skills of workers, availability of good infrastructure, country risk, openness, institutional environment, natural resources, agglomeration effects, returns on investment, macroeconomic policies among others as factors that affect the flow of FDI. Mwege et al., (2007) using panel data for forty-three countries found that Kenya was not different from other countries and that FDI is determined by growth rates, terms of trade shocks, external debt ratio and quality of institutions. Similarly, UNCTAD (2005) report established that Kenya’s inability to attract FDI was associated with serious issues of corruption and governance, economic policies considered inconsistent, and structural reforms, poor public service delivery as well as bad infrastructural development.

A critical review of the literature has shown that FDI in developing world and particularly Kenya is affected by inflation, real exchange rate, political instability, external debt levels, labor costs and institutional quality and particularly corruption. Studies carried out have pointed out that there is a need for further research in examining the factors that influence FDI in Kenya given the fluctuations which have been evident in different time periods (Njoroge et al., 2015; Elly et al., 2013; Kinuthia, 2010 & Prague, 2008) . There seems to be a unanimous view that countries that invest in other nations must possess some economic advantages.

RESEARCH METHODOLOGY

3.1 Theoretical Model

For the purpose of this study, the flexible accelerator model by Chenery et al., (1952) which explains the decision by firms on investments was adopted. According to them if a firm expects high output depending on the past output, then they invest because this results in high economic benefits. The relationship between investment and output need not be limited but can be affected by other variables. The motivating factor for firms to invest and in this case is either domestically or in foreign countries is the expected output from the capital invested. The model makes use of lagging in its adjustment process between capital stock and output for its operationalization.

$$KE = K(Y, UC, PO) \dots \dots \dots 3.1$$

Where; *KE* -Capital stock at equilibrium, *Y* -Level of output, *UC* -User Cost and *PO* -Price of output. According to this theory assumes, firms make a decision on the amount of capital stock to invest based on all past output levels in which weights are declining geometrically and this is called lag investment.

$$K_t = g(Y_t, Y_{t-1}, Y_{t-2} \dots Y_{t-n}) \dots \dots \dots 3.2$$

It is the equilibrium capital stock

This theory implies that capital is expanded until its real user cost which is represented by c/p and captured in equation 3.1 above, equals to marginal profit or benefits. It is important to note that this model is purely presented mathematically and thus it is non-generalizable and the model has no economic basis and thus the use of lagged, independent variable results to unreliable results because Y_t and Y_{t-1} are related. However, this model is useful in the sense that it admits that there are other variables that output is not the only factor that influences investment.

Model

Investment is as a result of changes in capital stock.

$$I_t = K_{t+1} - K_t + \beta K_t \dots \dots \dots 3.3$$

Where

I_t – is gross investment, K_t -Capital stock at time t, K_{t+1} -Capital stock at period t+1, I_t^n – Net investment and I_t^r – Replacement investment

This means that

$$I_t = I_t^n + I_t^r \dots \dots \dots 3.4$$

But I_t^r is replacement investment which is expressed as $I_t^r = \alpha K_t$ which is the provision for depreciation of capital while I_t^n is a net investment over time. The Equilibrium capital stock KE is inversely proportional to the real cost of capital.

Using output function by Cobb-Douglas, the output function is defined as below:

$Y = AK^B L^{1-B}$. The theory is expanded until the real user cost, expressed as $\frac{c}{p}$ equals marginal product. Therefore the marginal product of capital K is;

$$MPK = \frac{c}{p} \dots \dots \dots 3.5$$

There is no trend in real user cost of capital and thus net investment is

$I_t^n = \Delta KE$. This is what is called the basic accelerator principle.

The basic idea in this theory is that investment is related to output and thus the total investment can be expressed as;

$$I_t^n = K_t - K_{t-1} = \infty(Y_t - Y_{t-1}) \dots \dots \dots 3.6$$

The nation is composed of both domestic investments and FDI which for the total investments for locals and foreigners.

$$I_t^n = (I_f^n + I_d^n) \dots \dots \dots 3.7$$

Where I_f^n is FDI and I_d^n is the domestic investment

3.2 Model Specification

Based on the adopted theory and particularly equation 3.8 investment is influenced by variation capital stock in the country and output. Suppose that total investment in a country come from FDI. This study has introduced urbanization, economic growth of the selected countries (Ethiopia, Uganda, and Tanzania) as new factors using the most recent data.

The model was modified as:

$$Z = f(REER, INF, TR, GDP, NGDP, UNZ, RPZ) \dots \dots \dots 3.8$$

Due to problems of heteroscedasticity which results to biased estimators, natural logarithm is used to curb this and increase the reliability of the results. Upon transformation by taking the natural logarithms, the following model will be used for estimation:

$$\ln Z_t = B_0 + B_1 \ln INFL_t + B_2 \ln REER_t + B_3 \ln RIR_t + B_4 \ln NGDP_t + B_5 \ln GDP_t + B_6 \ln UNZ_t + B_7 \ln RPZ_t + B_8 \ln TO_t + E_t \dots \dots \dots 3.9$$

This study used the OLS estimation technique after testing for Normality, Multicollinearity, Stationarity and Cointegration. These pretests were undertaken to ensure that the coefficients are best linear unbiased estimators.

Secondary data from Kenya National Bureau of Statistics (KNBS), Kenya National Treasury and World Development indicators from the World Bank database was used. KNBS publications; Economic Surveys and Statistical Abstracts was used to extract data on the tea export earnings and tea export prices over the specified period.

RESULTS AND DISCUSSION

4.1 Descriptive Statistics and Normality test

Table 1 below gives a summary of basic characteristics for the variables of the study in the specified time period 1980-2015. The FDI stock mean of USD1.47e+08 with as standard deviation of USD. 2.81e+08. The highest value of FDI stock was USD1.22e+09 and the least recorded as USD -1803112. GDP growth rate was 3.78% and the standard deviation of 2.33%. The highest growth rate achieved was 8.4% annually while the least was -0.79%. In factoring the NGDP which included Uganda, Tanzania and Ethiopia by averaging their economic growth rate annually, the mean 4.87% and a standard deviation of 3.61%. However, the highest averaged growth rate was 9.51% and the least at -4.82%. In measuring the price levels inflation was used and it stood at 12.44% and its standard deviation was 8.75%. The highest inflation rate achieved was 45.98% while the least was as low as 1.55%. The mean for the REER was 90.39% and the deviation was 17.25%. The data collected showed that 134.92 was the highest amount level of REER and 58.46 was the lowest. UNZ measured as the percentage of the entire population in Kenya had a mean of 4.48% and a standard deviation of 0.23%. The highest level of urbanization was 5.01% and the lowest was 4.04% in the Kenyan case. RPZ expressed as the percentage of the total population had an average of 80.44% and the standard deviation of 3.20%. In the same, the greatest number of people who lived in the rural areas in Kenya was 84.42% and the smallest was 74.38%. The summation of imports and exports as ratio of the GDP whose highest level was attained was 0.088 and the lowest was 0.0045 was the measure of TO. The mean was 0.0192 and the standard deviation of 0.0194.

Apart from the RPZ which has a negative value and its skewed to the left, the rest GDP, NGDP, INF, REER, UNZ, RIR and TO are positive hence skewed to the right. Normality test showed that GDP, REER and RIR were distributed while the rest Z, RPZ, UNZ, NGDP, INF and TO did not follow normal distribution.

Table 1 Summary of Descriptive Statistics

Variable	Mean	Std.dev.	Min	Max	Skewness	Kurtosis
Z	1.47e+08	2.81e+08	-1803112	1.22e+09	2.697375	9.495387
GDP	3.789997	2.332717	-0.79949	8.402277	-.1799954	2.064406

NGDP	4.871674	3.611569	-4.81691	9.507245	-0.756466	2.837679
INF	12.44272	8.75313	1.554328	45.97888	1.878419	7.418904
REER	90.39194	17.24629	58.4600	134.92	0.676531	3.227418
RIR	7.440417	6.695364	-8.00986	21.09633	0.068579	2.759432
UNZ	4.480247	0.228938	4.043507	5.012678	0.827142	3.340947
RPZ	80.43994	3.195857	74.37800	84.417	-0.384142	1.819834
TO	0.019219	0.019427	0.004520	0.088160	1.974133	6.629421

4.2 Diagnostic Tests

The study went ahead and carried out the second test by dropping TO and all the variables were found not to have Multicollinearity. Therefore dropping TO solve the problem of Multicollinearity. Unit root test showed that LnGDP, LnNGDP and LnINF were stationary before differencing. That is to say that they were stationary at order zero i.e. I (0). However, LnZ, LnUNZ, LnREER, LnRIR, TO and LnRPZ were found to be stationary after the first difference i.e. Integrated at order one .I (1). The, the variables in the model have a long run relationship towards equilibrium. Thus, the non-stationary time series in their levels give results which are sensible and do not suffer from spurious errors.

4.3 Level Regression Results in the Long-Run

We estimated the OLS since it is flexible, easy and successful to use in time series analysis and hence justification for its use. The model is suitable for when the data is stationary. In the event that the data is found to be non-stationary, then this will called for differencing to make them stationary. Cointegration test was also carried to test for long run relation between the variables. Upon estimation, the results were changed to normal values by taking the antilog of each variable for easy interpretation.

	D.lnZ		
lnGDP	-0.694**	(0.202)	
lnNGDP	0.246	(0.216)	
LnINF	-0.367	(0.289)	
D.lnREER	-10.26***	(2.407)	
D.lnRIR	0.226	(0.248)	
D.lnRPZ	-380.9*	(139.8)	
D.lnUNZ	0.0128	(1.557)	
Constant	-0.289	(1.039)	
Observations	23	R-squared	0.7316
Adjusted R ²	0.457	Prob > F	0.0054

Standard errors in parentheses, Asterik (*) = Significance at 1%; () = Significance at 5%; (***) = Significance at 10%**

In examining the level and how the independent variables explained the dependent variable and in this case it is the FDI stock and how it is explained by the predictors, the results generated an R-squared of 0.7316. This indicates that 73.16% of the changes in the FDI stock is explained by the predictor variables. The coefficients of LnNGDP, D.LnRIR and D.LnUNZ were found to be positively related with FDI flow. D.LnTO was not indicated in the model because it was dropped to solve the problem of Multicollinearity. On the other hand,

the coefficients of $D.LnZ$, $LnGDP$, $LnINF$, $D.LnRIR$ and $LnRPZ$ were all negatively related the FDI stock. When all the explanatory variables had zero values, the FDI stock would decrease by 0.289% as captured by the constant value of the model. The dependent variables are discussed below by taking their antilog to take them back into their initial form for easy interpretation.

The FDI stock would significantly decrease by 2.00% when all other variables are constant and the GDP grew by 1%. Kwoba and Kibat (2016) who found that GDP affects the FDI significantly. On the other hand, the growth of the of economies of the neighbouring nations would by 1% rate would lead to 1.28% increase by the FDI Stock in Kenya. The indication is that when the economies of the countries whom Kenya is in the same trading blocs in the region and specifically in East Africa which include Ethiopia, Uganda and Tanzania improve leads to the increase of FDI stock though insignificantly. Inflation as one of the factor is negatively and insignificantly related to the FDI stock in Kenya. The results shows that a 1% increase in inflation would lead to a corresponding decrease in the FDI stock by 1.44%. Similarly, Increase in the Real Effective Exchange rate in Kenya by one unit would significantly decrease the FDI stock by 28,566.79 units. Batana (2011) similar to the findings of this study found that RER was negatively related to the flow of FDI. This therefore mean that if real exchange rate was proxies REER, then these findings is in agreement with his results that real effective exchange rate negatively affects the flow of FDI.

There was a positive and insignificant relationship between FDI stock and RIR; an increase by 1% in the Real Interest rate would lead to 1.25% increase in the FDI stock. Opolot et al., (2008) had similar findings that the expected rate of return on investment positively affect FDI inflows into the region Sub-Saharan Africa which is considered to be developing world. Urbanization was positively and insignificantly related to the FDI stock and 1% increase in the urbanization rate would lead to the increase of FDI stock by 1.01%. Economic Outlook (2016) outlined key roles played by cities in which economic role was one of them. Equally, increase in the rate of the people living in rural areas would lead to decrease in FDI stock in the country. The coefficient for this variable which was also found to be significant from the model estimated indicated that rural population plays a critical role in attracting investments to Kenya but negatively.

5.1 Conclusion and Recommendations

The main objective of this study was to investigate factors that determine the flow of FDI to Kenya using time series data for the time period 1980-2015 in which Cointegration test confirmed a long-run relationship. The OLS results showed that GDP was negatively and significantly affected the flow of FDI to Kenya contrasting previous studies by Abala (2014) who found that GDP positively and significantly affected the flow of FDI to Kenya. REER, INF and RPN was found to negatively and significantly influence the flow of FDI. The other factors such as GDP growth, NGDP, RIR and UNZ were found to positively influence the flow of FDI to Kenya though they were insignificant. The study also found among the new factors that included UNZ, RPZ and NGDP that play an important role with UNZ and NGDP having a positive influence on the flow of FDI while RPZ had a negative effect on the flow of FDI. Based on the study findings the study recommended that the government should come up with appropriate policies towards growing small towns to big cities so as to attract the firms to set up their branches in these areas. Secondly, the government should advocate for strengthening of the trading ties in EAC, IGAD and COMESA so that as their economies perform better, it becomes an economic advantage to Kenya in term of the flow of FDI. Thirdly, Kenya should also make the economy so open by being able to transact with other nations of the world through importation and exportation of goods and services.

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Appendix 1

Table 2 Normality Test -Shapiro-Wilk Approach

Symbol	W	V	Z	Pro>Z	Comment
Z	0.55112	16.368	5.845	0.00000	Not-Normal
GDP	0.96668	1.215	0.407	0.34195	Normal
NGDP	0.93066	2.529	1.940	0.02621	Not-Normal

INF	0.82714	6.303	3.850	0.00006	Not-Normal
REER	0.96137	1.409	0.716	0.23686	Normal
RIR	0.96231	1.374	0.665	0.25300	Normal
UNZ	0.88756	4.100	2.951	0.00159	Not-Normal
RPZ	0.91680	3.034	2.321	0.01015	Not-Normal

Appendix 2

Table 3 Test for Multicollinearity

Variable	Model with Multicollinearity		Model without Multicollinearity	
	VIF	1/VIF	VIF	1/VIF
LnTO	17.39	0.057509		
LnRPZ	33.66	0.029708	6.32	0.158221
LnREER	9.88	0.101170	6.02	0.166008
LnRIR	2.92	0.343024	2.07	0.482973
LnUNZ	2.12	0.471716	1.96	0.511079
LnGDP	2.03	0.492791	1.78	0.562168
LnNGDP	1.96	0.510519	1.43	0.697854
LnINF	1.78	0.562050	1.42	0.702752
Mean VIF	8.97		3.00	

Appendix 3

Table 4 Stationarity test

Variable	Levels		Order of differencing	Difference	
	Statistic	Comment		Statistic	Comment
LnZ	-2.669	Non Stationary	1	-8.259 ***	Stationary
LnGDP	-5.405***	Stationary	0		Stationary
LnNGDP	-3.839***	Stationary	0		Stationary
LnINF	-4.553 ***	Stationary	0		Stationary
LnREER	-0.356	Non Stationary	1	-6.709***	Stationary
LnRIR	-3.374 **	Non Stationary	1	-6.311***	Stationary
LnUNZ	-3.031**	Non Stationary	1	-6.175***	Stationary
LnRPZ	11.279	Non Stationary	1	-5.010***	Stationary
LnTO	-2.821*	Non Stationary	1	-5.098***	Stationary

Asterisk (*) = Significance at 1%; () = Significance at 5%; (***) = Significance at 10%**

Table 5 Cointegration test

Variable	Symbol	T Statistics	1% Critical Value	5% Critical Value	10% Critical Value
Residuals	RESID	-6.193	-3.750	-3.000	-2.630