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ECONOMETRIC ANALYSIS OF THE DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN EAST AFRICA (2005-2015: CASE STUDY OF KENYA, UGANDA AND RWANDA

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Abstract

Despite EAC countries' constant efforts to increase foreign direct investments, they have experienced a mild increase in FDI overtime and the low share of FDI to GDP. The general objective of this study was to analyze the determinants of FDI inflow among the selected EAC countries. Specifically the study analyzed the effects of macroeconomic factors and institutional factors on FDI inflow. The study used secondary panel data from government reports, IMF and World Bank. Granger Causality Tests was computed to determine the relationship between the variables under study. Panel unit root test and multiple regression analysis were conducted to study the effects of institutional and macroeconomic factors on FDI inflow. Findings revealed that institutional factors have a negative effect on FDI inflow while macroeconomic factors have

mixed effects. The study recommended that EAC countries should strengthen their institutions mandated to handle security and corruption maters through resource provision. They should also set up more industries and reduce importation of expensive products and encourage importation of cheap industrial inputs and use of locally available inputs. National Banks should also regulate the interest rates charged by banks taking into account the survival of both financial institutions and borrowers.

Keywords: Foreign Direct Investment, Macroeconomic Factors, Institutional Factors, East African Community, Granger Causality, Panel Regression

INTRODUCTION

It is widely recognized that foreign direct investment (FDI) contributes greatly to a country's economic growth and its integration in the world economy. This is because it increases the country's capital base which is needed for investment, improves managerial skills, job creation and technological exchange. The domestic structure of a country's economy plays a major role in determining whether the net effects of FDI are positive or negative. FDI has grown in the world economy overtime and for some developing countries is the largest and most stable source of private capital for development, accounting for nearly 50 percent of all those flows (UNCTAD, 1999).

Given the expected role of FDI in enhancing socioeconomic transformation, countries are generally interested in attracting it. Most countries are therefore taking steps to improve their scores on the principal factors influencing the location of choices of foreign direct investors. Emerging and developing economies have thus realized the potency of FDI as the panacea for stimulating aggregate demand and are positioning themselves as preferred investment destinations (World Bank, 2003).

In recognition of the role of FDI in economic transformation, researchers and policy makers are interested in those factors that can swing FDI one way or the other. They also want to know its effect on the domestic economy, by asking if FDI actually leads to development in all cases and at all times.

There are at least four different motives for firms to invest overseas. First, is market-seeking investment, which aims to access new markets that are attractive in size, growth or both. Second, is efficiency-seeking investment, which aims at production that is cost effective. Some of the factors these investments look at are the cost of labor, the skills of workforce, the cost and quality of infrastructure and administrative costs.

Third, is strategic-asset seeking investment, geared towards man-made assets which take the form of mergers and acquisitions where a foreign firm takes over a domestic company that possesses such assets. Finally, is natural-resource seeking investments, which seek to exploit the natural resource endowment of countries, such as, countries endowed with minerals (UNCTAD, 2008). These motives however are never considered alone as they combine to determine FDI location based on profitability (Ajayi, 2006).

Foreign Direct Investment in Africa

During the last decade and a half, African economies grew at nearly double the rate of the 1990s. However, the commodity boom obscured a key weakness in African economic performance – slow manufacturing growth. Productivity increased in Africa, after 2000, happened without the deep structural change that shifts labor from low to high productivity jobs (McMillan et al., 2014). Moreover, the recent wave of trade globalization and FDI in manufacturing has largely passed Africa by. In a period when most developing countries' shares of global manufactured exports have more than doubled, Africa's has stagnated in the low single digits.

Rather than being a leading sector, manufacturing in Africa has been lagging. This has contributed to stagnation in growth potential and job creation in high value-added sectors, hampering economic growth (Ansu et al., 2016).

Increasing FDI can enable Africa to raise productivity and expand high value-added activities. Recent studies show that FDI can generate productivity spillovers, which in turn could create decent jobs and a sustained impact on growth and development in Africa. Making it easier and more attractive for foreign firms to invest in African manufacturing and high-value added services should therefore be a priority for governments and international donors.

The growing importance of global value chains and trade in "tasks" (intermediate goods and services) create new opportunities for FDI in Africa. To exploit these opportunities and attract FDI, the main constraints that need to be addressed are the poor quality of institutions, inadequate infrastructure, and policy-distorting price incentives. These actions must be accompanied by policies to increase FDI spillovers and backward linkages to support structural transformation and growth.

Trend in Foreign Direct Investment among selected EAC countries

Figure 1 shows the trend in foreign direct investment in Kenya, Uganda and Rwanda within the study period.

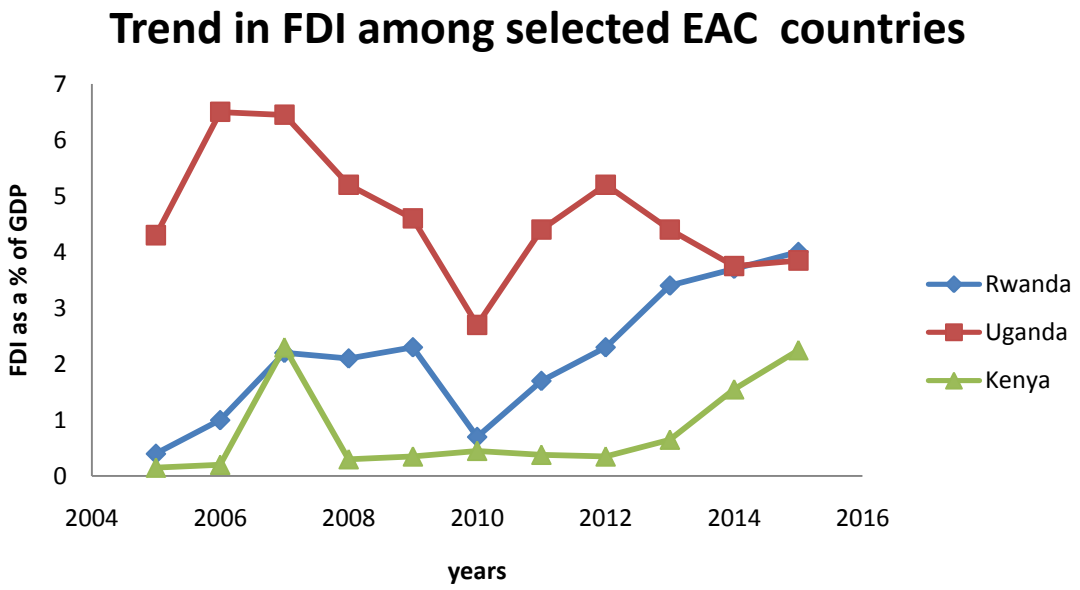

Figure 1: trend in foreign direct investment in Kenya, Uganda and Rwanda

Source: FDI reports from World Bank data

From the figure above, FDI as a percentage of GDP is highest in Uganda followed by Rwanda then Kenya. Uganda registers an increasing FDI inflow initially until 2006 beyond which it drops until 2010 then starts rising again until 2012 before it starts dropping afterwards. Generally there were fluctuations in FDI flow in Uganda within the study period though it was above other two countries that is Kenya and Rwanda. It recorded the highest FDI flow in 2006 and the lowest flow in 2010.

Rwanda comes second after Uganda in terms of FDI as a percentage of GDP. FDI flow had a rising trend initially until 2009; fell sharply for one year then picked up again in 2010 onwards. Rwanda recorded a steady rise in FDI flow from 2010 till 2015.It recorded the lowest percentage of around 0.2% of GDP in 2005 and the highest in 2015 of above 2% of GDP. This is an indication that Rwanda's policies geared towards attracting FDI are favorable though the percentage still remained considerably low. Rwanda recorded a massive drop in FDI flow in 2009.

Kenya is the last among the three countries in terms of FDI flow as a percentage of GDP. FDI flow was lowest in 2005 and increased sharply in 2006 before dropping massively again in 2007. Afterwards, FDI flow remained steadily low until 2012 when it started rising steadily until 2015 when it recorded above 2%. FDI flow was highest in 2006 and lowest in 2005. It dropped sharply in 2007 partly due to post election violence which brought the country

to a standstill. This may have affected FDI flow for quite a long time exhibited by a low trend in FDI in successive years till 2012.

Policy measures to attract FDI among EAC countries

Kenya, Uganda and Rwanda have come up with various social, political and macroeconomic strategies and reforms in order to attract FDI. In Kenya, continuity in governance reforms, investment in infrastructure, generation of more energy, and innovation, land reforms and human resource development (Republic of Kenya, 2007) overtime have continued to attract more FDIs.

Key macroeconomic fundamentals are also strong in Kenya. Inflation has been stable in the range of 5-7 percent. The exchange rate is largely stable although it has depreciated overtime from 86.3 Kenyan shillings (2013) to 90.6 Kenyan shillings (2014) and currently 101 Kenya shillings to the U.S. dollar as the U.S. dollar strengthened internationally. The Central Bank of Kenya (CBK) has held interest rates steady at 8.5 percent, although many banks do not pass lower rates promoted by CBK monetary policy on to consumers, which creates a drag on investment. Kenya has also maintained relatively stable fiscal policies with manageable debt levels and deficits (2015 investment climate statement-Kenya). These has seen Kenya's FDI increasing overtime.

The UNCTAD 2012 guidelines highlighted on the new competition framework, modernization of tax administration (e.g. online filing), simplification of business licenses and introduction of performance contracts as essential in attracting FDI and recommended immediate follow up. The report states that the adoption of a new Constitution and the consolidation of both political and economic stability will eventually provide renewed opportunities to put Kenya high on the FDI map. It recommended that more needs to be done in addressing foreign permits issues; moving forward with privatization of state enterprises and the development of Public Private Partnership (PPP) policy; developing an investment policy and implementing the FDI strategy; creating an advocacy network; and fostering regional integration to increase FDI.

Uganda has been going on with the privatization program of 2001 which has seen a few enterprises remain in state hands. This has attracted foreign investors heavily in Uganda. This saw 128 enterprises being privatized with the government remaining with only 37 enterprises by 2011.

Uganda is open to foreign investment and provides attractive incentives for medium and long-term foreign investors. The Heritage Foundation's 2010 Index of Economic Freedom ranked Uganda's economy 76 of 179 countries, and as the fifth freest economy of 46 countries

in sub-Saharan Africa based on the ease of doing business, openness to trade, property rights, and fiscal and monetary policy.

Rwanda has come up with strategies that have seen a tremendous increase in FDI overtime. Service delivery at RDB in terms of company registration has been digitalized such that there is faster and efficient registration of a Company without much bureaucracy as before. Exemption from import duties and sales taxes on imports of plant, machinery and equipment. Items which are zero import tax rated are exempted from sales tax otherwise payable on those goods, while, for items which are not zero import tax rated, a single flat fee of 5% of the value of the imported items is payable in lieu of all taxes and duties which would normally be imposed on such goods. Investment allowances of 30% of the value of invested capital during the first year of operations. Additional deduction from taxable income of 50% of training, research and product development costs. Companies that carry out micro finance activities approved by competent authorities pay corporate income tax at the rate of zero percent (0%) for a period of five (5) years from the time of the approval of the activity. However, this period may be renewed by the order of the Minister. Bikalemesa (2014).

Until recently, RDB has adopted a generic approach to investment promotion, which has primarily taken the form of attending international fairs, and awaiting leads to come through. However, over the past 6 months they have Promotional materials suggest Rwanda is structuring its offer to investors around a few major investment areas87 – the international airport, railway and convention center – as well as a number of key sectors – tourism, mining, finance, ICT and energy. RDB is also using the EAC Common Market, SEZs, and Rwanda's governance as selling points. In addition to attempted outreach, the RDB has a number of roles in relations to investors, Information hub for investors: single point of contact for guidance on laws, policies, incentives, investment climate and trends. Aim to signal investment opportunities including privatization, processes and sector information. Secondly, linking investors to partners: advocating special incentives for large and strategic projects to Cabinet. Helping to find local joint venture partners and local service providers. Coordinating PPPs between government and investors. Thirdly, One Stop Centre (OSC) for starting a business. OSC for business registration with two steps and issuing certificates in six hours. OSC provides trading license, environment clearance and investment certificates. Delegated officers from government provide work permits and visas, tax exemption and tax payment, land and construction permit, utilities (water and electricity), and notary services. Lastly, facilitator for business implementation. Key Account Manager (KAM) as single point of contact once investors register. KAM assists in solutions for issues faced, coordination and introduction to stakeholders.

According to the recent UNCTAD survey on investors entering Rwanda, the current registration process itself is extremely good and comparable to the best available services in the developed world88. However perceptions are weaker following registration. Problems include “unclear decision making”, tax processes and enforcement, and constraints such as land and skills.

Statement of the problem

Various countries all over the world are struggling and competing to attract FDI into their economies. Rwanda, Kenya Uganda not left behind. These countries have come up with various macroeconomic policies and reforms aimed at attracting FDI inflow among themselves and also from other countries outside EAC. Despite these efforts, FDI inflow as a percentage of GDP has remained considerably low and subject to fluctuations overtime compared to other developing and developed countries (WB Investment report, 2016). Inward FDIs as it is always believed help boost the economic growth and achieve a sustainable development of the recipient countries. Policy makers and government officials of these countries may therefore want to attract foreign investments into their economies. They will primarily need to know how to create a suitable environment for FDI. To be able to know how to attract these investments, they will need to know what entices these international investors. Thus, government officials and private investors will need to identify the factors that influence the FDI inflows into their host countries. Principally, they need to identify the relationships between FDI inflows on one hand and macroeconomic and institutional variables like GDP growth, interest rate, inflation, trade balance, gross national savings, security, corruption etc. on the other. Therefore the researcher is interested in determining which of these factors contributes greatly in terms of attracting FDI and which ones have minimal or no contribution.

General research objective

The general objective of this study is to analyze empirically the determinants of FDI inflow in East Africa from 2004 to 2015.

Specific research objectives

1. To assess the causal relationship of FDI and its determinants in East Africa.
2. To determine the effect of macroeconomic factors on FDI inflow in East Africa.
3. To examine the influence of institutional factors on FDI inflow in East Africa.

Research hypotheses

A hypothesis is an explanation for certain behavior, patterns, phenomenon or events that have occurred or will occur (Gay, 1996).The research will be guided by the following working hypotheses.

1. There exist a significant causation between FDI and its determinants in East Africa
2. Macroeconomic factors have significant effect on FDI inflow in East Africa
3. Institutional factors have significant effect on FDI inflow in East Africa.

Justification of the study

Several studies have been carried out regarding the relationship and the effects of FDI determinants on increasing or stimulating FDI inflow in various countries Rwanda, Kenya and Uganda included. The existing literature considered these countries in isolation. No literature exists in analyzing the determinants of FDI in these countries combined using panel data. Therefore this study will add on the existing literature by informing the policy makers the main common macroeconomic drivers of FDI among the selected countries. This will be important for the policy makers when deciding which FDI determinants to be targeted in order to achieve an increased FDI inflow within the countries.

The researcher will also give recommendations on the possible policies and reforms that may be adopted in order to improve the efficiency of the FDI drivers and also how to revive the least performing drivers that may have potential effects. This will have a general impact of improving the FDI inflow.

The study only analyses selected determinants of FDI yet they are so many. Therefore it opens the way for further research on other determinants which are not captured by this study.

Scope of the study

The study seeks to analyze the determinants of FDI in East Africa with focus on Kenya, Uganda and Rwanda within the period 2004 to 2015. These countries were chosen due to the fact that they have been on the frontline in putting up strategies that are aimed at attracting foreign investors. Moreover no cross-sectional study has been done that includes Rwanda despite being ranked as one of the fastest growing economies in Africa according to World Bank report 2016. The period 2004 to 2015 was chosen due to availability of data. The period was also characterized by increased governments' commitments in implementing strategies that attracts foreign investors such as tax reforms, efficiency in registration and creating an enabling environment that enhances fair competition. The study is restricted to specific macroeconomic

factors namely GDP, National Savings, inflation rate, trade balance and interest rate and institutional factors namely security and corruption.

LITERATURE REVIEW

Theoretical Literature

Clark (1917) developed the accelerator model and postulated that investment responds to changing demand conditions. If income increases, there will be an excess demand for goods. Using this model the desired capital stock is derived by assuming that there is an economically most profitable amount of capital required to produce a given level of output. This is written as

$K^*=\beta Y$ ……..2.1

Where K^* - desired capital stock Y - Output

β - Capital output ratio

Where β(0 <β <1) is the most profitable capital output ratio. The difference between two successive levels of K* is

$K_t^* - K^*_{t-1} = \beta Y_t - \beta Y_{t-1} = \beta(Y_t - Y_{t-1})$ ……..2.2

Where K^*_t - desired capital stock at time t

Y_{t-1} - income in previous period

The formulation of this theory is often known as the crude accelerator, because of the many limitations which include the following. The model assumes that the relationship between investment and output are fixed; difficulties in treatment of excess capacity; the transitory changes in output, that is when demand increases are not deemed to be permanent, and inadequate finances. Despite these limitations the crude accelerator model has formed an important foundation for the development of many other later theories and has provided an important variable in linking investment to output.

The Marginal Efficiency of Capital (MEC) Theory

Keynes (1936) proposed that at the aggregate level investment would be equal to savings. Keynes observed that at the micro-level, investment depends on the marginal efficiency of capital relative to some interest rate reflecting the opportunity cost of invested funds. The MEC (m) is defined as the rate of interest that will discount the sum of future net returns of an investment to be equal to the cost of the project or capital investment. That is why the model is known as present value (pv) model of investment where a firm should rank investment projects by present discounted value of their income streams.

To appreciate Keynes proposal, let a., a2, a3,... ,etc, be the expected stream of net returns and let C be the cost of undertaking the project. Then according to Keynes, the internal rate of return (MEC) would be the interest rate m* where.

$\sum_{t}^{\infty} \frac{a1}{(1+m*)t} = c$ ……2.3

The higher the m*, the better the project returns.

The main limitation of this theory is that there is no reference to the desired capital stock. Firms do not have an optimal capital stock at the back of their minds when making investment on what will be the optimal amount of investment for a particular period. The main decision is the investment decision; the capital stock follows the investment decisions. The main strength of this theory is that it is still widely applied in cost benefit analysis of development and business projects.

The Flexible Accelerator

Cheneryand Koyck(1952) developed the flexible accelerator model which is a modification of the simple accelerator model. The theory removed one of the major weaknesses of accelerator theory that capital stock is optimally adjusted without any time lag. The flexible accelerator model shows that the relationship between investment and output need not to be fixed but can be affected by other variables like the cost of investment funds, that is, interest rates. The flexible accelerator model shows the variable relationship between the growth rate of output and the level of net investment. This model uses lags in the adjustment process between level of output and capital stock.

$K=K^{E}(Y,C,P)$ ……..2.4

Where; KE- Equilibrium capital stock

Y - Output

C - User Cost

P - Price of output

The flexible accelerator model assumes that capital stock depends on all past output levels with weights declining geometrically, which is known as lag investment.

$K_t=f(Y_t,Y_{t-1},Y_{t-2},Y_{t-3},,,,,,,,,,,,,,,Y_{t-n},$ ……2.5

The main limitation of this model is that, it is adhoc, for it is purely mathematical model with no economic basis and the introduction of lagged, independent variable in the model leads to inconsistent results because ~ is related to ~_I.

The main strength of the flexible accelerator is that, it proposed that there are other variables that influence investment apart from output.

The Neo-Classical Theory

Jorgensen (1963) and Jorgenson et al (1967) developed the neo-c1assical theory where they suggested that, the firm invests to maximize its discounted flow of profits over an indefinite time horizon.

Profits are given by the value of sales, PtY_t less the wage bill WtNt, less expenditure on investment goods $p^1_t i_t$. Where pI is the price of plant and equipment. Therefore, profit is defined as;

$\Pi=PtYt-WtNt-P^1_t i_t$

Where, π is profit, Yt is amount of output and P_t is price, N_t is amount of labour, W_t is wage rate and *i,* amount of investment, P_t' is the price and t is the time period. At the market interest or discount rate r, the present value of all future profit stream is

$PVo=\sum_0^\infty 1/(1+r)t[PtYt - WtNt - P'tit]$ ……*2.7*

Where PVo is the present value of all future profit streams.

The main advantage of neo classical theory over the accelerator and marginal efficiency of capital theories is that it seeks to balance the return on capital and cost of capital.

The neo classical theory has several limitations, one it does not recognize the dependency of output on the user cost of capital which may create endogenity problems, which may underestimate the effects of policies meant to stimulate capital formation.

Secondly there are problems with characteristics of technology. The theory also offers a weak treatment for the role of expectations, risk and uncertainty.

The Q Model

Brainard (1968) and Tobin (1969; 1978) assert that the demand for capital varies directly with the ratio of the market value of the capital assets, Vt, of the firm to their replacement value, $P/_t K_t$. This ratio, denoted by q, compares the return on capital with that which is required by the investors to replace the existing capital investment. Investment should be undertaken if $q > 1$. This ratio commonly referred to as marginal 'Q' may differ from, unity because of delivery lags and adjustment or installation costs. The q model is derived from optimization problem, where output (Yt) is determined by labour (L_t, capital (K_t and stochastic technology (T_t), The production function can be written as

$Y_t= f(_{Lt,Kt}T_t)$…….. 2.8

The main advantage of the q model is, that, as it relates capital to the stock market prices for the value of the firm, it does away with the notorious problem of formulation expectations about future prices as these are already captured in the stock market prices (Branson, 1986 and Chirinko 1993). The issue of expectations has been directly resolved in the value of q. The q model is also associated with a number of limitations. The major problem is that, marginal q is not easily measured. Therefore one has to rely on the ratio of the entire capital stock to its replacement cost: that is, using the average q under conditions that are quite restrictive and hardly realistic. Secondly it also relies on presence of robust stock markets, which are not available in many economies and the stock prices are quite unstable and unpredictable. From the q model, expectations can now be included as a variable that influences investment. Equation 2.8 can now be written as

1= f(Y,r,P,e)…… 2.9

Dixit and Pindyck (1994) developed *the* real option approach model to explain the behavior of investment under uncertain conditions. Uncertainty is said to play key role in investment decisions and because investment is assumed to be irreversible, it represents a sunk cost. So the investor should remain liquid until risk is resolved. The main problem is that the investor by remaining liquid foregoes a higher return which might have been realized if investment was done immediately, before the risk is resolved. The main limitation of this theory is that, it is difficult to model uncertainty adequately because it is not a stand-alone variable. It is embedded in policies, prices or costs, or in all of these and depreciation in foreign exchange rates. These variables can be included in equation 2.9, the new equation becomes

I=f(Y,r,P,e,u)…… 2.10

Where *u* is uncertainty or uncertainty variables.

Dual Gap Theory

This theory was developed by Hollis Chenery. The two-gap model posits that developing economies face two gaps in their economy which they have to fill. The first gap is that between savings and investments in the economy. A developing country starts off with very low savings, but it has to engage in a big push by investing heavily. In what ways would countries fill this gap between savings and investments? There was a lot of debate among economists here. Some argued that developing countries require aid from developed countries. Others argued that these countries need to trade in order to gain trade surpluses, which could then be used to fill the gap. This leads us to the second gap which is that between exports and imports. A developing country by definition produces only primary goods, whereas it would require large imports of consumer and capital goods. There is obviously a cost differential here, because of

which developing countries would necessarily face current-account deficits. How can a country fill that gap between exports and imports?

Except for a very few economists, almost everyone agreed (until the neoliberal fad took over) that there has to be some role for the state in kick starting the process of development. Leaving a developing country to the free market would only mean that it would get locked in to the agricultural sector and its manufacturing sector would never grow, thereby ruling out a structural transformation in the nature of the economy. Thus, for countries to overcome these two gaps, the state has to kick start the industrialization process. The East Asian tigers present the best examples for such state-led industrialization.

Conceptual framework

The study sought to analyze the effects of macroeconomic and institutional factors that affect Foreign Direct investment within the EAC. The independent variables are macroeconomic factors and institutional factors while the dependent variable is FDI inflow. Macroeconomic factors considered included GDP growth rate, inflation, lending interest rate, current account balance and gross domestic savings. The institutional factors considered included Terrorism and Corruption. The relationship between the variables is summarized in the conceptual framework below.

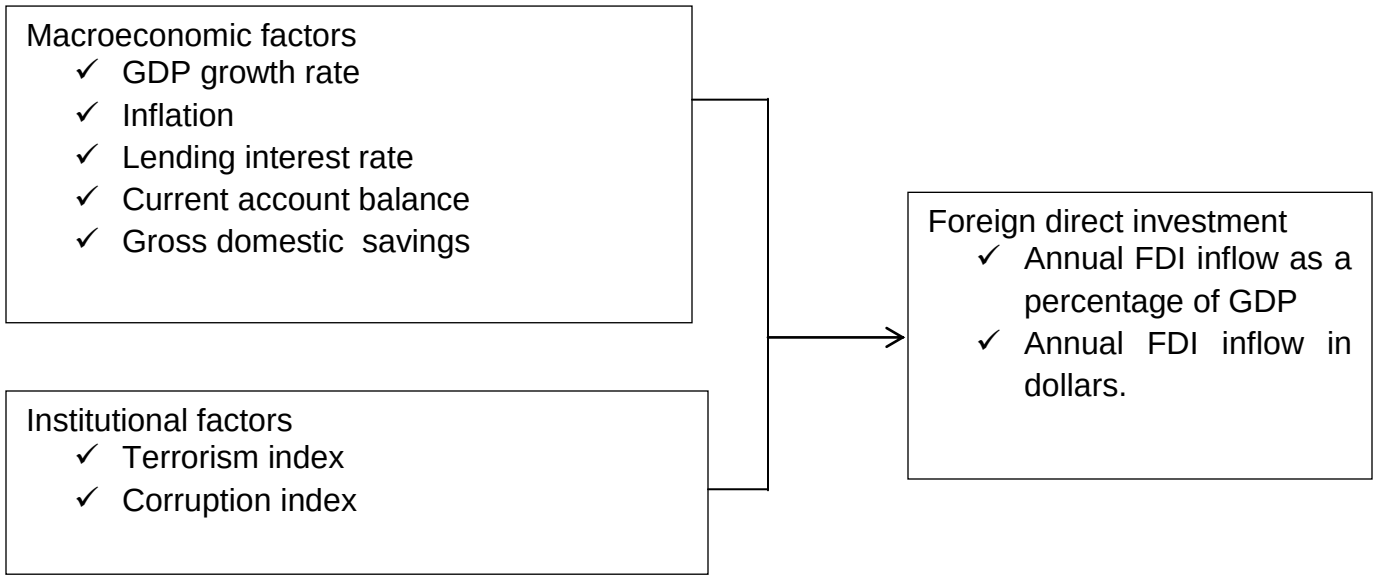

Figure 2: Conceptual Framework

Empirical Literature

Institutional Factors and FDI

Wei (2000) and Asiedu (2005), find that corruption negatively affects inflow of FDI. Their results suggest that foreign investors generally avoid investing in highly corrupt countries because it can create operational inefficiencies. Wei further observes that weak enforcement mechanisms and political instability affects investment decision negatively. He further argues that corruption in a host country induces foreign investors to favor joint ventures over wholly owned firms.

Gani (2007) shows that improvements in control of corruption, political stability, regulatory quality, and effectiveness of government have positive effects on FDI inflows for some Latin American countries.

Sandra Basemera (2012) while investigating whether institutions and macroeconomic variables mater in FDI inflow within Kenya, Tanzania and Uganda found out that ERR, PRR and to a smaller extent corruption significantly influenced FDI inflows to East Africa, whereas governance, law and order were insignificant. In addition, FDI was found to be influenced by other factors such as inflation, GDP per capita and openness to trade.

Political risk was found by Zheng (2009) to be a key determinant of FDI into China and India. Busse and Hefeker (2007) emphasize that political risk is a main component in influencing FDI inflows into Africa. They indicated that government stability, conflicts (internal and external), ethnic tensions, and bureaucracy are essential elements of attracting inward FDI.

Using panel data of 31 countries for the period 1984-2009, Gamal et al. (2013) emphasized that market size; past levels of FDI inflows, corruption, domestic credit, share of oil in exports, and religious tension risk are significant factors influencing FDI inflows into Africa. They, however, confirmed that most of the political and institutional risk indicators are insignificant.

Macroeconomic Factors and FDI

Nuno and Horácio (2010) analyzed the effect of market size, labor cost, trade openness, and economic stability on FDI inflows to Portugal. They found market size and trade openness as important factors in explaining FDI flows into Portuguese economy. Wage and taxes were also found to be statistically significant drivers of FDI.

Manyanza Rhoda (2012) while analyzing FDI determinants in Kenya found out that exchange rate, openness of the economy, savings rate, trade balance, wage rate and policy incentives were significant in attracting FDI inflow. Inflation, external debt, macro-economic reforms and GDP growth rate were found to be insignificant.

Caroline (2015) examined the factors that influence FDI flows into African nations using the fixed effects model to analyze annual data from 35 African countries for the period from 1984 to 2010. Her results reveal positive and significant relationship exists between FDI inflows and each of the commodity price index performance, high performance of stock markets, development in the infrastructure, and the increase in openness to trade of a country. Conversely, her results indicated that high economic risk has negative significant effect on FDI flows. Both political risk and financial risk were revealed to have negative but insignificant impact on FDI inflows.

In a more recent study with the aim of answering the question "Does Growth Attract FDI", Sasi and Doucouliagos (2015) applied the Meta-regression analysis to 946 estimates from 140 empirical studies. Their results demonstrated a strong positive correlation between economic growth and FDI. They emphasized that growth is slightly more correlated with FDI in developing countries.

Ahmad (2015) while investigating the main determinants of FDI inflow using empirical evidence from Bharain used time series data from 1980-2013. The results of panel regression analysis indicated that country welfare represented by general government consumption expenditure, inflation rate, economic stability represented by annual interest rate, labor force, trade openness, public education, and population have statistically significant relationships with FDI inflows into Bahrain. Hence, these factors are considered as the main determinants of FDI inflows into Bahrain. Export potential represented by country export value index, market size represented by GDP growth, and exchange rates, on the other hand, were found to have positive but statistically insignificant relationships with FDI inflows. In addition, infrastructure development was found to have negative yet statistically insignificant relationship with FDI inflows.

ZuhalKurul (2017) while investigating the relationship between institutional factors and FDI in developing countries using the GMM method found a positive significant effect of institutional factors on FDI but stressed that some factors matter more than others. He found significant effect of control of corruption, government's effectiveness, political stability, regulatory quality, rule of law and voice and accountability on FDI.

Yang (2000) while analyzing the determinants of FDI in Australia using time series data found that openness of the economy measured by wage changes, interest rates and industrial disputes are significant determinants of FDI. Faith (2005) found that Exchange rate appreciation discouraged FDI in the medium-term, but had a positive longer term effect, indicating that FDI is encouraged by a sound economic environment in Australia. However Anna (2012) found no significant effect of interest rates on FDI in Zimbabwe.

Myriam and Bazoumana (2009) investigated the impact of FDI on Economic Growth in Mauritius using bounds Test Cointegration method found a high significant effect of FDI on Economic Growth. She recommended that Mauritius should continue to attract FDI and at the same time promote polices that would further encourage private investment.

Majune (2012) while investigating the determinants of FDI in Kenya using a study period of 1980 to 2010 found the following as factors that encourage FDI inflow; political instability, exchange rate and inflation. However he found GDP to deter FDI inflow.

Ahmed and Ajao (2012) in Nigeria studied the determinants of FDI in Nigeria for the period between 1970 and 2009 using Vector Error Correction Mechanism (VECM). He found that the size of Nigeria domestic market size, the liberalization policy and openness of the economy as well as a stable domestic currency are significant in attracting FDI. He also found evidence for higher inflation in the long run.

Critical review of literature

Focus on foreign direct investment is very important for a country that aims to achieve economic growth due to the positive externalities that comes with it. From theory we know that foreign direct investment plays a major role in employment creation and technological advancement hence bridging the gap between the rich and the poor. This is accelerated by the fact that it complements domestic production and promotes international trade through increased exports. Several studies have been carried out concerning the determinants of FDI in various countries across the world. However these studies gave different results from one country to another. For example Sandra (2012) found that inflation, GDP per capita and trade openness were significant in influencing FDI while Manyanza (2012) found that GDP and inflation were insignificant in influencing FDI. Furthermore Gamal (2013) found that most of the political and institutional risks have insignificant influence on FDI. This was contrary to the findings by Sandra (2012) who found that there was significant influence of these factors on FDI.

Secondly, some of the empirical literature above only analyzed macroeconomic variables while overlooking the institutional variables like corruption and security in terms of terrorism which has of late attracted attention in most countries EAC countries included. For example Manyanza (2012) did not look at corruption and security factors which are very critical in influencing FDI according to theory. This study will therefore improve on this by factoring in these factors.

Lastly of late Rwanda as a country has been attracting world attention owing to the consistent good track record in terms of macroeconomic performance within EAC. Several studies have been carried out on FDI within EAC though a few exist in Rwandan case and none

has tried to include Rwanda in cross country studies. Sandra (2012) didn't include Rwanda in its studies. This study will therefore improve by comparing Rwanda with Kenya and Uganda as far as FDI determinants is concerned.

Summary of the literature

Most of the world economies both developed and developing economies have great interest in FDI because of the major role it plays in boosting the economic performance. FDI plays a key role in economic development through its positive effect in creating employment which reduces poverty and income disparity and encouraging technological transfer between countries. Technological advancement is very essential in this era of a dynamic world for any country aiming at achieving economic growth. One of the ways of achieving technological advancement is encouraging FDI inflow which enhances technological transfer from developed to developing countries. From the World Bank records, the share of World total FDI is greater in developed countries than in developing countries. Narrowing down to continents, Africa's share of world FDI is considerably low compared to other continents. This has attracted attention and most developing countries have resorted to coming up with ways of improving FDI inflow. This has necessitated several studies carried out in developing economies concerning the analysis of the determinants of FDI in order to determine the major factors that contribute greatly to increase in FDI. In summary Foreign Direct Investment is a very important pillar of economic growth and needs to be investigated much deeper.

Research gap

Several studies have been carried out on FDI inflow in many countries across the world. Analysis of FDI determinants has been carried out by several scholars and they gave different results as shown in the literature above. Within EAC, most of the literature exist on Uganda, Tanzania and Kenya and even in terms of cross country comparison only concentrates on these three countries with few concerning Rwandan economy. With the recent rapid growth of Rwandan economy, there is need to compare FDI determinants among EAC countries Rwanda included. This is a gap that exists and need to be filled.

The study by Sandra (2012) analyzed FDI determinants in EAC particularly Kenya, Uganda and Tanzania using fixed effects model methodology. Due to existence of different government structures among countries and different approaches adopted by different countries in attracting FDI and addressing macroeconomic factors, different methodology may give different results. This study will analyze FDI determinants using the panel multiple regression analysis and compare with the results of the fixed effects model of the previous study since

there are no studies carried out using the multiple regression analysis method in studying FDI determinants within EAC.

METHODOLOGY

Research Design

A research design is the overall strategy of integrating the various components of the study in coherent and logical manner in order to effectively address the research problem. It provides a framework for the collection, measurement and analysis of data (Labaree, 2009).The study is based on quantitative research design. The study used time series data for the variables concerned which are numeric in nature hence quantitative research is justified. Descriptive research is concerned with studies which involves describing the characteristics of an individual or a group. Studies concerned with specific predictions, narration of facts and characteristics concerning individual, group or situation are examples of descriptive research studies (Kothari, 2008). According to Borg &Gall,1989,descriptive research might employ methods of analyzing correlations between multiple variables by using tests such as PPM correlation, regression or multiple regression analysis which suits this research since multivariate data is utilized in this research and therefore panel multiple regression is necessary in order to study the effects of the various explanatory variables on FDI.

Data Collection and Procedure

The study used time series secondary panel data. There are many factors that affect foreign direct investment both macroeconomic and institutional factors as discussed in the literature above. This study analyzed specific factors which include economic growth, interest rate, trade openness, inflation, national savings, corruption and security. The study considered various factors in arriving at these specific determinants of FDI such as availability of the data, current issues of national concern, relevance to the countries under study and similarity of most of the factors. Annual data for economic growth was obtained from government reports of the concerned countries from 2004 to 2015. Most of the data on FDI and other determinants apart from economic growth was obtained from World Bank and IMF data base for the study period.

Several previous researches on FDI determinants utilized time series secondary data though the selection of the factors differed from one research to another and most of them were carried out on single countries not a cross country study as shown in the empirical review. This study is therefore consistent with the previous researches.

Diagnostic tests

Before data analysis there is need to carry out pre-estimation tests on the data to ensure reliability and validity of the data hence avoid getting misleading results. The tests that the study carried out included Normality, heteroscedasticity and serial correlation. These tests ensure that the error terms are normally distributed, homoscedastic and serially uncorrelated to ensure accuracy of the results.

Model Specification

A number of investment theories have been put forward in an attempt to show the main determinants of investment in an economy. To develop the model, the flexible accelerator model by Chenery and Koyck (1952) will be adopted. This model shows that the relationship between investment and output need not to be fixed but can be affected by other variables like the cost of investment funds, that is, interest rates. From the accelerator principle investment is a function of output and interest rates (r).

$I^n=f(Y,r)$ ……3.10

Net investment is taken to include both foreign direct investment (I^n_f) and domestic investment (I^n_d).

$I^n=[I^n_f+I^n_d]=f(y,r)$ ……3.1 1

From equation 3.11 assuming all investment were from foreign direct investment, the study stipulates a relationship between FDI and its determinants. From economic theory and literature review, FDI was determined by several factors such as; openness of economy, rates of savings, exchange rate, inflation, trade balance, growth rate of GDP, external debt, wage rate and policy incentives and macro-economic reforms. A general model of foreign direct investment inflows in this study was modified version of equation (3.11). The modified form of the model was given as;

$FDI = f(y,r,i,tb,ns,ci,ti)$ ……... 3.12

The following economic model can be developed from the above equation

$FDI = \beta o + \beta 1y + \beta 2r + \beta 3i + \beta 4tb + \beta 5ns + \beta 6ci + \beta 7ti + \ell t$ ……...3.13

Where

FDI -Foreign direct investment

y -Gross domestic product growth rate

r -Interest rate

i -Inflation rate

tb -Trade balance

ns -Gross national savings

ci -Corruption index

ti -Terrorism index

ℓt -error term

Measurement of Variables

Foreign Direct Investment- This is the inflows of investment to acquire a lasting management interest in an enterprise operating in an economy other than that of the investor. It was measured as a percentage of GDP

Gross Domestic Product growth rate-This is the average annual growth rate of country's output. It was measured as annual percentage change of level of total output.

Interest Rate- This is the return on investment asset or loan. It was taken as the annual prevailing KRR which refers to interest rate charged by BNR on loans advanced to the commercial banks.

Inflation Rate- Inflation is the general upward movement of prices of goods and services in an economy. Inflation rate was taken as the average annual change in consumer price index.

Trade balance- This is difference in value between total exports and total imports of a nation during a specific period of time. TB was measured by the difference between exports and imports as a percentage of GDP.

Gross National Savings- This is the Gross National Product minus final consumption expenditure. It was measured as a percentage of GDP.

Corruption Index- captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. It was measured by the available data on global scale ranking of Countries which uses Global Corruption Barometer

Terrorism Index- measures perceptions of the likelihood of political instability and/or politically motivated violence. It was measured by the terrorism indices for the concerned countries within the study period.

Descriptive Data Analysis and Statistical tests

This study addresses two broad specific objectives. The analysis of the determinants of FDI requires testing whether there exist a significant relationship between the variables that is FDI and the selected independent variables. This was achieved by carrying out multivariate panel cointegration test to determine whether a long run relationship exist among the variables under study. To analyze the extent to which FDI determinants affect its flow in the selected EAC

countries, the researcher utilized multiple panel regression analysis model to show the significance of these determinants of FDI and to show the magnitude of a change in FDI when there is a change in these selected determinants.

Unit root test

In view of the fact that this study used time series data and inherently it could exhibit some strong trends, the non-random disposition of the series might undermine the use of some of econometrics tests such as F and t tests. This is because they can cause type I or type II errors i.e. rejection of a hypothesis which would have otherwise not been rejected or accepting null hypothesis when it is supposed to be rejected. This study intends to conduct stationarity and cointegration tests to mitigate such situations.

In empirical analysis, non-stationarity of time series data is a perennial problem. Non stationarity of time series data means that the mean, variance and covariance of the error term are always not time invariant. The direct application of OLS or GLS to non-stationary data produces regressions that are mis-specified or spurious in nature (Engel and Granger, 1987). To avoid estimating and getting spurious results, the researcher conducted test for stationarity. To apply standard estimation or testing procedures in a dynamic time series model, the stationarity of variables is required (Verbeek, 2004). Moreover, according to Chris Brooks (2008), a stationary series can be defined as one with a constant mean, constant variance and constant auto-covariance for each given lag. The study adopted Augmented Dickey Fuller method to test for stationarity and establish the order of integration. The (ADF) test for stationarity in a series of say FDI, involves estimating the equations.

ΔFDI=α0+ βt+θyt−1+ mi=1ρΔINF−i+et (This is for levels)

ΔΔFDI=α0+ βt+$\theta \Delta yt$−1+ mi=1ρΔΔINF−i+et (This is for first differences).There are cases where ADF does not have a drift and a trend but the example has both a drift (intercept) and a trend. Where α0 is a drift, m is the number of lags and e is the error term and t is trend. The null hypothesis was stated as;

HO: (α0,) = (α0, 0, 1) (Not stationary)

The alternative hypothesis

H1: (α0,) ≠ (α0, 0, 1) (Stationary). If the test reveals that null hypothesis should be rejected then the variable will be said to be stationary.

Panel Cointegration Test

The researcher used Johansen Cointegration test method. Cointegration is a technique used to test for existence of long-term relationship (co-movement) between variables in a stationary

series. Before testing for cointegration, it is important to determine the order of integration of the individual time series. A variable Xt is integrated of order d (1d) if it becomes stationary for the first time after being differenced d times (Hjalmarsson and Österholm, 2007). Cointegration also asserts that 1(1) can be estimated using OLS method and produce non spurious results. Johansen proposed two different likelihood ratio tests of significance that is maximum Eigen value test and trace statistic test. The trace statistic method tests the null hypothesis of r cointegrating vectors against the alternative hypothesis of no cointegrating vectors. On the other hand the maximum Eigen value method test the null hypothesis of r cointegrating vectors against the alternative hypothesis of r+1 cointegrating vectors.

Causality Test

One of the objectives of this study was to determine the causal relationship of FDI and its determinants. This was achieved by carrying out Granger causality test of the data regarding the variables under study. Granger (1969) proposed a time-series data based approach in order to determine causality. Granger causality shows whether the past values of say V can be able to predict current or future values of T. Granger causality test is used to test the causal direction. It is also used to test for exogeneity and enables the researcher to decide whether to estimate the model using simultaneous or single equation. Granger causality test has been chosen in this paper for its favorable response to both large and small samples as evidenced by ((Gall, 1989)Salemi, 1982; Geweke et al., 1983). In this study, it is predicted that macroeconomic and institutional factors affect FDI. On the same breath stock of FDI could also have effect on one of the macroeconomic and institutional factors hence a bi-directional causality. After the cointegration results reveals that there is a significant association between macroeconomic and institutional factors and FDI, the researcher conducted the causality test to know the direction of causation. To establish whether macroeconomic and institutional factors cause FDI inflow or it is bi-directional causation, the researcher conducted a pairwise granger causality test of the variables.

RESEARCH FINDINGS

The study sought to analyze the determinants of FDI in East Africa Community. Specifically the study was to analyze the causal relationship of FDI and its selected determinants, effect of macroeconomic factors on FDI inflow and finally the effect of institutional factors on FDI inflow in EAC countries with focus on Kenya, Rwanda and Uganda. This chapter presents the empirical findings of the study in line with the above objectives. Descriptive statistics, Unit root tests and diagnostic tests results are presented first. Inferential results which included causality tests and

multivariate regression analysis using the fixed effect model are presented after with detailed discussions on the findings based on the study objectives.

Descriptive Statistics results

Table 1: Descriptive Statistics per variable

	CAB	CI	FDI	GDP	GDS	INF	LIR	TI
Mean	-6.255806	29.50000	2.796389	6.380556	9.102917	8.983306	17.57972	4.129167
Median	-6.766000	26.00000	2.530000	6.200000	8.598500	8.948500	16.83000	4.260000
Maximum	-13.39200	54.00000	7.750000	11.20000	18.05000	26.24000	26.15000	6.660000
Minimum	0.142000	21.00000	0.570000	0.200000	1.326000	1.784000	12.53200	1.800000
Std. Dev.	3.381825	9.863352	1.623191	2.192040	3.918627	5.008127	3.187949	1.260067
Skewness	-0.098346	1.586291	0.914836	-0.232165	0.343340	1.202711	0.612095	0.068833
Kurtosis	-2.157101	4.172800	3.646287	3.683411	2.838703	5.219876	2.903900	2.527421
Jarque-Bera	1.123751	17.16111	5.648081	1.023979	0.746319	16.07086	2.261811	0.363425
Probability	0.570139	0.000188	0.059366	0.599302	0.688555	0.000324	0.322741	0.833841
Sum	225.2090	1062.000	100.6700	229.7000	327.7050	323.3990	632.8700	148.6500
Sum Sq. Dev.	400.2859	3405.000	92.21623	168.1764	537.4472	877.8469	355.7058	55.57188
Observations	36	36	36	36	36	36	36	36

From the above table, current account balance exhibits negative values of mean, median, skewness and kurtosis. This is an indication that EAC countries value of imports is higher than the value of their exports. The value of FDI inflow into EAC countries as percentage of GDP is still very low as evidenced by low mean and median values of 2.796 and 2.53 respectively in the above table. EAC countries still scores very low percentage in dealing with corruption with an average of 29.5%. Inflation rate has remained at an average of 8.98 which is below 10% .The EAC governments have always been advocating for a single digit inflation value and the results shows the same on average. Domestic savings as a percentage of GDP has remained fairly low in EAC at an average of 9%.This supports the EAC governments push to encourage people to venture into saving schemes in order to raise the percentage of domestic savings. Lending interest rates have been kept at an average of 17.5% while terrorism index is lower at 4.1% average.

Diagnostic Tests

The study conducted normality, heteroscedasticity and serial correlation tests and the results are shown on the table below.

Table 2: Diagnostic Tests

Test	F Statistic	P value
Normality: Jarque-Bera Statistic	4.529996	0.103830
Serial Correlation: Breusch-Godfrey Serial Correlation LM Test	0.054138	0.8496
Autoregressive Conditional Heteroschedasticity :ARCH Test	0.195063	0.5777

The results of normality test confirms that the residuals are normally distributed since the p value of 10.38% is greater than 5% hence the null hypothesis of normality of data set was not rejected. The null hypothesis of no serial correlation among the residuals was not rejected since the p value of 84.96% is greater than 5%.This confirms that the residuals are free from autocorrelation which is important in multiple regression analysis. The residual errors have constant variability which implies that the data is homoscedastic. This is because the p value of ARCH LM Test of heteroscedasticity of 57.77% in the table above is greater than 5%. The null hypothesis of no heteroscedasticity was not therefore rejected.

Unit Root Test

In order to avoid the risk of getting spurious results, the researcher tested for stationarity of the data using the ADF and Philips Peron Tests of stationarity. A stationary series is one with a constant mean, variance and covariance. The results of the unit root test are presented below.

Table 3: Panel Unit root Test results summary

	Augmented Dickey Fuller Test		Philips Peron Test	
	Probability at level	probability at 1^{st}dif	Probability at level	probability at 1^{st}dif
CAB	0.3473	0.0087	0.3116	0.0000
LIR	0.2165	0.0344	0.0001	0.0001
CI	0.4965	0.0344	0.1007	0.0001
FDI	0.2298	0.0418	0.0311	0.0000
GDP	0.0437	0.0056	0.0030	0.0000
GDS	0.1728	0.0271	0.0030	0.0002
INF	0.2975	0.0004	0.0248	0.0000
TI	0.0778	0.0302	0.0627	0.0002

The null hypothesis for unit root test is the presence of unit root which implies non stationarity. The alternative hypothesis is the absence of unit root implying stationarity. From the ADF results in table 4.3 in the previous page, the variables are non-stationary at level save for GDP since the probabilities are greater than 5% for all the variables except GDP whose value is 4.37% which is less than 5% hence GDP is stationary at level. The first difference results under ADF however confirms stationarity for all variables since the probabilities are all less than 5% hence we reject null hypothesis of presence of unit root and conclude that the variables are all stationary at first difference under ADF.

Under Philips Peron Test, Current Account balance and terrorism index are non-stationary at level since the probability is greater than 5% while other variables that is inflation rate, FDI, GDP, Corruption Index, Lending interest rate and gross domestic savings are stationary due to less than 5% probability values. At first difference, the null hypothesis of presence of unit root was rejected hence the variables became stationary.

Panel Cointegration Test

One of the objectives of the study was to determine the causal relationship between FDI and its selected determinants. Cointegration is a technique used to test for existence of long-term relationship (co-movement) between variables in a non-stationary series, Amos (2017). Before determining the direction of causation between the variables there was need to determine the existence of long run relation hence Cointegration test was necessary. The researcher carried out Kao's Panel cointegration test and the results are as shown below.

Table 4: Panel Cointegration Test

Kao Residual Cointegration Test		
Series: CAB CI FDI GDP GDS INF LIR TI		
Date: 01/14/18 Time: 08:13 Sample: 2004 2015		
Included observations: 36		
Null Hypothesis: No cointegration		
Trend assumption: No deterministic trend		
User-specified lag length: 1		
Newey-West automatic bandwidth selection and Bartlett kernel		
	t-Statistic	Prob.
ADF	-2.114086	**0.0173**
Residual variance	3.377560	
HAC variance	1.878582	

The null hypothesis is no cointegration while alternative hypothesis is presence of cointegration. From the results above, the probability value of 0.0173 is less than 0.05 hence the null hypothesis is rejected and conclude that there exist long run relationship between the FDI and its selected determinants. This implies that Current Account Balance, Corruption Index, Foreign direct investment, Gross domestic product, gross domestic savings, inflation, lending interest rate and terrorism index have long run relationship between them.

Granger causality test results

The first objective of this study was to determine the causal relationship between FDI and its determinants. Cointegration tests indicated a long run relationship between the variables but the direction of causation is unknown. This necessitates the use of granger causality test to determine the direction of causation whether unidirectional or bidirectional causation. The results of granger causality tests are shown below.

Table 5: Granger causality test results

Null Hypothesis	F statistic	lag	probability	conclusion
FDI does not granger cause current account balance	2.03098	3	0.0142	Unidirectional causality
Current account balance does not granger cause FDI	1.03208	3	0.3996	
FDI does not granger cause inflation rate	0.50472	3	0.6834	Unidirectional causality
Inflation rate does not granger cause FDI	0.38257	3	0.0486	
FDI does not granger cause lending interest rate	0.57822	3	0.0463	Bi-directional causality
Lending interest rate does not granger cause FDI	2.37062	3	0.0100	
FDI does not granger cause GDP	0.88330	3	0.0467	Bi-directional causality
GDP does not granger cause FDI	1.86579	3	0.0168	

FDI does not granger cause Gross Domestic Savings	0.51156	3	0.0468	Unidirectional causality
Gross Domestic Savings does not granger cause FDI	1.02251	3	0.6789	
FDI does not granger cause corruption index	0.41645	3	0.0358	Bi-directional causality
Corruption index does not granger cause FDI	0.72500	3	0.0002	
FDI does not granger cause terrorism index	0.38898	3	0.0498	Bi-directional causality
Terrorism index does not granger cause FDI	1.46607	3	0.0035	

From the results above, it is evident that there is causal relationship between FDI and its determinants. The causation is unidirectional from FDI to Gross Domestic Savings, from FDI to current account balance and lastly from inflation rate to FDI. There is a bi-directional causation between FDI and GDP, FDI and lending interest rate, FDI and corruption index and lastly FDI and terrorism index.

Panel regression results

The second objective of the study sought to determine the effect of macroeconomic factors that is GDP, inflation rate, trade balance, interest rates and domestic savings on FDI. The third objective was to investigate the influence of institutional factors that is corruption index and terrorism index on FDI. The researcher achieved these objectives by carrying out panel regression analysis through Fixed Effect model.

Table 6: Panel Regression results

Dependent Variable: FDI
Method: Panel Least Squares
Date: 01/14/18 Time: 07:09
Sample: 2004 2015
Periods included: 12
Cross-sections included: 3
Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.15715	2.798382	3.986998	0.0012
CAB	-0.100402	0.131509	-0.763461	0.0570
CI	0.001771	0.033015	0.053641	**0.0479**
GDP	0.016569	0.086525	0.191497	**0.0307**
GDS	-0.128017	0.068560	-1.867225	0.0615
INF	-0.023180	0.059374	-0.390407	**0.0117**
LIR	-0.109913	0.166725	-0.659248	**0.0097**
TI	-1.110351	0.376739	-2.947269	**0.0100**

Effects Specification
Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.906773	Mean dependent var	2.796389
Adjusted R-squared	0.782470	S.D. dependent var	1.623191
S.E. of regression	0.757059	Akaike info criterion	2.572446
Sum squared resid	8.597064	Schwarz criterion	3.496165
Log likelihood	-25.30402	Hannan-Quinn criter.	2.894848
F-statistic	7.294860	Durbin-Watson stat	1.798867
Prob(F-statistic)	0.000146		

From the above table of fixed effect regression results, macroeconomic factors; inflation, lending interest rates and GDP has significant effects on FDI as evidenced by probabilities less than 0.05. Gross domestic savings and current account balance do not have significant effect on FDI since the probabilities are greater than 0.05. Institutional factors; terrorism index and corruption index have significant effect on FDI since the probabilities of 0.0100 and 0.0479 are less than 0.05. Current account balance, Gross domestic savings, inflation rate, lending interest rate and terrorism index have negative effect on FDI while GDP and corruption index have positive effect on FDI as evidenced by the coefficients in the model above.

The study adopted a multiple linear regression model in order to explain the effects of macroeconomic and institutional factors on FDI. The model adopted was,

$FDI = \beta O + \beta 1GDP + \beta 2LIR + \beta 3INF + \beta 4CAB + \beta 5GDS + \beta 6CI + \beta 7TI + \ell t$ .The results of the coefficients $\beta' S$ are shown in the above table. Hence the fitted model becomes,

$FDI = 11.16 + 0.02GDP - 0.11LIR - 0.02INF - 0.10CAB - 0.13GDS + 0.001CI - 1.11TI + \ell t$

DISCUSSION

Causal Relationship between FDI and its determinants in EAC Countries

From the results of granger causality test, there is a causal relationship between FDI and its determinants. The causation is unidirectional for some determinants and bidirectional for others. There is bidirectional causation between FDI and institutional factors; corruption and terrorism indices that is the effects are on both directions. These results are consistent with the results of ZuhalKurul (2017) who found significant relationship between FDI and institutional factors in developing countries. Macroeconomic factors had mixed effects. Inflation rate, current account balance and gross domestic savings have unidirectional causation with FDI whereas GDP and lending interest rates exhibited bidirectional causation with FDI.

Effect of macroeconomic factors on FDI inflow in EAC

The results of panel regression analysis show the effects of macroeconomic factors on FDI. Inflation rate, current account balance, gross domestic savings and lending interest rates have negative effects on FDI. A unit increase in these variables will lead to a fall in FDI by 0.02, 0.10, 0.13 and 0.11 respectively. GDP growth rate has positive effect on FDI within the EAC Countries. A unit increase in GDP growth rate leads to an increase in FDI by 0.02. However the effects of Current Account balance and Gross Domestic savings on FDI are insignificant. This is evidenced by probabilities greater than 5%. The effects of GDP, inflation rate and lending interest rate are significant in attracting FDI. These results are partially similar to the results of the previous researchers such as Ahmad (2015), Doucouliagos (2015), Manyanza (2012) and Nuno and Horacio (2010).

Effect of institutional factors on FDI inflow in EAC

The institutional factors that the study analyzed included corruption index and terrorism index. Terrorism index had negative effect on FDI while Corruption index had a positive effect on FDI. A unit increase in terrorism index causes FDI to fall by 1.11 while a unit increase in Corruption index causes FDI to increase by 0.001.Both corruption and terrorism indices have significant influence on FDI as shown by probability values of 0.0479 and 0.0100 respectively which are less than 0.05. Governments of EAC Countries must treat institutional factors with a lot of caution since they play significant role in attracting FDI. These results are similar to those of Asiedu (2006), Gani (2007) and Gamal et.al (2013).

SUMMARY OF FINDINGS

Eac governments have of late been very keen on attracting foreign investors through creation of an enabling environment and regulation of the various key determinants for investments to thrive. This is due to the fact that FDI forms a greater pillar in stimulating economic growth and development through its contribution in creating employment and increasing the savings. The performance has however remained very low compared to the developed countries since FDI as a percentage of GDP has continued to fluctuate overtime and still forms a smaller proportion of the GDP. The study sought to analyze the determinants of FDI inflow in selected Eac Countries that is Kenya, Uganda and Rwanda with focus on macroeconomic and institutional factors. The results are as follows.

The causal relationship between FDI and its determinants

The researcher carried out granger causality test to assess the causal relationship between FDI and its determinants. The results indicated that there is bidirectional causation between FDI and institutional factors; corruption and terrorism indices. This means that the effects are on both directions. Macroeconomic factors had mixed effects. Inflation rate, current account balance and gross domestic savings have unidirectional causation with FDI whereas GDP and lending interest rates exhibited bidirectional causation with FDI.

Effect of Macroeconomic Factors on FDI inflow in EAC

The macroeconomic factors that the study focused on included GDP growth rate, gross domestic savings, inflation, current account balance and lending interest rate. GDP, interest rate and inflation rate were found to significantly influence FDI inflow while Current account balance and gross domestic savings were found to be insignificant in stimulating FDI inflow. From the regression results, interest rate, inflation rate, current account balance and gross domestic savings have positive effects on FDI inflow while GDP has negative effects on FDI.

Effect of institutional factors on FDI inflow in EAC

The study focused on security and corruption indices as institutional factors that affect FDI inflow. The probability was far much below the 5% an indication that the two are highly significant in influencing FDI inflow within the EAC. Corruption Index was in the scale of 0 to 100 where 0 index indicates most corrupt while 100 indicates least corrupt. Terrorism index was in the scale of 0 to 10 where 0 indicates least secure while 10 indicate most secure. From the regression analysis, Corruption index was found to have a positive effect to mean that FDI increases with increase in corruption index or rather as the country becomes less and less

corrupt. Terrorism index had a negative effect implying that FDI increases with a fall in terrorism index or rather as the country becomes more and more secure.

CONCLUSIONS

From the summary of findings above, it can be concluded that FDI and the selected macroeconomic and institutional factors are closely related as shown by the granger causality results. The relationship is unidirectional for some factors and bidirectional for others. The close relationship is due to the fact that investors are keen on macroeconomic and institutional factors of a country before they put in their investment.

From the panel regression results it can also be concluded that corruption index; terrorism index, GDP, inflation and interest rate are the key influential factors in FDI inflow in EAC while Current account balance and Gross domestic savings are less influential factors in the flow of FDI in EAC. This is because the probabilities for the later were less than 5% while the ones for Gross domestic savings and current account balance are greater than 5%.

Security and corruption are influential in attracting FDI since they directly influence the performance of any investment. Investors fear an insecure country since it increases expenditure on protection of their investment through hiring more security personnel and also effect on sales and loss of customers if the investment or business is destroyed by gangs.

Lending Interest rates is important in attracting FDI since it affects the cost of borrowing. High lending rates reduce the returns by investors since they pay back the loan with high interest and vice versa. Inflation rates influences FDI inflow through its effect on prices which may become unpredictable overtime due to inflation and again it raises the cost of production which limits the profit margin of investors. This scares away investors. GDP growth affects consumption and savings and this will have an impact on FDI since investors look for market which is determined by the level of consumption in a country.

RECOMMENDATIONS

Based on the above conclusion, the researcher made the following recommendations;

EAC governments should ensure that institutional factors are closely monitored so as not to affect FDI inflow negatively. Security and fight on corruption should be top most agenda for the EAC governments. This can be done through allocating more budget to the security docket in order to enable recruitment of more security personnel, continuous training of security officers in order to get acquainted with the modern ways of fighting insecurity, well-functioning of the intelligence service to caution on any danger prior to the occurrence. The officers should be

provided with modern firearms and other security weapons in order to safeguard citizens and investors against any external and internal attack.

Corruption erodes a country's resources and also kills the name of the country. EAC countries should have well-functioning and active offices which are meant to fight corruption. They should be independent and given enough resources to carry their duties without any fear or favour. EAC countries should learn from one another on the ways of cubing corruption since the indices differ from one country to another with Kenya having the lowest index compared to Uganda and Rwanda implying that corruption is relatively high in Kenya within the EAC.

EAC governments should control the lending interest rates since it negatively affects flow of FDI. They should keep the interest rates lower in order to encourage investors to take loans from financial institutions to undertake new investments and to expand the existing ones. This way they will be creating more job opportunities for the public hence stimulating economic growth and development. Furthermore lower interest rates will also encourage local investors to get involved in various business opportunities since the cost of borrowing will not hurt them much. Needless to say the loans should also not attract higher security in terms of the assets required to secure the loans. This would also encourage more borrowing for investment. Commercial banks should be under government regulations which should not allow them to gain monopoly in terms of setting interest rates. There should be a maximum lending interest rate limit set by the government arrived at after involving all stakeholders which is beneficial to both borrowers and financial institutions who are the lenders.

Inflation should be kept at its minimum as possible. This can be done through monetary and fiscal policies which targets money supply, government expenditure and taxation respectively. Excess money supply in the economy increases the price of goods and this hurts the ordinary citizen. Therefore National Banks should be on the watch to constantly keep the money supply at reasonable level so as to avoid its negative impact on price of goods and services. Importation of expensive products should also be avoided as it directly affects the domestic prices of goods and services. Alternatively EAC countries should encourage industrialization and importation of cheap inputs to lower the cost of production which culminates to low prices.

LIMITATIONS AND FURTHER RESEARCH

The study analyzed macroeconomic and institutional factors as determinants of FDI inflow in EAC. More research can be done on other determinants of FDI inflow such as socioeconomic and cultural factors amongst others. Secondly the study didn't exhaust all the macroeconomic factors that affect FDI inflow. More cross-sectional studies can be done on the remaining

macroeconomic factors that may affect the flow of FDI such as taxation policies, money supply amongst others. Lastly the study carried a cross-sectional study focusing on 3 countries within EAC. More studies can be done on the determinants of FDI inflow on the remaining countries within EAC.

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