

Research Article

Foreign Direct Investment-Economic Growth Nexus: The Role of Human Capital Development in the Common Market for Eastern and Southern Africa Region

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Abstract: This study uses country-level panel data to investigate the impact of foreign direct investment on the gross domestic product per capita in the Common Market for Eastern and Southern Africa region over the 2000-2015 period. The estimates are generated using the one-step generalized method of moments-difference estimator. The study found that foreign direct investment exerted a negative while human capital development has a positive impact on the gross domestic product per capita in the region. Additionally, the development of human capital has a positive effect on the ability of the region to absorb and benefit from the spillovers of foreign direct investment. The findings suggest that the countries of the region should target to attract foreign direct investment which complements economic growth and improve on the development of human capital in order to continue realizing positive economic growth from the said investment.

Keywords: COMESA, economic growth, foreign direct investment, generalized method of moments, human capital development

INTRODUCTION

FDI is defined as an investment made by an investor to acquire a lasting interest of management of 10% or more of voting stock and equity shares in a business enterprise with operations in an economy different from that of the investor (Mwilima, 2003; World Bank, 1996). Foreign direct investment is in forms of brick and mortar investment and Merger and Acquisition (M&A), which involves the acquisition of existing interest as opposed to a new investment. FDI also take the form of international joint ventures related to mergers¹. FDI is further classified into market-seeking, resource-seeking and efficiency-seeking types (Ajayi, 2007; Campos and Kinoshita, 2003).

FDI is associated with a positive contribution to the economic growth in recipient countries. FDI could close the gap between desired levels of investment and savings mobilized from domestic sources, increase tax revenues, improve skills of management, technology and workforce skills in recipient economies (Hayami, 2001; Todaro and Smith, 2003). Additionally, FDI may include the acquisition of modern technology, creation of employment opportunities, development of human capital, improved integration of foreign trade, complement domestic investment, generation of revenue, introduction of modern and efficient processes, impeccable skills of management and know-

how in the local market, employee training, improved foreign production networks and improved access to large markets (Ajayi, 2005; Findlay, 1978; Jenkins and Thomas, 2002; Mwilima, 2003; World Bank, 2000).

Conversely, FDI may create inadequate employment opportunities and lead into limited capital formation (Adams, 2009), crowd-out or replace domestic investment, lead to balance of payments challenges and create the enclaves economy (Mwega and Ngugi, 2007; Ugochukwu *et al.*, 2013). Foreign firms may fail to encourage entrepreneurship in the domestic economy; generate little revenues through taxes; repatriate profits to parent country instead of reinvesting the same in the local economy; develop limited forward and backward linkages with domestic firms; and can utilize capital-intensive techniques of production that are inappropriate in the domestic countries (Firebaugh, 1992).

Despite these advantages policy analysts and researchers have not accorded considerable attention to the relationship between FDI and economic growth in developing countries.

The inflow of FDI has been on the increase in Africa and sub-Saharan Africa in general and the COMESA region in particular. According to the data from the United Nations Conference on Trade and Development (2016) the net FDI stocks as a share of GDP averaged 29.0% over the 2000-2015 period. They

rose from 21.0% in 2000 to 36.4% in 2014 before falling to 27.9% in 2015. The net FDI stocks were not homogeneously distributed within the COMESA region as much of the investment was attracted by the resource-rich economies. In fact, out of the total FDI net stocks received in the region over the 2000-2015 period, Egypt accounted for the highest net FDI stocks, followed by Sudan, Libya, Zambia, Uganda and Ethiopia (United Nations Conference on Trade and Development, 2016).

Africa has also experienced fast growth since 2000 and sub-Saharan Africa is the third fastest growing region (5.59%/annum) after emerging markets and developing economies (5.98%) and developing Asia (8.39%/annum) (International Monetary Fund, 2016). The COMESA region experienced high economic growth rate since 2000, realizing highest growth rates of 3.9% in 2007 and 8.3% in 2012 (International Monetary Fund, 2016). The region's GDP/capita growth rate rose from an average of 0.46% in 2000 to 2.79% in 2015. Overall, the region experienced an average real GDP/capita growth rate of 1.9% between 2000 and 2015. This is slightly higher than GDP growth of 1.8% realized in the advanced economies during the same period. Finally, many member countries of the region are the fastest growing in Africa (International Monetary Fund, 2016)².

However, the growth impact of the increased FDI in the region is not well known. This is because, to the best of our knowledge, there are no similar studies conducted in the region in the past and previous regional empirical studies carried out omit all the COMESA countries from their analysis. They include Jugrnath *et al.* (2016), Mutenyo (2008), Nduricimpa (2009) and Seetanah and Khadaroo (2006), among others. Further, empirical evidence suggests that the growth impact of FDI is conflicting. The results show that the impact is either positive, negative or even indeterminate. For instance, Jugrnath *et al.* (2016), Mutenyo (2008), Nduricimpa (2009) and Seetanah and Khadaroo (2006) reveal that FDI exert a positive impact on the economic growth while Agbloyor *et al.* (2014), Bos *et al.* (1974), Prebisch (1968), Saltz (1992) and Singer (1950) found FDI to have a negative effect on growth. Alternatively, other authors, including Agbloyor *et al.* (2016), Carkovic and Levine (2002) and De Mello (1999) find that FDI has no impact on economic growth of recipient economies.

This study is aimed at establishing the growth effect of FDI in 19 developing countries of the COMESA region over the time period 2000-2015. It tests the hypothesis that increased inflows of FDI exert a positive impact on the GDP/capita of the COMESA region by applying a dynamic panel data analysis and employing the one-step Generalized Method of Moments (GMM) estimation technique suggested by Arellano and Bond (1991).

LITERATURE REVIEW

Theoretically, FDI can promote economic growth in a number of ways. Some analysts propose that the growth effects of FDI are expected to be two fold (De Mello, 1999; Kim and Seo, 2003). On the one hand, FDI can affect GDP/capita growth of an economy via accumulation of capital by introducing new products and exotic technology. This viewpoint is held by exogenous growth theorists. According to standard neoclassical growth models, countries with low domestic savings attract FDI to help in the process of accumulation of capital. Such inflow of capital allows COMESA region economies to grow faster than they could with their current financial resources. However, the model suggests that diminishing returns to physical capital occur and lead to growth effects of FDI being limited to the short run.

On the other hand, FDI can promote economic growth via augmentation of the knowledge stock in the host economy by knowledge transfer. This viewpoint is held by endogenous growth theorists. According to endogenous growth models, FDI can promote growth both in the long-run and short-run. Endogenous growth theory suggests that FDI facilitates the use of local raw materials, introduces modern management practices, brings-in new technologies, helps in financing current account deficits, increases the stock of human capital via on the job training and labor development and increases the investment in research and development. FDI, theoretically, can therefore play a key role in economic growth via increasing capital accumulation and spillovers or progress of technology (Herzer *et al.*, 2008).

Many researchers have found direct positive effect of FDI on growth of GDP per capita of host economies. They include De Mello (1997) who found that FDI has a positive effect on the economic growth of developing countries of Latin America and Campos and Kinoshita (2003) who found that FDI had a positive and statistically significant impact on the GDP/capita growth of 25 transition countries of Central and Eastern Europe and former Soviet Union.

In turn Seetanah and Khadaroo (2006) examined the association between FDI and the performance of the economies of 39 African countries over the 1980-2000 period using a panel data technique. Results from the static random effects estimates showed that FDI impacted positively on the level of economic growth. The results also confirmed existence of positive link when using GMM panel estimates in a dynamic panel analysis. Mutenyo (2008) assessed the influence of FDI on the GDP/capita in 32 countries in sub Saharan Africa. The author used both a static panel regression with fixed effect and a dynamic panel using the GMM estimator and found that FDI has a positive impact on economic growth but less efficient as compared to the private domestic investment.

Additionally, Jugrnath *et al.* (2016) examined the growth impact of FDI for a panel of 32 sub-Saharan African countries during the period 2008-2014. They used static panel regressions techniques and dynamic panel estimates to assess the causal link of FDI, trade openness, domestic investment, working population size and the effect of the 2009 European debt crisis on the GDP. They found a strong positive relationship between FDI and GDP.

Alternatively, other authors find that FDI have an indeterminate effect on the GDP/capita growth. They include Agbloyor *et al.* (2016) who investigated the relationship among FDI, institutions and economic growth in sub-Saharan Africa in various country conditions. They used a two-step GMM estimator with Weidmeijer corrected standard errors and orthogonal deviations to investigate the empirical relations. They found no evidence to support the hypothesis that FDI promote growth. They also did not find a significant relationship between institutions and economic growth. Others are Borensztein *et al.* (1998) who revealed that FDI inflows marginally affected growth for a sample of 69 developing economies and Carkovic and Levine (2002) applied a GMM panel data analysis on pooled data drawn from 72 countries in the period 1960-1995 and suggested that FDI does not have a positive impact on growth. De Mello (1999) and Katerina *et al.* (2004) also established that FDI had no impact on economic growth of recipient economies.

In contrast, other researchers observed FDI to have a negative direct effect on growth of the host nations. They include Prebisch (1968) and Singer (1950) who argued that the host economies of foreign direct investment do not obtain large benefits from this investment because most FDI benefits are shifted to the parent country of the multinational corporations. Other authors including Bos *et al.* (1974) advanced the view that FDI adversely affects the rate of growth due to price distortions of factors of production caused by protectionism, monopolization of the market and depletion of natural resources. However, Bos *et al.* (1974) added that FDI raises the level of investment and perhaps the productivity of investments as well as the consumption in the host country. Saltz (1992) also concluded that foreign direct investment has an adverse effect on growth.

Similarly, Agbloyor *et al.* (2014) examined the relation between private capital flows and economic growth in Africa during the period 1990-2007 using a panel Instrumental Variable Generalized Method of Moments (IV-GMM) estimator to control for endogeneity and heteroscedasticity. They found that FDI, foreign equity portfolio investment and private debt flows had a negative impact on economic growth.

It is clear that empirical evidence on the effects of FDI on economic growth provides conflicting results. One of the explanations to justify the controversy of the empirical evidence on the effects of FDI on GDP/capita

growth is that, the effect of FDI on GDP/capita is dependent on the human capital development and other absorptive capacity measures including the technology gap, the development of the financial sector, infrastructure and quality of institutions, among others. Additionally, the host country requires to reach a minimum threshold of such absorptive capacity, before benefiting from the effects of foreign direct investment on growth.

Human capital development is an important channel for transferring and receiving benefits of FDI in the host countries. According to Blomström and Kokko (1998) labour force in terms of human capital and education allows for absorption and adaptation of foreign technology and generation of sustainable economic growth in the host countries. The benefits of FDI are transferred to human capital development via training, learning by doing and work experience accumulation. The human capital development provides the force required to implement the technology and know-how conveyed by the FDI. Better skilled and educated labour is likely to allow for efficient and effective reception of new technology and achievement of better economic performance.

Van den Berg (2001) advanced that the ability of an economy to create new knowledge and ideas and adapt old knowledge and ideas is determined by the quality of the labour force. The author added that high quality labour force is required to install projects especially at the stage of disbursing investment. The author also observed that the shortage of qualified people may lead to a slow and stuck installation of development projects. Low skilled and educated workers negatively impact on investment disbursement and adversely affect the ability of the host country to promote FDI. Further, Chen (1990) observed that host economies with high quality and higher amounts of human capital investment are able to gain more benefits from FDI.

Other researchers who hold a similar view include Borensztein *et al.* (1998), Xu (2000) and Balasubramanyam *et al.* (1996). For instance, Borensztein *et al.* (1998) investigated the effect of FDI on economic growth in 69 developing countries applying cross-sectional and cross-country regressions. The authors applied panel data for 20 years (1970-1979 and 1980-1989) and estimated the regressions utilizing cross-section regressions and the Seemingly Unrelated Regressions method (SUR). They found that FDI is a critical channel in technology transfer, but the effectiveness of the FDI is dependent on the human capital stock in the host economy. The authors observed that FDI had a positive contribution to economic growth only in countries where the stock of human capital is above a certain threshold with a highly qualified workforce. The host economies with low stock of human capital experienced negative direct effects of FDI on economic growth. Similar findings are also reported by Xu (2000) for 40 economies (20

developed countries and 20 less developed countries) between 1966 and 1994. The author examined the effect of the presence of the affiliates of the multinational corporations on the productivity growth of the host economy. The authors applied the panel data Two Stages Least Square (2SLS) technique and established that developing countries gain positively from transfer of technology offered by US multinational corporations but not in less developing countries. The author concluded that less developing countries do not reach the required minimum threshold of human capital.

In turn, Balasubramanyam *et al.* (1996) found that FDI had a positive and significant impact on economic growth subject to achievement of a certain threshold of human capital stock in the recipient country. The authors also observed that FDI complements local investment. Utilizing a panel data for 84 countries from 1970 to 1999, Li and Liu (2005) established that the interaction of foreign direct investment with the stock of human capital exhibited a statistically significant positive impact on economic growth. The foregoing literature review suggests that, in order to obtain the benefits of FDI, the recipient country require minimum threshold of high quality stock of human capital.

As such, while the theoretical literature points out that FDI has positive growth impacts, the empirical evidence gives conflicting outcomes. Also, regional empirical studies that examine the impact of FDI on the economic growth in the COMESA region are missing in the literature.

METHODOLOGY

Data: This study utilizes annual panel data covering the period between 2000 and 2015 for Burundi, Comoros, Djibouti, Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia and Zimbabwe. The data is drawn from different sources and compiled to suit the analysis. These are countries found in the COMESA region.

The data on the GDP/capita, inflation and public debt was obtained from the International Monetary Fund, World Economic Outlook reports (various years), while the data on domestic investment (represented by gross capital formation) was obtained from the World Bank, World Development Indicators (various years). Finally, the data on the human capital development was obtained from the United Nations Development Programme (UNDP), Human Development Index (HDI) report (various years).

Theoretical framework: In order to examine the impact of FDI on economic growth of the Common Market for Eastern and Southern African countries, the theoretical growth model is constructed following Kitonyo (2018) to obtain Eq. (1):

$$Y_{i,t} = A_{i,t} L^{\alpha} K_D^{\beta} K_F^{\theta} \quad (1)$$

where,

- Y : The flow of output
- A : The total factor productivity
- K_D : The domestic capital
- K_F : FDI
- L : The labor force
- α : The output changes to labor force changes
- β : The output changes to domestic capital or local investment changes
- θ : The changes in output to changes in FDI

α , β and θ are assumed to be <1 , implying diminishing returns to each factor input. The subscripts i and t represent the cross-sectional member countries of the COMESA region and time period, respectively.

A dynamic production function, expressed as shown in Eq. (2), is produced by taking the logarithms of Eq. (1):

$$Y_{i,t} = \tau + \gamma_1 L_{i,t} + \gamma_2 K_{D,i,t} + \gamma_3 K_{F,i,t} + \varepsilon_{i,t} \quad (2)$$

Equation (2) is expanded by including other factors that explain economic growth, denoted by F^3 and interaction term between the labour force and FDI, $L * K_F$. The addition of the interaction terms follows Elboiashi (2011)⁴ and Kitonyo (2018)⁵:

$$Y_{i,t} = \tau + \gamma_1 L_{i,t} + \gamma_2 K_{D,i,t} + \gamma_3 K_{F,i,t} + \gamma_4 W_{i,t} + \gamma_5 (L * K_F)_{i,t} + e_t + v_i + \varepsilon_{i,t} \quad (3)$$

where,

- Y : The real GDP per capita
- L : The labour force
- K_D : The domestic investment
- K_F : FDI
- W : A set of other factors that explain economic growth such as trade openness, public debt and inflation
- $(L * K_F)$: The interaction terms between the labour force and FDI
- τ : A constant
- e_t : Time-specific effects which are also assumed to be independently and identically distributed over all time periods
- v_i : An unobserved country-specific effects which are independently and identically distributed overall the nineteen countries of the COMESA region
- $\varepsilon_{i,t}$: A normally distributed error term
- $\gamma_1, \gamma_2, \gamma_3, \gamma_4$ and γ_5 : The parameters to be estimated

The incorporation of dynamics into Eq. (3) requires that the equation be rewritten as an AR (1)⁶ model by including the past values of GDP/capita as an independent variable. This operation produces Eq. (4):

$$Y_{i,t} = \tau + \gamma_0 Y_{i,t-1} + \gamma_1 L_{i,t} + \gamma_2 K_{Di,t} + \gamma_3 K_{Fi,t} + \gamma_4 W_{i,t} + \gamma_5 (L * K_F)_{i,t} + e_t + v_i + \varepsilon_{i,t} \quad (4)$$

where,

γ_0 : The parameter for the difference of lagged values of GDP/capita

The rest of the terms are as explained in Eq. (3).

Econometric model: The estimated equation used is given by Eq. (5):

$$GDPPC_{i,t} = \tau + \gamma_0 GDPPC_{i,0} + \gamma_1 GDPPC_{i,t-1} + \gamma_2 HUMCAP_{i,t} + \gamma_3 DINV_{i,t} + \gamma_4 TRADE_{i,t} + \gamma_5 PUBDEBT_{i,t} + \gamma_6 INFLA_{i,t} + \gamma_7 FDI_{i,t} + \gamma_8 (HUMCAP * FDI)_{i,t} + e_t + v_i + u_{it} \quad (5)$$

where,

$GDPPC_{i,t}$: The GDP/capita in country i during period t

$GDPPC_{i,t-1}$: Lagged GDP/capita

$HUMCAP$: The human capital stock (measured by the Human Development Index, HDI)

$DINV$: The domestic investment (measured by the share of gross fixed capital formation in constant dollars to GDP ratio)

$TRADE$: Trade openness (measured by the share of total imports and exports to GDP)

$PUBDEBT$: The public debt (measured by the share of the gross debt liabilities to GDP ratio)

$INFLA$: The changes in annual general level of prices

FDI : The foreign direct investment

$HUMCAP * FDI$: The interaction term between the human capital development and FDI

γ_0 : A parameter reflecting the speed of convergence of GDP/capita from one period to the next

τ : A constant

e_t : Time-specific effects which are also assumed to be independently and identically distributed over all time periods

v_i : An unobserved country-specific effects which are independently and identically distributed over

the countries in COMESA region

u_{it} : The error term which is assumed to be independently and identically distributed over all time periods in country i

$\gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5, \gamma_6, \gamma_7, \gamma_8$: The estimable parameters

A positive (negative) sign of the parameters suggests that an increase in the respective variable by one percent leads to an increase (decrease) of GDP/capita by the percentage size of the parameter. In model Eq. (5), the coefficient γ_7 is interpreted as the marginal rise in the impact of FDI on the real GDP/capita when the development of human capital improves. The converse also holds true.

Variables used in the study: The growth performance of GDPPC measures the overall performance of an economy. The GDP/capita in this study is measured by the nominal real GDP/capita deflated by the GDP deflator (base 2000 = 100). The lower the starting level of real GDP/capita the higher the predicted growth rate (Barro, 1991; Kitonyo, 2018; Levine and Renelt, 1992). Growth is expected to be rapid at first then slows down as the economy becomes more developed. Consequently, $\gamma_0 < 0$.

Additionally, the current GDPPC is expected to be affected positively by lagged GDP/capita, $GDPPC_{i,t-1}$. In other words, high values of real GDP per capita in the past are expected to positively influence growth of the current real GDP/capita in the COMESA region. Hence, $\gamma_1 > 0$.

$HUMCAP$, represented by the Human Development Index (HDI) in this study, is expected to affect current GDPPC positively and enhance the ability of the COMESA region to absorb and benefit from spillovers of FDI. According to Jongwanich (2007), Kitonyo *et al.* (2017a, 2017b) and Kitonyo (2018) high level of human development in terms of leading a long and healthy life, being knowledgeable and educated and having a decent standard of living promotes economic growth and enable the host economy to absorb and benefit from spillovers of FDI. It is expected that $\gamma_2 > 0$.

$DINV$ has a positive effect on the GDPPC (Kitonyo *et al.* 2017a, 2017b). Increased rate of domestic capital investment promote productivity in an economy. Domestic investment in this study is represented by the share of gross fixed capital formation in constant dollars to GDP ratio. Thus, $\gamma_3 > 0$.

Measured by the share of trade (imports and exports) to GDP, trade openness of the host economy is expected to enlarge markets and expand domestic investment so as to meet increased demand for goods and services (Feder, 1982). The performance of

COMESA region’s total imports and exports and adoption of trade liberalization by member countries could also increase the significance of the impact of short term foreign capital flows on economic growth. TRADE is therefore expected to have a positive impact on the GDPPC as well as enhance the ability of the COMESA region to absorb and benefit from the spillovers of FDI. Hence, it is expected that $\gamma_4 > 0$.

High level of debt liabilities in the form of Special Drawing Rights, currency and deposits, debt securities, loans, insurance, pensions and standardized guarantee schemes and other accounts payable, represents the risk for an economy to encounter difficulties in reimbursing its public debt and to face a financial crisis. The presence of a large public debt can also adversely affect investment by reducing the funds available to invest, given that the return from new investments will be overly taxed in order for the government to repay the debt. The study anticipates a negative impact of PUBDEBT, measured by the share of the gross debt liabilities to GDP ratio, on GDPPC. Therefore, $\gamma_5 < 0$.

Macroeconomic instability, reflected by high, rising and unstable general levels of prices, reduces real future profits and cause uncertainties to investors. According to Lorain and Vergara (1993) and Servén and Solimano (1992), macroeconomic instability provides uncertain and unreliable economic environment, which does not allow the investors to benefit from the existing profit opportunities. The priori expectation is that INFLA, measured by the annual percentage change in the Consumer Price Index (CPI), has a negative impact on the GDPPC of the host country. Therefore, $\gamma_6 < 0$.

FDI, measured by net FDI stocks⁷, promotes GDP per capita growth of host countries by filling the gap between desired investment and domestically mobilized savings, complementing domestic investment, creating employment, increasing tax revenues, introducing new technology, improving managerial and labour skills

(Kitonyo, 2018). Hence, it is expected to impact positively on current GDP growth. Hence, $\gamma_7 > 0$.

Analysis of data and technique of estimation: The study utilizes a panel data drawn from 19 countries in the COMESA region over 2000-2015 period. A dynamic panel data GDP/capita model, where the lagged dependent variable, the GDP/capita, is added to the explanatory variables, is estimated. It is argued that the lagged GDP/capita has a positive impact on the current GDP/capita.

This study uses the Generalized Method of Moments (GMM) technique suggested by Arellano and Bond (1991) to account for dynamics and resolves endogeneity, unobserved heterogeneity and short panel bias problems.

RESULTS AND DISCUSSION

The analysis begins by providing the summary descriptive statistics in Table 1 that describe the features of the data used in the study.

The results of the correlation of variables are presented in Table 2. An explanatory variables correlation matrix is used to test the presence of multicollinearity in the dynamic panel data GDP/capita model specified in Eq. (5).

The results in Table 2 indicates that all the zero-order correlation coefficients between any two regressors are low, ruling out the presence of perfect or near perfect linear relationship. Thus, there is no relationship among the independent variables, implying that the regression obtains determinate coefficient and finite standard errors.

On one hand, Table 2 indicates that GDP/capita has a positive correlation with domestic investment and human capital development as theoretically predicted.

Table 1: Summary statistics

Variable	Mean	Median	Min.	Max.	S.D.
GDP/capita (PPP US dollars)	4,911.76	1,835.72	377.20	29,646.60	6,541.35
Domestic investment (% GDP)	21.15	19.85	2.00	51.79	8.84
Human capital development (HDI)	0.46	0.42	0.22	0.81	0.15
Public debt (% GDP)	65.12	52.67	1.01	202.05	46.17
Openness of the economy (% GDP)	76.07	65.50	21.00	225.00	43.04
Inflation (%)	11.41	7.94	0.06	94.96	12.43
Foreign direct investment (% GDP)	28.43	20.65	0.00	168.66	29.13

Min.: Minimum; Max.: Maximum; S.D.: Standard deviation; Authors’ computations

Table 2: Correlation matrix of variables in levels

Variable	GDPPC _{1,t}	GDPPC _{1,0}	DINV	HUMCAP	PUBDEBT	TRADE	INFLA	FDI
GDPPC _{1,t}	1.000							
GDPPC _{1,0}	-0.007	1.000						
DINV	0.338	0.325	1.000					
HUMCAP	0.585	0.089	0.273	1.000				
PUBDEBT	-0.124	-0.112	-0.220	-0.182	1.000			
TRADE	-0.570	0.578	0.119	0.590	-0.097	1.000		
INFLA	-0.166	-0.219	-0.059	-0.123	0.208	-0.040	1.000	
FDI	0.018	0.367	0.220	0.363	0.061	0.598	-0.063	1.000

Author’s own computations

Table 3: Arellano and Bond (1991) GMM-difference estimates of the impact of FDI on economic growth in the COMESA region, 2000-2015

Dependent variable = GDP/capita (GDPPC)	Dynamic panel data GDP/capita model
Initial GDP/capita (GDPPC _{t,0})	-0.263 (0.031)**
GDP/capita (GDPPC _{t-1})	0.148 (0.014)**
Human capital development (HUMCAP)	0.605 (0.024)**
Domestic investment (DINV)	0.152 (0.036)**
Public debt (PUBDEBT)	-0.145 (0.027)**
Trade openness (TRADE)	-0.072 (0.651)
Inflation (INFLA)	-0.143 (0.013)**
Foreign direct investment (FDI)	-0.352 (0.027)**
FDI*HUMCAP	0.758 (0.013)***
Constant	0.272 (0.281)
Number of observations	228.000
Number of instruments	119.000
A-B test 1 st order	-2.230 (0.026)**
A-B test 2 nd order	-0.788 (0.431)
Sargan over-identification test	163.590 (0.100)
Wald (joint) test	2311.910 (0.000)***
Adjustment speed, $\lambda = 1-\gamma_0$	0.852

p-values are reported in parentheses with *, **, *** denoting significance at 10, 5 and 1%, respectively; The Arellano and Bond (A-B) Z-statistic tests the null hypothesis that the residuals are first-order correlated (A-B test 1st order) and the residuals are not second-order correlated (A-B test 2nd order); The Wald test, a test of joint significance, tests the null hypothesis that the coefficients of time dummies are zero; Authors' computations

The FDI is positively related to GDP/capita in line with economic theory.

On the other hand, the Table shows that growth is negatively correlated with initial GDP/capita, public debt and inflation, as theoretically predicted. However, economic growth is negatively correlated to openness of the economy, contrary to economic theory.

Finally, Table 3 presents estimates of the dynamic panel GDP/capita Eq. (5). The first column describes the estimated variables, number of observations, number of instruments, diagnostic tests and adjustment speed. The second column presents the estimates generated by using the one-step Arellano and Bond (1991) GMM difference estimator.

The diagnostic test results in terms of lack of second-order serial correlation, validity of instruments variables and statistically significant Wald tests shows that the model is correctly specified and GMM-difference estimator yields reliable and efficient results.

The regression results suggest that FDI matter for economic growth in the COMESA region. The negative and significant coefficient of the impact of FDI on the GDP/capita imply that a rise in FDI leads to a direct decrease in the growth of GDP/capita in the COMESA region. This finding is supported by previous authors such as Agbloyor *et al.* (2014), Bos *et al.* (1974), Jugrnath *et al.* (2016), Kitonyo (2018), Prebisch (1968), Saltz (1992), Saqib *et al.* (2013) and Singer (1950) and among others, who found a negative and statistically significant effect of FDI on growth. The results are however contrary to the general belief that FDI is a key source of growth (Borensztein *et al.*, 1998; Findlay,

1978; Hayami, 2001; Jenkins and Thomas, 2002; Todaro and Smith, 2003; World Bank, 2000). The statistically significant coefficient of the FDI implies that the investment has a significant positive impact on the GDP/capita in the COMESA region.

The negative impact of FDI on the growth of GDP/capita in Africa could be explained by a number of reasons, including to the lack of synergies between FDI and domestic investment (Ndikumana and Verick, 2008); few linkages to domestic firms, spillover opportunities and little value-added processing of the resources (Morrissey, 2012); lack of competition among the FDI players in Africa and distorted regulatory and incentive frameworks (United Nations Conference on Trade and Development, 2016); and poor governance, weak institutions, relatively high corruption and political instability (Asiedu, 2006), among others.

The results shows that development of human capital has a positive and significant impact on economic growth at 5% level of significance, concurring with Jongwanich (2007), Kitonyo *et al.* (2017a, 2017b) and Kitonyo (2018). Further, the interaction term (FDI*HUMCAP)⁸ has a positive and significant coefficient at 1% level of significance, implying that development of human capital has a positive effect on the growth impact of FDI in the COMESA region. The result confirms findings by previous studies by Nduricimpa (2009), Borensztein *et al.* (1998) and Saggi (2002), among others. This result means that development in the human capital has a positive effect on the growth impact of FDI in the COMESA region.

The coefficient of the initial GDP/capita is statistically significant at 5% level of significance, supporting conditional convergence. Additionally, the parameter of the past values of GDP/capita is statistically significant at 5% level of significance, suggesting that the past values of GDP/capita growth has a significant positive impact on the current economic growth rate.

Consistent with Cohen (1993), Kitonyo *et al.* (2017a, 2017b) and Lorain and Vergara (1993) public debt and inflation exerts a negative and statistically significant impact on the GDP/capita in the COMESA region.

CONCLUSION

The objective of this study is to investigate the growth impact of FDI in the Common Market for Eastern and Southern Africa region over the period 2000-2015. The empirical studies reviewed in this study showed conflicting outcomes, where results of some studies are positive, while others are negative and indeterminate. In order to attain the aim of the study, a dynamic panel data GDP/capita model is estimated

using the one-step GMM estimators suggested by Arellano and Bond (1991).

The study confirms conditional convergence and finds that FDI exerts a negative and statistically significant impact on GDP/capita in the region. It also finds that the past values of GDP/capita and domestic investment affects growth positively. Additionally, development in human capital is found to exert a positive impact on the GDP/capita and enhance the ability of the region to absorb and benefit from FDI. Lastly, high inflation, growth in public debt exhibit a negative impact on the GDP per capita in the COMESA region.

The governments of the states of the COMESA region are recommended to target to attract beneficial FDI that significantly increase employment, enhance skills and boost the competitiveness of local enterprises and therefore promote growth. They should also improve human capital development so as to exploit the positive impact of FDI. They could consider allocating more resources to support initiatives that ensure people lead a long and healthy life, are knowledgeable and enjoy a decent standard of living.

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CONFLICT OF INTEREST

We do not have any conflict of interest to declare.

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- End notes:**
- ¹: Mergers and related non-equity forms of FDI such as international joint ventures are reported together. Joint ventures are businesses arrangements in which two or more parties agree to pool their resources for the purpose of accomplishing a specific task. This task can either be a new project or any other business activity. The parties retain their distinct identities in the course of the business arrangement.
- ²: These countries include Djibouti (2.4%/annum), Egypt (2.4%/annum), Ethiopia (6.0%/annum), Libya (2.3%), Mauritius (3.5%/annum), Rwanda (4.7%/annum), Seychelles (2.4%/annum), Sudan (4.1%/annum), Uganda (3.1%/annum) and Zambia (3.6%/annum), among others (International Monetary Fund, 2016).
- ³: The other factors that influence economic growth include among others openness of the economy, public debt and inflation.
- ⁴: Elboiashi (2011) interacted the human capital, technology gap, infrastructure development, institution quality, financial market development and trade openness with FDI so as to investigate the effect of the host country conditions on the impact of FDI in 76 developing countries between 1980 and 2005.
- ⁵: Kitonyo (2018) investigated the growth impact of aggregated and disaggregated foreign capital and financial resources in the Common Market for Eastern and Southern Africa (COMESA). The author tested the hypothesis that absorptive capacity affect the impact of the aggregated and disaggregated foreign capital and financial resources on economic growth by interacting their respective variables with different factors of absorptive capacity. The study tested the significance of the interacted coefficient.
- ⁶: AR (1) stands for autoregressive dynamic panel data model of order one.
- ⁷: FDI stock is the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprises (United Nations Conference on Trade and Development, 2016).
- ⁸: The interaction term (FDI*HUMCAP) capture the effect of a well-developed human capital is likely to have on the absorptive capability of the stock of foreign direct investment including technology and knowledge.