

THE JOINT EFFECT OF ECONOMIC INTEGRATION, EASE OF DOING BUSINESS AND ECONOMIC GROWTH ON FOREIGN DIRECT INVESTMENT IN THE EAST AFRICA COMMUNITY

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Abstract

Creation of economic blocs is expected to lead to increased foreign direct investment (FDI) into a region. In addition, literature suggests that improving the ease of doing business environment is a key ingredient in the attraction of FDI. Furthermore, economic growth rate is regarded as an important determinant of FDI attraction because it is indicative of the population purchasing power. Within the Eastern part of Africa there is an economic bloc known as the East Africa Community (EAC). In the protocol that established EAC, it is indicated that one of the greatest benefits anticipated from formation of the bloc is the attraction of FDI. However, the available anecdotal evidence, suggest that the East African region ranks as one of the poorest recipients of FDI in the world. This study sought to establish the relationships between economic integration, ease of doing business, economic growth and foreign direct investment in the EAC. A descriptive correlational research design was employed in the study. EAC was the unit of analysis consisting of Kenya, Tanzania, Uganda, Rwanda and Burundi. Empirical data analysis

used a semi-logarithmic multiple regression model. The quarterly time series data used spanned the period 2001 – 2015. The study established that formation of an economic bloc leads to more attraction of FDI into a region. However, it is also found that for more effective attraction of FDI there must be favorable business environment (Ease of Doing Business) within the integrating region. Additionally, GDP is found to catalyze the rate of FDI attraction.

Keywords: Economic integration, Ease of doing business, Economic growth, foreign direct investment, Joint effect, East Africa Community

INTRODUCTION

Economic integration can be defined as a reduction of trade barriers and investment restrictions among countries (Blomstrom and Kokko, 1997). It entails removal of tariff and non-tariff barriers to the flow of goods, services and factors of production (Marsk, 2014) among a group of nations. The levels of economic integration are usually identified as the free trade area, the customs union, the common market, the economic union, monetary union and complete economic integration. The free trade area involves the abolition of tariffs and equivalent trade restrictions between members of the area, with each member selecting its own trade policy for non-members. The customs union is a free trade area with a common trade policy with respect to non-members. The common market has all the elements of the customs union, and additionally, permits factors of production like capital and labour to move freely among member nations. An economic union is a common market in which members coordinate national economic policies. A monetary union is where more than one territory shares a common currency and foreign exchange policy. Finally, complete economic integration is an economic union for which a supranational agency determines monetary, fiscal, trade, and social policies for all member nations (Jaumotte, 2004).

An increase in market size as result of economic integration influences the magnitude of foreign direct investment (FDI) flowing into a region (Medvedev, 2012). Foreign direct investment is a cross-border investment made by a resident in one economy with the aim of establishing a lasting interest in an enterprise that is resident in an economy other than that of the investor (Organization for Economic Cooperation and Development – OECD, 2008). The East African Community (EAC) has not been a good recipient of FDI possibly due to ease of doing business challenges as characterized by high country risk, slow progress in structural and institutional reforms, high administrative barriers, inefficient government bureaucracy, high level of corruption, and poor implementation of laws (Slavica and Andreja, 2014). In addition to ease

of doing business, a potential foreign investor also has an interest in the gross domestic product (GDP) growth rate of an investment destination because it is an indication of the potential return on investment to be reaped (Iamsiraroj and Doucouliagos, 2015).

Developing countries rely on FDI to supplement their low levels of national savings in order to promote economic development (Nunenkamp, 2002). However, low levels of FDI are still a big concern for poor countries (Morrissey, 2006). For instance, between the year 2012 and 2014, Africa received less than 5% of the global FDI flows (UNCTAD, 2015). According to the African Development Bank (2014), the East African region ranks as the poorest recipient of FDI out of the five African regions. This is despite the fact that within this region we have an economic bloc known as the East African Community (EAC). Economic integration is often considered a means to improve member countries' attractiveness to FDI. In their protocol the EAC member countries view regional integration as an important ingredient in stimulating increased foreign investment (African Development Bank, 2011).

In the EAC the following studies in relation to economic integration have been undertaken: McIntyre (2005) analyzed the potential trade impact of the forthcoming EAC customs union. The study examined the trade linkages among the member countries and the effect of common external tariff. After conducting simulations for Kenya, the results showed that the customs union will have beneficial effects on Kenya's trade; Shinyekwa and Othieno (2013) investigated the potential impact of the EAC on trade creation and diversion. The study estimated static and dynamic random effects models using a panel data set from 2001 to 2011 on seventy countries that trade mainly with the EAC partner states. The findings suggested that the implementation of the EAC treaty has created trade; Kodongo and Natto (2014) investigated the drivers for bank expansion abroad in East Africa. The study used a poisson regression model with number of banks going abroad as the dependent variable. The results indicated that follow-the-customer motive is a strong drive for bank expansion across EAC. In addition, the desire for superior returns and the need to escape intense competition in Kenya has pulled banks into foreign markets. Further, favourable regulatory environment abroad also influenced the expansion of banks into foreign markets. However, the results suggested that economic integration was negatively related with bank expansion; and, Ochieng (2014) investigated integration relationships between Kenyan and other EAC financial market segments. The study employed correlational and longitudinal research designs. It was concluded that there are linkages in the money markets and long run integrating relationships amongst the equity markets though perfect and full integration has not been attained.

It appears that there is a scarcity of studies that investigated the nexus of economic integration and FDI in the EAC. In other words, a contextual research gap on the subject of

economic integration and FDI exists in the East African Community. Regional integration agreements (RIAs) as well as FDI are too diverse to allow for generalized verdicts (Kunby, Molders and Nunnekamp, 2008). For instance, the success of the European customs union led to several customs unions being created among developing countries in the 1960s, e.g. Central American Common Market (CACM) and the East African Community (EAC). But both customs unions were not as successful, they collapsed in the 1970s. Therefore, it might be erroneous to generalize the findings obtained elsewhere into the East African Community context. In addition, it is also important to take into account other factors that influence the extent to which economic integration affects FDI. According to the FDI literature the important influencing factors include Ease of Doing Business (Athukorola, 2013; Blomstrom and Kokko, 1997) and Economic growth (Ismail,Smith and Kugler, 2009; Iamsiraroj and Doucouliagos, 2015). The current study would like to evaluate the relationship between economic integration, economic growth, ease of doing business, and FDI in the East Africa Community. There is no previous study that synchronized the relationship among these four variables. Therefore, it is correct to state there exists a conceptual knowledge gap in that regard. In addition, while some studies have found that economic growth attracts FDI (Abala, 2014) others have shown that FDI is responsible for driving economic growth (Borensztein, Gregorio and Lee, 1997; Alfaro, Chanda, Ozcan and Sayek, 2006; Katerina, 2004). Therefore, it was important that reverse causality be conducted in this study to establish the direction of relationship between these two variables. In summary, this study sought to answer the question: What is the relationship among economic integration, ease of doing business, economic growth and foreign direct investment in the East African Community? The outcome of this study is very useful in informing policy decisions on how to effectively attract FDI.

THE EAST AFRICAN COMMUNITY

The formation of East African Community (EAC) dates back to 1903 when the colonial governments of Kenya, Tanganyika (Tanzania), and Uganda set the stage for the formal socio-economic and political cooperation in the region. The institutional mechanisms set up included: the East African Posts and Telegraphs, the East African Currency Board, the Customs Union, the East African Income Tax Board, and the East African Airways. In 1967 a fresh treaty was signed to broaden the scope of the economic and political integration responsibilities of the EAC. The economic bloc collapsed in 1977 as a result of weak organizational structures and political differences between the partner states of Kenya, Uganda and Tanzania (Adar, 2011).

The current EAC is a regional intergovernmental organization of the Republics of Kenya, Uganda, Tanzania, Rwanda, Burundi and South Sudan. It was officially revived in 2000,

following the signing of the Treaty for the Establishment of the East African Community in 1999 by the 3 partner states. The Republics of Rwanda and Burundi became full members of the EAC after acceding to the treaty in 2007 (Institute of Economic Affairs, 2011). South Sudan became a member of EAC on 2nd March 2016 (Omondi, 2016).

Significant trade barriers still persist in the EAC. The lack of harmonized trade policy instruments limits inter-regional trade. Cumbersome trade logistics along transport corridors and time-wasting border procedures result in excessive delays, high transit costs and also increased trade costs. Efficient customs operations are hampered by excessive documentary requirements, insufficient use of automated systems, and lack of cooperation among customs and other government agencies (African Development Bank, 2012). According to the African Development Bank (2014) despite a marked improvement in the FDI inflows, the East African region is still the poorest performer in Africa. However, in the recent past there has been an upsurge in FDI flow into East Africa. According to UNCTAD (2015) in the year 2014, FDI into East Africa region grew by 11%. By World Bank standards all EAC member countries are developing economies (Have less than \$6 000 GNI per capita). However, according to Gigineishvili, (2014) the EAC countries' economic performance during the last decade has been impressive. At 6.2 percent, the EAC's average growth rate in 2004 - 13 is in the top of one-fifth of the distribution of 10-year growth rate episodes experienced by all countries worldwide since 1960.

The EAC is home to 158 million citizens, of which 22% live in urban areas. The region has a land area of 2.42 million square kilometers and a combined Gross Domestic Product of US\$ 169.5 billion. Agriculture is at the core of economic developments in the EAC. It accounts for 43% of the total GDP in the region. Agricultural share of GDP exceeds 50% in Tanzania and Burundi, while in Uganda and Rwanda it is about 50%, and in Kenya it contributes less than 30% (Kabuye, 2008). The key export products from EAC include coffee, tea, cocoa, iron, steel, crude oil & petroleum products, cement, mineral ores, palm oil, sugar, horticulture and fertilizer. Under the U.S. African Growth and Opportunity Act (AGOA), EAC countries benefitted from duty-free and quota-free access to the U.S. market for a range of products until 2015 (EAC Statistics for 2015).

RELATED LITERATURE

There are many theories of economic integration and foreign direct investment but the ones that capture the theme of this study are the customs union theory (Viner, 1950; Kindleberger, 1966) and eclectic theory of FDI (Dunning 1977). The customs union theory is associated with the works of Viner (1950) that assessed the consequences of joining a customs union from the view

point of welfare effects of the removal of tariffs and introduction of the common external tariff on trade. He argued that the reduction of the barriers may either lead to trade creation or trade diversion. Trade creation occurs when the introduction of a regional trade agreement (RTA) allows supply from a more efficient producer of the product from within the region. In contrast, trade diversion means that a RTA diverts trade, away from a more efficient supplier outside the RTA, towards a less efficient supplier within the RTA. As the introduction of an RTA will generally have both trade creation and trade diversion effects, it is the net affect that needs to be assessed when deciding whether an RTA hinders or enhances welfare. The Viner's theory was further developed by Meade (1955); Lipsey (1960); Johnson (1965); and Kindleberger (1966) with each author adding a new dimension. But it is Kindleberger (1966) contribution that has the greatest relevance to this study.

Viner's (1950) inferences on the trade effects of customs union was extended to investment activities to describe investment diversion and creation that can occur as a result of economic integration by Kindleberger (1966). The author argued that investment creation could occur as a likely response to the trade diversion brought about by RIAs. The term refers to the strategic investment responses by outside firms who lose export markets when their former customers turn to suppliers based in the region, because regional trade is not obstructed by trade barriers. However, a situation could induce trade creation and investment diversion where a local firm might divest because of losing business to more efficient firms located within the integrated market. This theory has an important relevance to this study. The customs union theory as expanded by Kindleberger (1966), argues that economic integration is supposed to trigger flow of FDI in and out of member countries. The difference between the FDI flowing in and that flowing out is known as FDI stock. This study was interested in measuring FDI stock. According to Blomstrom & Kokko (1997) the inflows of foreign capital are expected to increase if the volume of incoming FDI was initially restricted by the limited size of the individual national markets. The integrated common market may be large enough to bear the fixed costs for the establishment of new foreign affiliates as compared to individual national markets. Economic integration should influence FDI flows mostly positively, due to reduced trade barriers and extended market sizes. The weakness of this theory is that it assumes the existence of imperfect markets. Foreign direct investment is expected to arise as a result of an attempt at exploiting imperfections in products and factor markets. However, the continued existence of market imperfections depends on the maintenance of barriers to entry like tariffs, patented technology, and economies of scale, high advertising expenditure, and unique sources of raw materials. The current trend towards globalization has been increasingly eroding such barriers. This argument is also advanced by Nunnenkamp (2002) who wrote that non-traditional

determinants of FDI such as openness to trade have typically become less important with proceeding globalization.

The eclectic theory of FDI also referred to as “OLI-Model” or “OLI-Framework” tries to explain why firms set up subsidiaries abroad instead of simply servicing the markets via exports. After all, MNCs experience additional costs in producing abroad: higher costs in placing personnel abroad, communication costs, language and cultural differences, informational costs on local tax laws and regulations, cost of being outside domestic networks; they also incur risk of expropriation by the host country. This theoretical approach, introduced by Dunning (1977, 1981), considers FDI as determined by Ownership, Location and Internalization advantages which the MNC holds over the foreign producer; when these advantages outweigh the above costs, FDI arises. The ownership advantage includes a product or a production process to which other firms do not have access, such as a patent, blueprint or trade secret, to more intangible assets such as reputation for quality. It refers to the alternative ways in which the firm may organize the creation and exploitation of its core competencies, and take advantage of location attractions in different countries and regions. The location advantage stems directly from the foreign market, such as low factor prices or customer access, together with trade barriers or transport costs that make FDI more profitable than exporting. Finally, the internalization advantage is a more abstract concept to explain why licensing may not be practiced; it derives from the firm’s interest in maintaining its knowledge assets.

The pursuit of location advantages argument by the Eclectic theory resonates with the theme of this study. According to this theory, location advantages of different investment destinations play a significant role in determining which country or region will play host to the activities of multinational corporations. It relates to the ‘where’ of production. Some of the location advantages include geographical factors or public intervention in the allocation of resources as reflected by market size, legislation towards the production and licensing of technology, patent system, tax, government behavior, and other environmental factors which a multinational would like either to avoid or to exploit (Dunning, 1977). The main problem of this framework is that although it does explain the existence of MNCs, it has had difficulty explaining the recent trends in FDI, namely their surge among similar countries (horizontal FDI); this trend might invalidate the argument that the MNCs investment in another country are being motivated by the need to exploit unique advantages specific to a particular location. Further, no sound empirical models have been generated in order to compare real data with this theory.

It is recorded that the period following the formation of the European Community coincided with a considerable inflow of US direct investment and several studies from the 1960s and 1970s asked to what extent this was motivated by the European integration process

(Yannopoulos, 1990) cited in Blomstrom & Kokko (1997). The general conclusion of the debate was that the Common Market had attracted United States investment which might otherwise have located in other European countries. Among the early researchers to investigate the effects of economic integration on the flow of foreign direct investment were Blomstrom & Kokko (1997). Using descriptive statistics they examined the investment effects of regional integration agreements and discussed how such arrangement may affect inward and outward foreign direct investment flows in the integrating region. The study focused on North-North integration (Canada joining CUSFTA), North-South integration (Mexico's accession to NAFTA), and South-South integration (MERCOSUR). The conclusion of the study was that the responses to economic integration agreement largely depend on the environmental change brought about by the agreement and the locational advantages of the participating countries and industries. More specifically, the findings suggested that the most positive impact on FDI has occurred when regional integration agreements have coincided with domestic liberalization and macroeconomic stabilization in the member countries. The robustness of study results could have been enhanced by using inferential statistics in the analysis instead of descriptive statistics. In addition, this study did not consider the role of ease of doing business and economic growth as factors contributing to attraction of FDI.

Employing a Pooled Tobit model with time dummy variables, Morgan and Wakelin (1999) assessed the impact of European integration on foreign direct investment (FDI). The study focused in particular on inward investment in the UK food industry over a period of ten years from other EU member States and from the rest of the world. The main explanatory variable of interest was the level of integration that had occurred in the EU market as measured using price convergence. This was assumed using the change in the coefficient of price variation across EU countries. A decrease in this indicator shows convergence in prices within the EU; it was assumed this represented the effectiveness of the single market programme in creating a unified market. The other explanatory variables included: sector propensity to export (measured using the revealed comparative advantage index), the effective tariff rate (tariff as a proportion of value added by an economic activity) for the EU in each sector, size of sector, average scale, average unit labor costs, and the sector capital intensity. The results showed that FDI defined in terms of total real assets and employment in foreign-owned firms, had increased considerably from other EU countries whilst stagnating from non-EU sources. Price convergence in the EU was found to be an important factor in influencing FDI from both within and outside the EU. In addition, FDI from the rest of the EU appeared to be determined by the level of firm-specific assets and skills in the sector and to be relatively cost-insensitive; it also takes place in sectors with a low propensity to export. Non-EU FDI is influenced by comparative

advantage factors such as low costs and capital intensity, and by the effective tariff rate. The researcher notes that coefficient of price variation is not an adequate theoretical measure of dismantling of trade barriers that are assumed to lead to market integration as articulated in trade theory. Intra-regional trade intensity is a stronger indicator of integration.

Economic integration leads to an increase in market size by blurring boundaries among a set of countries. Jaumotte (2004) investigated whether the market size of a regional trade agreement (RTA) is a determinant of foreign direct investment (FDI) received by countries participating in the RTA. This hypothesis was tested on a sample of 71 developing countries during the period 1980-99. A multiple regression model was applied in the analysis. Evidence was found that the RTA market size had a positive impact on the FDI received by member countries. The size of domestic population also seemed to matter, possibly because of its effect on the availability of the labour supply. Countries with a relatively more educated labour force and/ or a relatively more stable financial situation tended to attract a larger share of FDI at the expense of their partners. Finally, it was also concluded that a partial negative correlation between the FDI received by RTA countries and that received by non-RTA countries possibly reflects a diversion of FDI from non-RTA to RTA countries. The study did not interrogate the role of ease of doing business and economic growth in the attraction of FDI.

An analysis about the impact on FDI stocks of specific variables considered denoting the will to integrate, and their relative impact on exports was conducted by Mauro (2000). The researcher used the gravity model approach in the analysis. In this paper the main concern was to assess the impact of the Single Market Programme (SMP) in Europe, but specifically the effect of economic integration upon FDI, relative to that on exports. Is economic integration more beneficial to FDI or to exports? Economic integration was proxied through three main variables: exchange rate variability, tariff barriers and non-tariff barriers and included in gravity-type equations for FDI and for exports in turn. The results showed that the widespread opinion and theoretical claim of “tariff-jumping” FDI is not supported by the evidence. Moreover, non-tariff barriers have a negative impact on FDI, revealing the greater role of sunk costs for foreign investors as opposed to exporters. In contrast to the impact on exports, exchange rate volatility does not have a negative impact on FDI, since it can partially be overcome by directly investing in the host country. The second concern of this study dealt with the debate on the complementarity vs. substitutability relationship between exports and FDI. At aggregate level, the results showed that a complementary relationship holds.

A review of studies that analyze possible links between FDI and the European Economic and Monetary Union was conducted. The study noted that the OLI paradigm is the general framework for most of the theoretical and empirical literature on multinational firms. The study

concluded that trade and investment are complementary flows. The evidence for EU DFI was strong. FDI by European transnational enterprises expanded rapidly within the Union. The creation of the European Union and the consequent exchange rate stability are important factors behind FDI flows. On intra-FDI flows, monetary integration is likely to stimulate FDI between countries joining the EMU (Segre, 2000).

In the developing countries context a study was done to establish the relationship between regional integration and foreign direct investment. The study specifically investigated the effects of specific regional economic agreement investment-related provisions on FDI. The study estimated a model explaining the real stock of UK and US FDI in developing countries, covering 68 (UK) and 97 (US) developing countries over 1980-2001. The researchers included dummies for ANDEAN, ASEAN, CARICOM, COMESA, and SADC among other variables in a gravity model. They find that participation in an RIA can lead to further extra regional FDI inflows, the RIA effect is stronger where RIAs include certain trade and investment provisions, and that FDI inflows are stronger (weaker) for smaller countries situated closer (further away) to the largest country in the RIA. There is some evidence that RIA provisions which stipulate free movement of people and transfer of capital facilitate the establishment of intra-regional FDI (te Velde and Bezemer, 2006). This study used developing countries economic blocs as just dummies in the analysis.

The impact of preferential trade agreements (PTAs) on countries' ability to attract multinationals was considered in a study conducted by Chen (2008). The study focused on NAFTA. A regression model was employed in the study with FDI being the dependent variable. The independent variables captured in the model included: a vector of home and host country characteristics that capture MNCs market access (e.g. tariffs, freight costs, Corporate tax rate) and comparative advantage motives (factor endowment ratio i.e. capital (K)/Labor (L)), vectors of home and host country industry dummies that control for all country-industry specific factors, a vector of time dummies, and a measure of host countries' status in regional integration. The study found out that the formation of PTAs leads to an increase in FDI by outside multinationals, but the effect varies sharply with the size of integrated markets (measured using GDP) and countries' comparative advantage. Countries integrated with larger markets experience a greater increase in total and export-platform FDI. Those with higher labor endowment also attract more FDI especially in labor-intensive industries, but at the expense of their labor-scarce PTA partners. The study did not distinguish between skilled and unskilled labor. In addition, co-integration and stationerity tests were not conducted despite using time series data.

More empirical evidence on the positive effect of economic integration on FDI is provided in the context of the AFTAs (ASEAN Free Trade Agreement). The roles in increasing

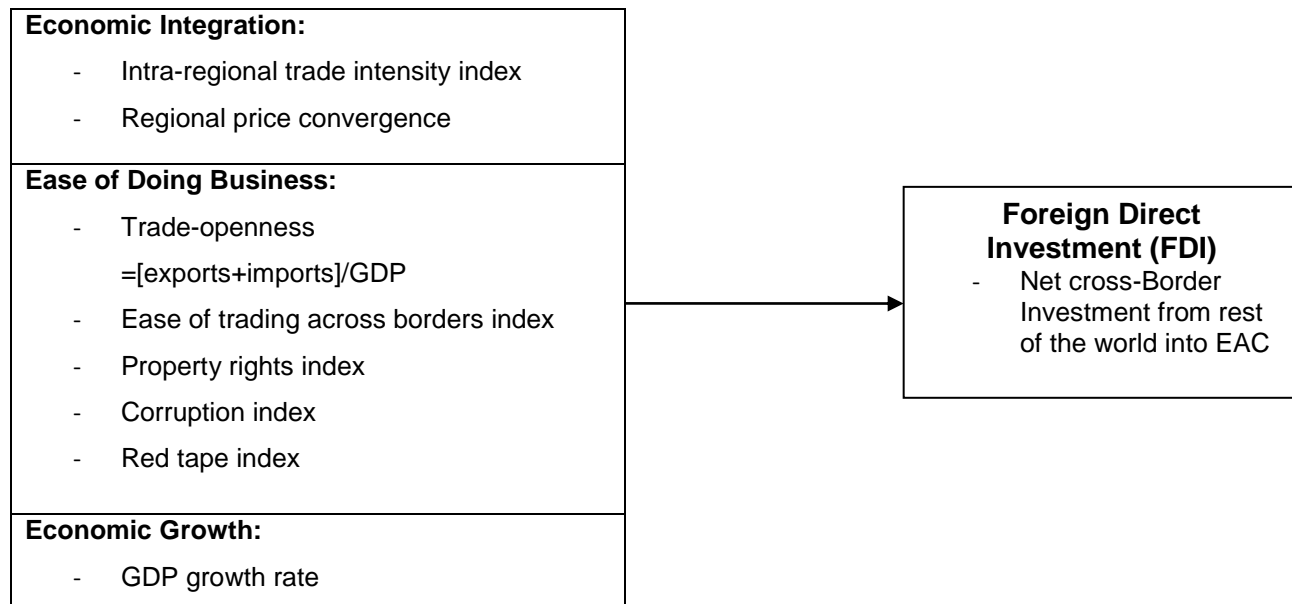
ASEAN countries' attractiveness for FDI from members and non-members was investigated by Ismail, Smith and Kugler (2009). The gravity model was employed in the study in the analysis based on panel data analysis. The following proxies for the independent variable indicators were used: GDP was used as a proxy for Market Size, GDP per capita for the Level of Development, distance for Transportation Cost, sum of regional exports and imports from the host country-scaled by GDP for Openness. The empirical results from extra-regional FDI revealed that the European countries increased investment in ASEAN than any other region in the sample. Moreover, further investigation also found that the USA and Japan invested more in ASEAN5 than in the new ASEAN members. The study did not consider the role of political risk and economic growth.

Research also provides evidence that economic integration favorably influences intra-regional trade and FDI. In South Asia, Hossan (2015) evaluated the relationship between intra-regional trade and FDI focusing on the South Asian Free Trade Area (SAFTA) and the Asia Pacific Trade Agreement (APTA). In order to see the impact of economic integration on intra-regional trade and intra-regional FDI in South Asia, an empirical analysis was conducted using two sets of time series panel data ranging from 1990 until 2012 by estimating two separate regression equations. In this study, multilateral trade agreements and bilateral investment treaties were used as proxy for economic integration. The empirical findings suggest that South Asian Free Trade Area (SAFTA) is positively associated with both intra-regional trade and intra-regional FDI. The Asia Pacific Trade Agreement (APTA) dummy was positively associated with intra-regional trade only.

Further findings of Tuluca, Dedeoglu and Yaprak (2016) study are as follows: the researchers investigated the effect of regional economic integration on foreign direct investment (FDI) in Organization of Black Sea Economic Cooperation (BSEC) countries not only with theoretical point of view but also with empirical evidence. The effect of regional economic integration on FDI was empirically analyzed for 9 countries and the time period covered in this study is after the BSEC had been implemented. The regression model was estimated with panel data methods using a dummy variable for the regional economic integrations for the 1994-2013 periods. The study was concerned with the effect of membership to regional economic integrations together with other factors that have increased FDI flows. The study concluded that with the current increasing regionalization trend, in order to attract higher amounts of FDI, developing countries should stress regional economic integration, or at least they should make regional trade agreements or free trade agreements.

CONCEPTUAL FRAMEWORK AND VARIABLE OPERATIONALIZATION

Figure 1 Conceptual framework



Foreign direct investment (FDI) refers to all net capital flows between countries. This study was interested in measuring the stocks of FDI at a particular time as opposed to the gross FDI inflows. This refers to the difference between FDI inflows and outflows at a particular point in time (Athukorola, 2013).

Economic integration was measured using intra-regional trade intensity index and regional price convergence. The extent of integration is typically observed in bilateral trade of countries (Kodongo and Natto, 2014). Trade volume is an all-encompassing variable that is responsive to changes over time in the progress of regional integration (Krieger-Boden and Soltwedel, 2010). Trade and investment are twin flows (Segre, 2000), hence an expected positive coefficient. Intra-regional trade intensity index is the ratio of intra-regional trade share to the share of world trade with the region. It determines whether trade within the region is greater or smaller than should be expected on the basis of the region's importance in world trade. An index of more than one indicates that trade flow within the region is larger than expected given the importance of the region in world trade. Regional price convergence (σ -convergence) means that the variance of prices within a group of countries becomes smaller (Barro and Sala, 1995). The Law of One Price (LOOP) states that a product must sell for the same price in all locations of the integrated market. Engel and Rogers (2001) measured price convergence

between US cities using dispersion of inflation. The lower the inflation variance, the more integrated the market.

Economic growth was measured using GDP growth rate. Higher economic growth rate is associated with greater inflow of FDI (Iamsiraroj and Doucouliagos, 2015; Khan and Nawaz, 2010; Dermirham and Masca, 2008), hence the coefficient is expected to be positive.

Ease of Doing Business can be decomposed into trade openness and political risk. Trade openness shows the extent to which a country has reduced trade barriers with rest of the world. Openness to trade is measured using the ratio of exports and imports to the GDP. This ratio is indicative of the extent of trade liberalization by a country. This is expected to lead to attraction of FDI. According to Segre (2000) trade and investment are harmonious flows, hence a positive coefficient. On the other hand, Ease of trading across borders index takes into account reconciliation of regional trade regime, trade logistics, border procedures, and transport costs. A higher score on ease of trading across borders attracts FDI hence a positive coefficient (Dermirham and Masca, 2008)). Political risk can be measured using the following three indicators: property rights, corruption index, and red tape (bureaucracy). Bureaucracy refers to all state organizations engaged in formulating and implementing policy as well as in regulating and delivering services. The bureaucracy index focuses on how much time, money and effort businesses spend to conform to regulations e.g. business registration and licensing process. Favorable bureaucracy ranking is expected to attract FDI hence the positive coefficient (Hossan, 2015).

The Transparency International corruption index reflects the degree of informality in the economy. It combines several indicators which measure the extent to which public power is abused for private gain. This includes petty and grand forms of corruption. Corruption is expected to discourage FDI (Estrin and Uvalic, 2013). A high corruption index score as given by Transparency International means that a country is less corrupt and hence a higher index is expected to lead to higher FDI and hence a positive coefficient. Property rights index takes into account protection of physical property rights, registering property, access to loans, protection of intellectual property rights, patent protection, and copyright piracy. A higher ranking on property rights attracts FDI hence a positive coefficient (Singh, 2015). The table 1 gives a summary of the indicators and measures of the study variables.

Table 1 Measurement/Operationalization of variables

Variable	Indicator(s)	Operational definition	Researchers who used same measure	Data source
Economic integration	Intra-regional trade intensity index	$[X_{ii} / (X_i)] / [X_i / X_w]$, where X_{ii} is export of region i to region i plus imports of region i to region i , X_i is total exports of region i to the world plus total imports of region i from world, X_w is total world exports and imports	(Dreger, 2007).	IMF and EAC statistics Portal
	Regional price convergence	Inflation variance among the member countries	Barro and Sala (1995); Engel and Rogers (2001)	tradingeconomics.com
Foreign Direct Investment	FDI stock	Difference between FDI inflows and outflows at a particular point in time	Athukorola (2013)	UNCTAD
Economic Growth	GDP growth rate	EAC average GDP growth rate	Iamsiraroj and Doucouliagos, (2015); Khan and Nawaz, (2010); Masca and Dermirham (2008)	tradingeconomics.com Africa Development Bank
Ease of Doing Business	Trade openness	$[\text{exports} + \text{imports}] / \text{GDP}$	BIS Performance Indicators (2015).	tradingeconomics.com
	Ease of trading across borders index	Harmonization of regional trade policy, trade logistics, border procedures, and transit costs	African Development Bank (2012)	World Bank
	Property rights index	Protection of physical property rights, registering property, access to loans, protection of intellectual property rights, patent protection, and copyright piracy	Singh (2015)	World Bank
	Corruption index	Degree of informality in the economy; petty and grand forms of corruption	Estrin and Uvalic (2013).	Transparency International
	Bureaucracy index	How much time, money and effort businesses spend to comply with regulations e.g. business registration and licensing process	Hossain (2015)	World Bank

METHODOLOGY

A Descriptive Correlational Research Design was employed in this study to examine the relationship between economic integration, ease of doing business, economic growth and foreign direct investment. According to Waters (2005) a descriptive correlational study describes and predicts how variables are related in the real world. The researcher does not attempt to change (manipulate) or assign causation between the variables. Correlations measure relationships between variables using real world data in a natural setting.

This research was a case study of the East African Community (EAC) economic bloc. East African Community is a regional intergovernmental organization of the Republics of Kenya, Uganda, Tanzania, Rwanda, Burundi and South Sudan. Formed in the year 2000, the economic bloc attained a common market integration level as at the end of the year 2015. The EAC economic bloc was the unit of analysis. However, only Kenya, Tanzania, Uganda, Rwanda and Burundi were selected to represent the EAC. This is because the data of interest in this study spanned from the year 2001 to 2015. The other member of EAC, South Sudan was not included because she became a member in the year 2016. The rationale for selecting 2001 -2015 time series data is because the EAC was established in the year 2000 and the writing of this study started in the year 2016.

The study relied purely on secondary data. This is because all the data of interest to this study is available in published form from different organizations. The historical data for the period 2001 - 2015 was sourced from tradingeconomics.com, EAC statistics portal, UNCTAD, World Bank, and Transparency International records. Specifically, FDI data was sourced from UNCTAD and tradingeconomics.com, GDP data was obtained from the EAC statistics portal, African Development Bank and tradingeconomics.com, while the data on intra-regional trade was accessed from the IMF's Direction of Trade Statistics (DOTs) and tradingeconomics.com, the data to compute regional price convergence (that is, inflation variance data) was sourced from tradingeconomics.com, Transparency International provided the data on corruption index, while the data on red tape, property rights and ease of trade across borders was obtained from the World.

The relationship between study variables was estimated using a multiple regression model. Regression analysis allows one to model, examine, and explore spatial relationships, and can help explain the factors behind observed spatial patterns. Regression analysis is also used for prediction. Ordinary Least Squares (OLS) is the most common of all regression techniques. It provides a global model of the variable or process you are trying to understand or predict. The regression coefficients were used to test the unique effect of each independent variable. The study used t - test as the test statistic. The t-value is a test statistic for t-tests that

measures the difference between an observed sample statistic and its hypothesized population parameter in units of standard error. A t-test compares the observed t-value to a critical value on the t-distribution with (n-1) degrees of freedom to determine whether the difference between the estimated and hypothesized values of the population parameter is statistically significant. The corresponding probability value (p value) for each t - value was used to test the significance of regression coefficients at 5% significance level.

The following general model was used in this study:

$$\ln FDI_t = \beta_0 + \beta_1 IT_t + \beta_2 PC_t + \beta_3 GDP_t + \beta_4 OT_t + \beta_5 ET_t + \beta_6 PR_t + \beta_7 CI_t + \beta_8 RT_t + \mu_t$$

Where, FDI_t is the total value of FDI stock from rest of the world (ROW) into EAC expressed in US dollars; IT_t is EAC intra- regional trade intensity index; PC_t is regional price convergence measured using inflation standard deviation among members; GDP_t is average EAC GDP growth rate (Regional GDP growth rate data is available from AfDB); OT_t is openness to trade of EAC at time t as measured using [total exports + total imports]/ GDP; ET_t is EAC ease of trading across borders index at time t as given by the World Bank; RT_t is bureaucracy index of EAC member countries at time t as given by the World Bank; CI_t is corruption index of EAC member countries at time t as given by Transparency International; and PR_t is property rights index of EAC member countries at time t as given by the World Bank.

For ET, RT, CI, and PR the average score for EAC member countries was computed, for instance $CI = \{(\text{corruption index for Kenya} + \text{corruption index for Uganda} + \text{corruption index for Tanzania} + \text{corruption index for Rwanda} + \text{corruption index for Burundi}) / 5\}$. In addition, a composite measure of ease of doing business (EDB) was calculated as a simple average of the five indicators namely OT, ET, PR, CI and RT. All these five measure are measured as ratios/percentages and hence it was possible to combine them. This results in the following model:

$$\ln FDI_t = \beta_0 + \beta_1 IT_t + \beta_2 PC_t + \beta_3 GDP_t + \beta_4 EDB_t + \mu_t$$

Where, EDB is ease of doing business

A semi-logarithmic model was used where a natural logarithm of FDI was used as the dependent variable. This is because while the term on the left hand side of the equation (that is, FDI) is measured in millions of US dollars, the terms on the right hand side of the equation (that is, economic integration, ease of doing business and economic growth) are measured in terms of ratios. Therefore, to make the terms on both sides of the equation comparable, a natural logarithm of FDI is used on the left hand side of the equation. One of the properties of natural logarithm as described in differential calculus is that a small change in the natural logarithm of a variable is directly interpretable as a percentage change (Wooldridge, 2006). The interest of this

study was to find out how a change in economic integration, ease of doing business and economic growth influence change in FDI in percentage terms.

ANALYSIS AND FINDINGS

Descriptive statistics

Descriptive statistics were very important in this study because they enable presentation of the data in a manner which allows for simpler interpretation. These statistics forms the basis of every quantitative analysis of data in a study. Analysis was conducted on the data to establish the measures of central tendency (mean) and dispersion (standard deviation). The results also indicated the normality of the variables which was shown by the Jarque Bera characteristic. The null hypothesis is of normality, and rejection of the hypothesis (because of a significant p-value) leads to the conclusion that the distribution from which the data came is non-normal. The results are indicated in Table 2.

Table 2 Descriptive Statistics Summary

	Mean	Median	Max.	Min.	Std. Dev	Normality measures			Obs.
						Skew-ness	Kurtosis	Jarque Bera	
FDI	1,763.97	1,422.98	6,417.68	274.63	1,446.69	1.38	4.51	24.76 (0.000)	60
PC	13.76	9.41	72.66	0.62	13.67	2.14	8.32	116.72 (0.000)	60
IT	0.61	0.47	2.12	0.27	0.36	1.90	7.21	80.34 (0.000)	60
CI	26.6	25.8	32.6	20.3	3.6	0.10	2.03	2.43 (0.300)	60
OT	50.00	50.00	84.00	27.00	13.00	33.00	2.73	1.28 (0.530)	60
ET	31.98	31.93	51.61	16.75	12.04	0.23	1.53	5.94 (0.051)	60
PR	55.18	55.97	58.03	49.34	2.62	(1.08)	3.01	11.75 (0.000)	60
RT	64.79	63.89	78.50	47.07	10.01	(0.09)	1.74	4.05 (0.130)	60
GDP	3.11	3.14	6.52	(0.26)	1.37	(0.06)	3.28	0.22 (0.890)	60

(P – Values are in parentheses)

Table 2 above gives a summary descriptive statistics of all the variables of the study. These variables include foreign direct investment (FDI) which is the dependent variable, the two measures of economic integration which is the independent variable namely regional price convergence (PC) and intra-regional trade intensity index (IT), Gross domestic product (GDP) growth rate which is a moderating variable. The other variables in the table are indicators of Ease of Doing Business which is an intervening variable. These measures are: corruption index

(CI), ease of trade across borders (ET), trade openness (OT), property rights (PR) and red tape (RT) index.

The results in Table 2 returned a mean Ease of Trade across Borders value of 31.98 with a standard deviation of 12.04 which implies a large variation in ease of trade across borders index score over the years. The minimum and maximum value of ease of trade across borders index recorded over the study period was 16.75 and 51.61 respectively. The results further indicated a non-significant Jarque Bera value which led to a decision of not rejecting the null hypothesis of normality. This means that data on ease of trade across borders is normally distributed.

The results further showed a mean value of Corruption Index at 26.6 with a standard deviation of 3.6 which indicates a small variation in the corruption index score recorded over the study period. The minimum and maximum corruption index recorded over time is 20.3 and 32.6 respectively. Data on corruption index recorded over time was normally distributed since the Jarque Bera value was significant at 5% level of significance.

The mean FDI stock recorded over the study period was USD 1,763.97 million with a standard deviation of USD 1,422.98 million which indicated a large variation in the FDI stock over the study period. The highest FDI amount recorded in the study period was USD 6,417.68 million while the lowest amount was USD 274.63 million. The Jarque Bera value was non-significant at 5% level of significance which led to rejection of the null hypothesis of normality. This implies that the FDI variable was not normally distributed.

The average GDP recorded over the study period was 3.11% with a standard deviation of 3.14% which indicate a large variation in GDP over the study period. The maximum GDP recorded over the study period was 6.52% while the minimum value was -0.26%. The Jarque Bera value was non-significant which led to failure to reject the null hypothesis of normality. Therefore, GDP data was normally distributed.

The intra-regional trade intensity index had an average value of 0.61 with a standard deviation of 0.36 indicating large variation in intra-regional trade intensity index. The largest intra-regional trade intensity index recorded over the study period was 2.12 in the third quarter of the year 2015 while the minimum was 0.27 in the second quarter of the year 2006. Intra-regional trade intensity index had a significant Jarque Bera value which led to rejection of the null hypothesis of normality hence the conclusion that intra-regional trade index data was not normally distributed.

The mean openness to trade index score was 50% with a standard deviation of 13% which indicates a small variation in openness to trade quarterly. The maximum value recorded over the study period was 84% while the minimum value was 27%. The Jarque Bera value was

non-significant indicating the failure of rejection of the null hypothesis of normality which implies that the data on openness to trade was normally distributed.

Regional price convergence had a mean value of 13.76 with a maximum value 72.66 and minimum value of 0.62. The standard deviation was 13.67 which indicated a large variation in regional price convergence quarterly. The Jarque Bera value was significant which led to rejection of the null hypothesis of normality implying that regional price convergence data was not normally distributed.

Property rights index score had a mean value of 55.18 while bureaucracy ranking had a mean value of 64.79. Both had a small variation quarterly as indicated by their standard deviations. Property rights index was not normally distributed while bureaucracy index was normally distributed as indicated by the significance of their Jarque Bera values of 0.000 and 0.13 respectively.

The results obtained in this section are very important for the subsequent analysis. For instance some data series were found not to be normally distributed. In section 4.6 a test about normality of the residuals is conducted before the data is entered in analytical models in the next chapter. This is essential in validating the model estimates.

Diagnostic tests

Multicollinearity test

According to William, Grajeles and Kurkiewicz (2013), multicollinearity refers to the presence of correlations between the predictor variables. In severe cases of perfect correlations between predictor variables, multicollinearity can imply that a unique least squares solution to a regression analysis cannot be computed (Field, 2009). Multicollinearity inflates the standard errors and confidence intervals leading to unstable estimates of the coefficients for individual predictors (Belsley, Edwin and Roy, 1980). Multicollinearity in this study was tested using Variance Inflation Factors (VIF). The objective of calculating VIF statistic is to determine the level of multicollinearity that can be tolerated without presenting any problems in regression analysis (Robinson and Schumacker, 2009).

Table 3 Variance Inflation Factors (VIF)

Variable	VIF	1/VIF
CI	8.41	0.118906
ET	14.67*	0.068167
GDP	4.97	0.201207
IT	21.93*	0.045570

OT	4.71	0.212314	Table 3...
PR	4.52	0.221239	
PC	9.51	0.105152	
RT	5.42	0.184501	
Mean VIF	9.27		

* A VIF > 10 or a 1/VIF < 0.10 indicates trouble (Multicollinearity)

Table 3 above gives a summary of correlation coefficients between the various explanatory variables of study namely: regional price convergence(PC) and intra-regional trade intensity index (IT) which are measures of the independent variable, economic integration, the moderating variable as measured using gross domestic product (GDP) growth and the five indicators of the intervening variable (Ease of Doing Business) namely corruption index (CI), property rights(PR), ease of trade across borders(ET), openness to trade (OT) and red tape (RT).

The rule of thumb is that VIF greater than 10 is not tolerable because it presents problem of multicollinearity. The results in Table 3 indicate that ease of trade across borders (ET) and intra-regional trade intensity index (IT) presents a problem of multicollinearity. This is because the variables are likely to be a linear function of one another. To solve the problem, the study adopted a method to standardize the predictors by using a method known as centering the variables. This method removes the multicollinearity produced by interaction and higher-order terms as effectively as the other standardization methods, but it has the added benefit of not changing the interpretation of the coefficients (William, Grajeles and Kurkiewicz, 2013).

Stationerity test

This was a time series study. Most economic variables are usually non-stationary in nature and therefore prior to running a regression analysis it is important to test for stationarity. Unit root tests were thus conducted using the ADF test to establish whether the variables were stationary or non-stationary. The purpose of this is to avoid spurious regression results being obtained by using non-stationary series. The trend analysis indicated that the variables changed over time. However some variables indicated long increasing trends followed by long decreasing trends which was an indicator of predictability thus suggesting presence of unit roots. The tests were conducted to establish the presence of unit roots in the data.

Table 4 gives a summary of stationarity test results. The variables subjected to unit root test as captured in tables 4 include: foreign direct investment (FDI) which is the dependent variable, the two indicators of economic integration which is the independent variable namely

regional price convergence (PC) and intra-regional trade intensity index (IT), Gross domestic product(GDP) growth rate which is a moderating variable, and the five measures of the intervening variable (Ease of doing business) namely corruption index(CI), ease of trade across borders(ET), openness to trade(OT), property rights(PR) and red tape (RT).

Table 4 Unit Root Test at Level

Variable name	ADF test	1% Level	5% Level	10% Level	Comment
CI	(1.3823)	(3.5461)	(2.9117)	(2.5936)	Non Stationary
ET	0.0183	(3.5461)	(2.9117)	(2.5936)	Non Stationary
FDI	0.24643	-3.5550	-2.9155	-2.5956	Non Stationary
GDP	-6.0957	-3.5461	-2.9117	-2.5936	Stationary
IT	-1.2560	-3.5504	-2.9135	-2.5945	Non Stationary
OT	-2.5762	-3.5461	-2.9117	-2.5936	Non Stationary
PC	-3.9032	-3.5461	-2.9117	-2.5936	Stationary
PR	-2.3200	-3.5461	-2.9117	-2.5936	Non Stationary
RT	-1.1327	-3.5550	-2.9155	-2.5956	Non Stationary

Table 4 shows the critical values at different significance levels and the corresponding ADF test statistic. The null hypothesis that the residuals ϵ_t are not stationary is rejected if the ADF test statistic is more negative than the critical value.

The findings indicated that all the variables were non stationary at level apart from economic growth and regional price convergence which did not indicate presence of unit root at 1%, 5% and 10% significance level. The study further conducted first differencing and tested for the presence of unit roots again. The results are presented in Table 5.

Table 5 Unit Root Test at First Differencing

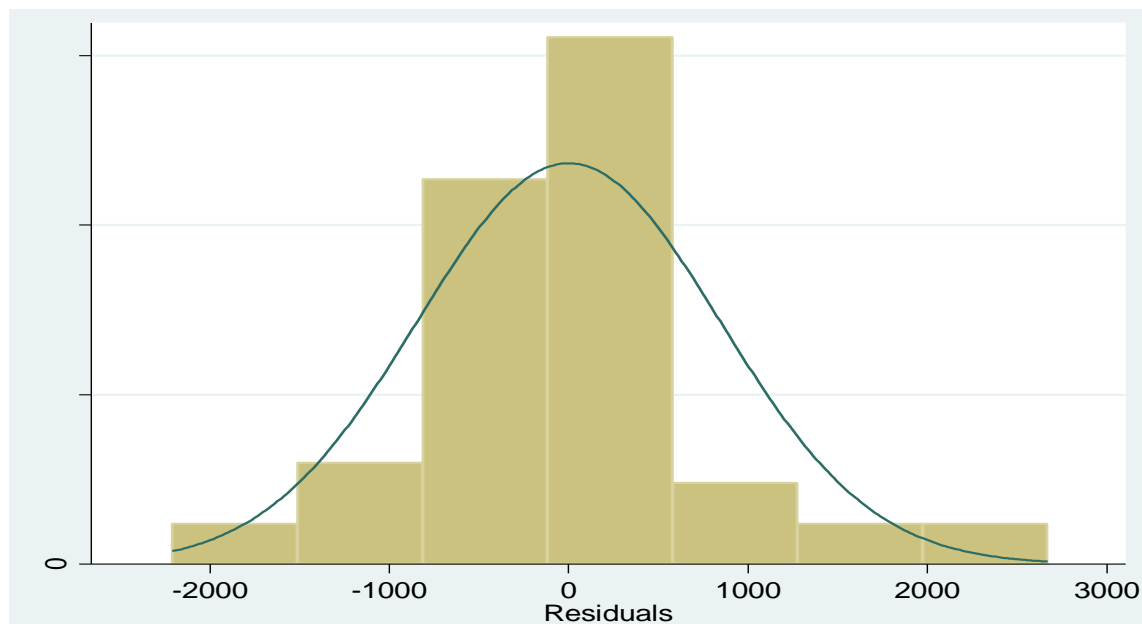
Variable name	ADF test	1% Level	5% Level	10% Level	Comment
DCI	-8.5492	-3.5550	-2.9155	-2.5956	Stationary
DET	-11.7310	-3.5550	-2.9155	-2.5956	Stationary
DFDI	-7.3224	-3.5713	-2.9225	-2.5992	Stationary
DIT	-6.2086	-3.5627	-2.9188	-2.5973	Stationary
DOT	-8.1123	-3.5550	-2.9155	-2.5956	Stationary
DPR	-7.3088	-3.5654	-2.9200	-2.5979	Stationary
DRT	-16.4530	-3.5550	-2.9155	-2.5956	Stationary

The study findings indicated that all the non-stationary variables at level became stationary after first differencing.

Normality test

The test for normality was first examined using the graphical method approach as shown in the Figure 2. The results in the figure indicate that the residuals are normally distributed hence appropriate to run the model to test the study variables.

Figure 2 Normality of Residuals



To further establish whether the residuals are normally distributed, the study adopted the Jarque-Bera test which is a more conclusive test than the graphical inspection approach of testing for normality. The null hypothesis under this test is that the residuals are not significantly different from a normal distribution. Given that the p-value is greater than 5% for the residual, the null hypothesis is not rejected and thus the conclusion that the residuals are normally distributed.

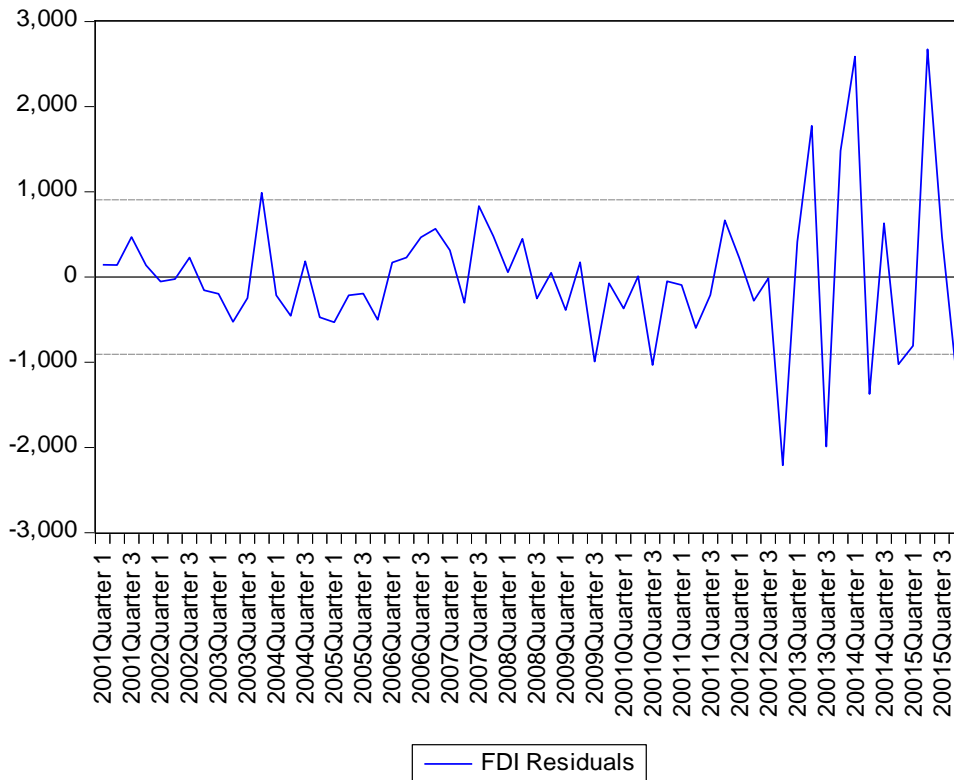
Table 6 Normality Test of Residuals

Skewness/ kurtosis test for normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Residual	60	0.0536	0.0052	9.74	0.077

Test for Heteroskedasticity

Ordinary least squares (OLS) assumption stipulates that the residuals should have a constant variance (i.e. they should be Homoscedastic). The plot presented in Figure 3 shows that the error terms are evenly spread above and below the reference line indicating constant variance. The results were further confirmed using the White’s test where the null hypothesis of the test is error terms have a constant variance (i.e. should be homoscedastic).

Figure 3: Residuals Plot for Heteroskedasticity



The white test results in the Table 7 indicate that the error terms are Homoskedastic, given that the p-value is greater than the 5% and thus no violation of the OLS assumption of constant variance of residuals.

Table 7 White Test for Heteroskedasticity

White's test for Ho: homoskedasticity	
against Ha: unrestricted heteroskedasticity	
chi2(44)	= 55.87
Prob > chi2	= 0.1082

Test for Autocorrelation

The test for autocorrelation was performed to establish whether residuals are correlated across time. OLS assumptions require that residuals should not be correlated across time and thus the Breusch–Godfrey test which is also an LM test was adopted in this study. The null hypothesis is that no first order serial /auto correlation exists. The results of the Table 8 indicate that the null hypothesis of no autocorrelation is rejected and that residuals are auto correlated (p-value=0.008). This means that the residuals suffer from first order autocorrelation. The study solved for this problem by using robust standard errors. Obs* R-squared means “(the number of observations times the R-square) statistic.

Table 8 Breusch- Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	4.745	Prob. F(2,49)	0.013
Obs* R-squared	9.735	Prob. Chi-Square(2)	0.008

Co-integration Test

The purpose of this test is to find out if the variables of study are linked by a long-run economic relationship. Co integration test is very important because it shows whether there is a need to conduct an error correction model in the next chapter. In testing for co integration two methods are usually used; two step Engle granger test and Johansen co integration test. In the two step Engle granger test, residual of the long run model are generated (step one). In the second step the residuals are converted in their first lag and unit root test is conducted on the lag residuals. The study used Engle granger method to test for co integration. Results of Engle granger presented in table 9 reveals that the lag residual is stationary at level this is evidence of co integration relationship between the long run and short run. In that case, the study conducted an error correction model so as to be able to establish a short run relationship between the variables.

Table 9 Engel Granger Co integration Test

Null Hypothesis: LAGRESID has a unit root			
Exogenous: Constant		Lag Length: 3 (Automatic - based on SIC, Maxlag=10)	
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.303	0.001
Test critical values:	1% level	-3.555	
	5% level	-2.916	
	10% level	-2.596	

Reverse Causality Test between Foreign Direct Investment and Economic Growth

Economic growth has been used as one of the explanatory variables, but some studies have shown that FDI is responsible for driving economic growth (Borensztein, Edwin and Roy, 1997; Alfaro, Chanda, Ozcan and Sayek, 2006; Katerina , 2004). Therefore, it was important that reverse causality should be conducted in this study to establish the direction of relationship. The study conducted a causality test to establish this relationship (Table 10).

Table 10 Reverse Causality test between FDI and Economic growth

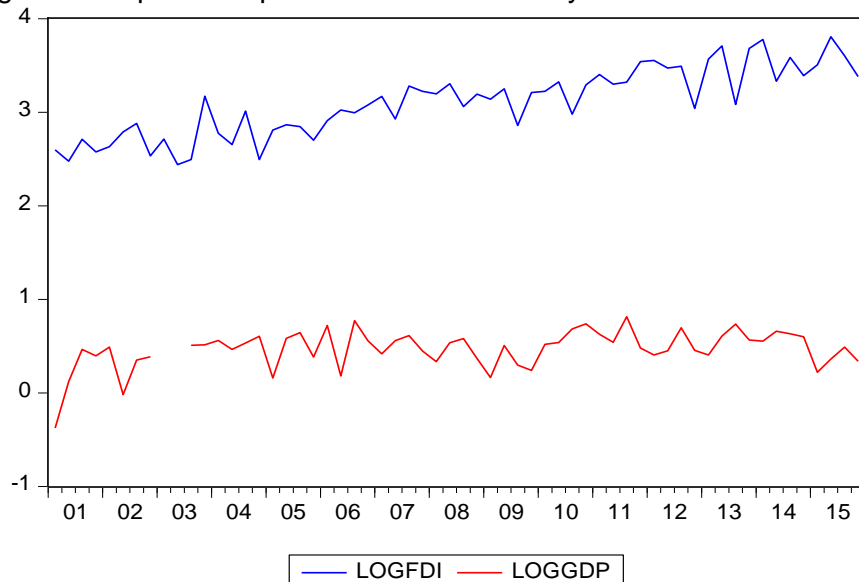
Pair wise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Prob.
LOGGDP does not Granger Cause LOGFDI	54	2.8945	0.0648
LOGFDI does not Granger Cause LOGGDP		1.5526	0.2219

The results presented indicates that the null hypothesis that economic growth does not granger cause foreign direct investment is not rejected since the probability value is greater than 0.05 at 5% level of significance. This implies that economic growth granger causes foreign direct investment.

The results also indicates that the null hypothesis that foreign direct investment does not granger cause economic growth is not rejected since the probability value is greater than 0.05 at 5% level of significance. This implies that FDI granger causes economic growth.

The study findings indicate that there is bi-directional causality relationship between foreign direct investment and economic growth as each causes the other. Furthermore, the study went ahead to draw a graph to indicate the trend of the two variables as indicated in Figure 4.

Figure 4 Graphical Representation of Causality between FDI and GDP



Granger (1969) indicates that when time series X Granger-causes time series Y, the patterns in X are approximately repeated in Y after some time lag and vice versa as indicated in Figure 4. Thus, past values of foreign direct investment can be used for the prediction of future values of economic growth and vice versa *ceteris paribus*.

Empirical results

The following two multiple regression models were applied in testing the joint effect of economic integration, economic growth and Ease of Doing Business on foreign direct investment where:

$$\ln FDI_t = \beta_0 + \beta_1 PC_t + \beta_2 GDP_t + \beta_3 EDB_t + \mu_t \quad \dots\dots\dots (a)$$

$$\ln FDI_t = \beta_0 + \beta_1 IT_t + \beta_2 GDP_t + \beta_3 EDB_t + \mu_t \quad \dots\dots\dots (b)$$

Where:

FDI = foreign direct investment

PC = regional price convergence

IT = intra-regional trade intensity index

GDP = Gross Domestic Product

EDB = Ease of Doing Business composite index computed from the indices of: Ease of trade across borders, corruption index, trade openness, property rights and bureaucracy.

Equation (a) measures economic integration using regional price convergence while equation

(b) measures economic integration using intra-regional trade intensity index

The results obtained from equation (a) are summarized as follows:

Table 11 Relationship between Regional Price Convergence, Economic Growth, Ease of Doing Business and Foreign Direct Investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Price Convergence	-1.2456	0.21025	-5.9187	0.000
Economic growth	0.6218	0.20014	3.10683	0.0039
Ease of Doing Business	0.6758	0.1074	6.2927	0.0000
Constant	0.8347	0.5847	1.4276	0.7114
F-statistic	29.6514	R squared		0.6192
Prob (F-statistic)	0.0021	Adjusted R squared		0.5847

The summarized in table 11 shows that regional price convergence, economic growth and Ease of Doing Business jointly have a significant (p value = 0.0021 at $\alpha=0.05$) effect on foreign direct

investment. The results show that regional price convergence, economic growth and Ease of Doing Business explain 61.9% of variation in the foreign direct investment stock in East African Community.

The study further investigated the joint effect of economic integration, economic growth and Ease of Doing Business on foreign direct investment using intra-regional trade intensity index as the measure of economic integration. The results summarized in table 11 were obtained.

Table 12: Relationship between Intra Regional Trade Intensity, Economic Growth, Ease of Doing Business and Foreign Direct Investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intra-regional trade intensity	0.4144	0.1045	3.9656	0.0056
Economic growth	0.2003	0.0558	3.5896	0.0201
Ease of Doing Business	0.6124	0.0216	3.7635	0.0070
Constant	0.9052	1.2458	0.7266	0.2457
F-statistic	31.4775	R squared		0.7674
Prob (F-statistic)	0.0000	Adjusted R squared		0.7409

The results reveal that intra-regional trade intensity, economic growth and Ease of Doing Business have a significant (p value = 0.0000 at $\alpha=0.05$) joint effect on foreign direct investment. Specifically the results show that intra-regional trade intensity, economic growth and Ease of Doing Business account for 76.7% of variation in the foreign direct investment stock in East Africa.

Generally it is concluded that economic integration, economic growth and Ease of Doing Business have a significant joint effect on foreign direct investment stock in the East African community.

Error Correction Model

The error correction model is a model consisting of stationary variables. It is applicable only when co integration is found to exist among long run/non stationary variables. Since the variables in the model are co integrated as earlier indicated using Engel granger test, then an error-correction model was used to link the short-run and the long-run relationships. Residuals from the co integrating regression are used to generate an error correction term (lagged

residuals) which is then inserted into the short-run model. The estimates of the error-correction model are given in table 13

13: Error Correction Model for relationship between economic integration, ease of doing business, economic growth and foreign direct investment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIT	-0.543217	0.013803	-39.354995	0.00000
DPC	0.78976	0.038519	20.503128	0.00000
DGDP	-0.188654	0.034747	-5.429361	0.00012
DOT	0.365432	0.068759	5.314679	0.00025
DPR	-0.675432	0.037654	-17.937855	0.00000
DCI	-0.332145	0.087123	-3.812369	0.00175
DET	-0.241176	0.078985	-3.053441	0.00535
DRT	0.976112	0.076532	12.754299	0.00000
LAGRESID	0.421780	0.098754	4.271017	0.00000
Constant	0.678902	0.087654	7.745249	0.00000
R-squared	0.2300786	Mean dependent var		0.321149
Adjusted R-Squared	0.1987640	S.D. dependent var		0.654321
F statistic	14.650907	Schwarz criterion		0.677548
Prob (F-statistic)	0.000000	Durbin-Watson stat		2.008765

The short run results indicated that all the variables are significantly (p value = 0.000 at $\alpha=0.05$) related to FDI in the short run. The coefficient of determination (R squared) for the short run model was 23%. This implies that the variables explain 23% of the changes in FDI in the short run. The results show that the unique effect of each of the variables namely economic integration, ease of doing business and economic growth on foreign direct investment is significant. Similarly, the results also show that all the three variables taken together predict the dependent variable better than just predicting the mean of everything. In addition, the results obtained from the error correction model show that a short run significant relationship among the four variables exists.

The results of this study confirm findings by previous studies: Penev and Rojec (2014) found out that economic integration and ease of doing business had a joint significant effect on the attraction of foreign direct investment in the European Union ; Lipsey and Sjöholm (2010) showed that foreign direct investment has been important in the economic growth and global economic integration of developing countries; and Mottaleb and Kalijaran (2010) demonstrated

that countries with larger GDP and high GDP growth rate, higher proportion of international trade and with more business friendly environment are more successful in attracting FDI.

CONCLUSIONS

The study evaluated the joint effect of economic integration, economic growth and Ease of Doing Business on foreign direct investment. A multiple regression model was used for the analysis. F statistic test was used to test whether the model as a whole is significant. All the three explanatory variables returned positive significant coefficients. This means that economic integration, economic growth and Ease of Doing Business have a significant joint effect on foreign direct investment in the East African community. The conclusion is that economic integration, economic growth and ease of doing business jointly play an important role in the attraction of foreign direct investment into the East African Community. There is synergy in the attraction of foreign direct investment into the East African Community if these three variables are emphasized simultaneously. In addition, it is also concluded that economic integration, economic growth and ease of doing business have a stronger effect on foreign direct investment in the long run as compared to the short run.

Economic Policy makers within East African Community (EAC) are informed by the findings of this study that economic integration is an important ingredient in stimulating increased foreign direct investment. Therefore, there is a need to continue deepening the integration. Towards this end, the East African Community would achieve more integration if concerted efforts were made in taking measures that would intensify intra-regional trade. The study has shown intra-regional trade as a measure of integration that better explains the behavior of foreign direct investment to a much greater extent as compared to regional price convergence. The extent of integration is typically observed in bilateral trade of countries. Trade volume is an all-encompassing variable that is responsive to changes over time in the advancement of regional integration. It is also a fact that trade and investments are interdependent flows.

The policymakers should focus on growing the regional economies because an increase in economic growth catalyzes the rate at which a deepening in economic integration increases foreign direct investment. The foreign investor is not just interested in the degree of EAC integration but also the potential return on investment and the population purchasing power and economic growth is the indicator of this.

As the EAC member countries intensify the economic integration they should also take note of the fact that regional integration alone is not sufficient to attract foreign direct investment in the East African Community. There is a need also to improve investment climate, including

having a business regulatory environment that is conducive for the modernization of the regional economy and attraction foreign direct investment. In other words, improving investment climate in the East African Community is an essential ingredient for successful integration and attraction of foreign direct investment.

Specifically, the EAC would achieve an improvement in the Ease of Doing Business if the following measures were taken. Firstly, the governments should make it easier to trade across the borders through reconciliation of regional trade policy, trade logistics, border procedures, and reduction of transit costs. Secondly, there should be a progressive reduction of investment bureaucracy within the region by reducing the duration, funds and strain businesses spend to conform to regulations e.g. business registration and licensing process. Thirdly, there must be a deliberate effort towards reduction and elimination of corruption in the region. More specifically the governments should fight petty and grand forms of corruption, as well as “capture” of the states by elites and private interests in order to introduce certainty and also reduce costs in the running of businesses. Fourthly, foreign investors should be guaranteed a protection of property rights. This would include measures to ensure protection of physical property rights, protection of intellectual property rights, patent protection, and copyright piracy.

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