

The Impact of East African Community on Export and FDI Inflows in Tanzania

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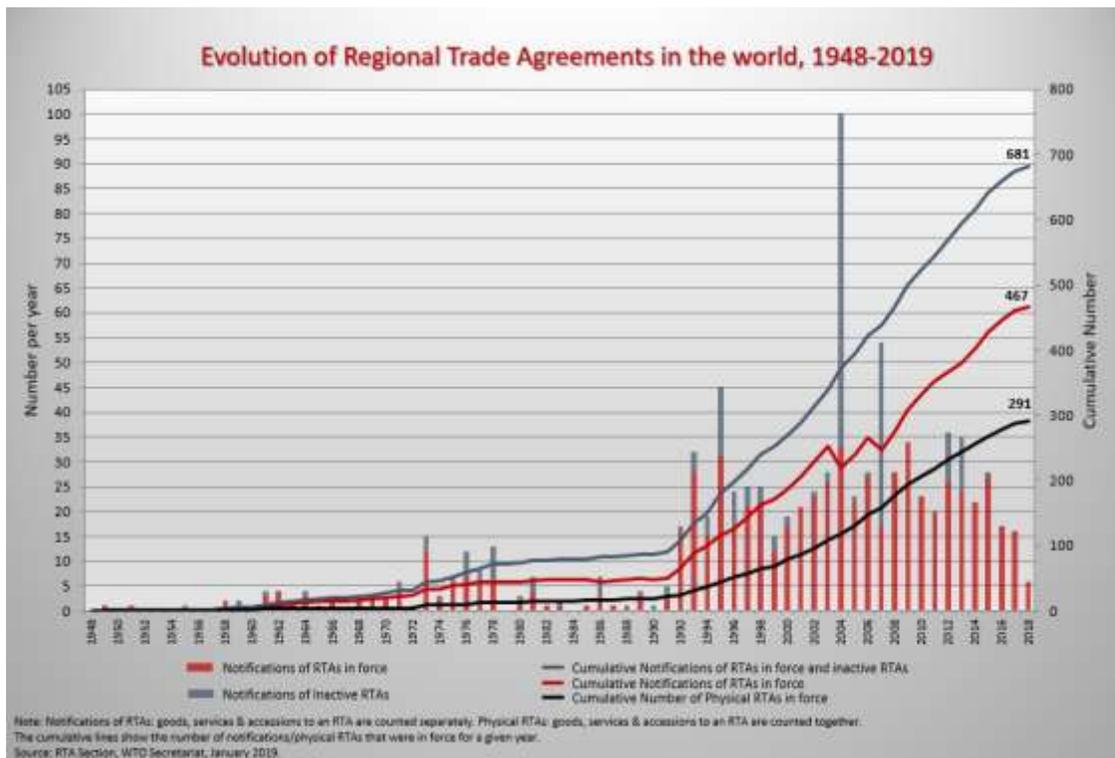
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1.0 INTRODUCTION

In the last two decades global Foreign Direct Investment (FDI) flows have been increasing and there is a general agreements about the push and pull factors that influence the increment. One of the key factors mentioned is lack of progress in multilateral collaboration in trade and investment which puts renewed emphasis on regional economic integration efforts in many regions (UNCTAD, 2014). The number of Regional Trade Agreements (RTA) had reached 700 at the beginning of 2017. Increased PTA has stimulated FDI inflows to participating countries by opening up sectors for investment and aligning policies for the treatment of foreign investors, through the direct and indirect effects of trade, investment liberalization, and market integration, through the harmonization of general policy frameworks, including those for investment, in participating countries, and through direct cooperation on investment projects at the regional level (Vlahinić-dizdarević & Ph, 2005). Figure one below provide the extent t which PTA have proliferated across the Global.



Source: WTO, 2019.

The link between FDI and trade is firmly established in economic literature. For example, Casson (1990) suggested that FDI is a “logical intersection” of the theory of international capital markets, the theory of the firm and trade theory. Singh and Jun (1995), and Tanaka (2006) mention that firms might conduct FDI for the specific purpose of “tariff hopping” and avoiding trade costs, suggesting that trade issues have significant sway when firms make investment decisions. Yet despite the vast amount of literature on this subject, very few have tried to examine the relationship of export and FDI on preferential trade agreements using the lens of trade theory.

However one of the areas which depict this relationship is the extent to which PTAs have integrated Investment provision along with the trade chapter. So Investment provision has been included in the PTA to compliment trade chapter to be able to provided admission, and protection of Investment. Hence one of the links which is clear is changing landscape of the recent PTA which have expanded with and expansive sets of investments related measures in terms of specific FDI policies or investment provision with the PTA trade Chapter or model Investment framework to guide the treatment, admission and protection of FDI. For instance in East African Community the council of Minister has endorsed three key instruments to guide the admission, protection and promotion of FDI. This includes double taxation agreements, EAC Investment Code and EAC model bilateral investment agreements.

The PTAs investment rules provide a framework for the entry, promotion, and protection of FDI in the region and provide fair and equitable treatment to PTAs investors. The rules further tend to provide a mechanism on the treatment and protection of FDI which contribute to an improved Investment climate. The expectation is that expansive set of trade and investment in PTA will raise the total of FDI in the region and enhance trade and investment, stimulate trade flows, expand the export market, increase competition, and allow countries to exploit economies of scale (Bollinger and Stover, 1999).

Table one below highlight the some of the PTA with an expansive sets of Investment provisions.

Table 1: Selected PTA with some Investment Provision

Agreement	Trade in goods	C.E. T*	Standards* *	Trade in services	Investment	Labour
United States - Central American Free Trade Agreement (CAFTA) (2004)	Yes	No	Yes	Yes	Yes	Yes
Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) (2004)	Yes	No	Yes	Yes	Yes	No
South Asian Free Trade Area (SAARC) (2004)	Yes	No	No ^{a/}	No	No ^a	No
European Community (EC) - Mediterranean partners (1995-2004)	Yes	No	No	Yes	Yes	No
United States-Singapore (2003)	Yes	No	Yes	Yes	Yes	Yes
Chile-Republic of Korea (2003)	Yes	No	Yes	Yes	Yes	Yes
Economic Cooperation Organization Trade Agreement (ECO)¹ (2003)	Yes	No	No	No	No ^b	No
European Community (EC) - Mexico (2001)	Yes	No	Yes	Yes	Yes	No
United States-Jordan (2000)	Yes	No	No	Yes	Yes	Yes
European Community (EC) - South Africa (1999)	Yes	No	No	No	Yes	No
Chile-Canada (1996)	Yes	No	No	Yes	Yes	Yes
North American Free Trade Agreement (NAFTA) (1994)	Yes	No	Yes	Yes	Yes	Yes
European Community (EC) - Russian Federation (1994)	Yes	No	Yes	Yes	Yes	Yes
The Southern Common Market (MERCOSUR) (1994)	Yes	Yes	Yes	Yes	Yes	Yes
Commonwealth of Independent States Free Trade Agreement (CIS)² (1994)	Yes	Yes ^c	Yes	Yes	No	No
Common Market for Eastern and Southern Africa (COMESA) (1993)	Yes	Yes	Yes	Yes	Yes	Yes
European Free Trade Association (EFTA) -Turkey (1991)	Yes	No	Yes	No	No	No
South Pacific Forum Cooperation Agreement (1980)	Yes	No	No	No	No	No
Southern African Customs Union (SACU) (1969)	Yes	Yes	Yes	No	No	No
Andean Community (1969)	Yes	Yes	Yes	Yes	Yes	Yes
Treaty Establishing the European Community (1957)	Yes	Yes	Yes	Yes	Yes	Yes
East African Community	Yes	Yes	Yes	Yes	Yes	Yes

Source: UNCTAD, 2016.

The experience of long-established and successful regional groups such as the European Union (EU) and the North-American Free Trade Agreement suggests that regional economic integration provides a strong boost to intraregional cross-border investment linkages. The gradual expansion of the EU has also demonstrated that it supports industrial growth, through the relocation of production to lower-cost countries and the regional specialization of production. However, such patterns have so far proved largely elusive to regional groups of developing countries (Weg, Kiel, Brenton, Mauro & Lücke, 1998).

Marszk (2014) also pointed that the growing volume of trade and investment agreements in the developing economies may have plausibly triggered outward FDI from developing countries in two ways. First, increased exports may assure the producers of existing markets and therefore, lower the uncertainties and risks attached to investments, thereby encouraging outward FDI. This effect is stronger if exports are targeted towards a region with trade and investment agreements, which ensures access to larger integrated markets and the possibility of cross-border vertical integration and smooth operations of affiliates.

UNCTAD (2013) have also pointed out that PTA is likely to allocate FDI if it includes local content requirements within the rules of origin. Such outward FDI are undertaken mainly with the motive of expansion. Second, increased imports into the country may have a displacement effect on investments, which may then be channeled outward into economies with lower manufacturing costs and greater access to larger markets. Such investments are undertaken mainly with the motive of relocation. In the case of both higher export and imports levels, trade encourages outward FDI, especially from developing economies. A large number of trade and investment agreements can therefore, be a potential factor that would trigger outward FDI from the developing economies.

Willem and Bezemer (2004) are three schools of thought explaining the factors influencing FDI. In the PTA membership, there are scholars who believe that factors explaining trade also tend to explain FDI inflows. Hence, this part will also review some of the theories that

explain trade. In this respect, this part will examine the link between PTAs and FDI inflows as well as how these theories can best explain the relative FDI share of countries in PTA.

While the theoretical literature examining the determinants of multi-national corporate investment often assumes that firms choose between supplying a foreign market through exports or establishing production facilities in a host country, the empirical evidence is less clear cut. A few cases of tariff-jumping FDI aside, empirical studies find that affiliate sales are positively correlated with exports at the aggregate country or industry level. Similarly, firm-level studies point to the complementarity between FDI and exports (Estrin, 2017).

The main objective of this paper is to examine whether the establishment of the EAC have been able to attract either export or FDI inflows in Tanzania relative to other EAC countries. More specifically, the paper will examine whether the EAC integration is more beneficial to FDI or to exports? Which variables reflecting economic integration are more prone to FDI and to exports? Given that FDI is often associated with greater dynamic effects, such as the technology transfer, which in turn may lead to beneficial effects for the participating countries, the impact of economic integration on FDI is potentially more important and deserves close attention.

3.0 Theoretical Literature Review

Factors determining FDI inflows in a country have been explained at length by the Dunning (1980) hypothesis which emphasizes on the location advantage of a country as the key determinant of FDI. Dunning (1980) applied Hymer (1976) Ownership advantages (O), Vernon's (1966) location characteristics (L), and Buckley and Casson's (1976) internationalization advantages (I) as the analytical basis of the Electric Paradigm Theory.

Dunning (1980) maintains that a firm will become an FDI and engage in the international value-adding activities if and only if the three conditions shown are met: The first condition is that the firm must possess certain comparative advantages, which are specific to the nature of the ownership over the local competitors. It means that the firm as an international player must have some ownership advantages to cover for the costs of an international player; it must have some ownership advantages to cover for the cost of international production or

outweigh the disadvantage of doing business abroad. The first condition of the Dunning Eclectic Paradigm addresses the WHY questions, the condition answer why the FDI's go abroad, as well as elaborate the core competences that give a competitive advantage over the firms that are already serving a foreign market (Asafo-adjei, 2007).

The second condition is that an international firm can use the internationalization advantages to exploit its competitive advantages over the local firms in the foreign market. This condition addresses the WHERE questions, it elaborates on the location-specific factors which favour overseas production as a firm uses some production resources more effectively than in their home country. The motive of moving offshore is to use the firm-specific advantages in conjunction with factors in a foreign country. The more these factors are utilized, the more the profits are generated by these FDI's. The choice of investment location depends on a complex calculation that includes economic, social and political factors. The location advantages of various countries are key in determining which countries become the hosts to the investments. Some aspects that can form country-specific advantages for a multinational firm include, but not limited, to large and growing high-income market, low production costs, a large endowment of factors which are scarce in the host country, and an economy that is politically stable, nearness to the port, and participation in the regional integration (Rugman, 2010).

The third condition is that a firm needs to use some specific resources in the foreign country in combination with the ownership and internalization advantages. This condition addresses the HOW question; in other words, how to go abroad. This condition results from internationalizing foreign operations through the control over suppliers or market outlets. The multinational enterprises have various choices of entry mode ranging from vertical to the horizontal mode. The multinational chooses internationalization where the market does not exist or functions poorly so that transaction costs of the external route are high (Nations & Development, 2002). Hence, according to Dunning (ibid), for FDI to take place, all the above three conditions must be met.

However, the role of institutions in investment decisions has gained momentum. North (1997) defines institutions as the rules and regulations that structure political, economic, and

social interactions. These rules include both informal contracts (sanctions, taboos, customs, traditions, and codes of conduct) and formal rules (constitutions, laws and property rights). Indeed, issues of property rights, tax laws, and political stability are crucial when one is making investment decisions. For instance, North (1990), Butler and Joaquin (1998), assert that political risk involves unexpected change of the institutional environment within which business operates. This may alter the operating cash flow of a firm, in such a way that FDI may either avoid the risk altogether, or by insurance, or negotiate with the government prior to investment.

According to Campos and Kinoshita (2003), theoretical and empirical findings suggest that the host country's institutions influence investment decision because they directly affect business-operating conditions. The quality of institutions of a country plays a critical role in determining the location decision of the FDI; hence, differences in the amount of FDI inflows are a result of differences in institutions quality (Wei and Wu, 2001). Moreover, the quality of institutions is an important determinant of FDI activity, particularly for less developed countries for a variety of reasons: First, poor legal protection of assets in these countries increases the chances for the expropriation of a firm's assets, making investments less likely. The quality of institutions, which is necessary for well-functioning markets, increases the cost of doing business if such quality is poor and this should diminish FDI activity. Since poor institutions lead to poor infrastructure, the expected profitability falls in the market so does the FDI.

The cost of investment consists of the economic as well as the non-economic costs, such as bribery and time lost in dealing with local authorities. Moreover, institutions underpin local business operating conditions but they differ from physical supporting factors such as transport and communication infrastructure. The basic notion is that less corruption, a fair predictable and expedient judiciary, and an efficient bureaucracy help to attract FDI (Wei and WU, 2001).

Although institutions play a very great role in attracting FDI in a country, estimating the actual impact of the institutions on FDI is a cumbersome exercise since measurements of institutions are not accurate. Most measures entail composite index of a country's political,

legal, and economic institutions, developed from survey responses from officials or businesspersons who are familiar with the country. Comparability across countries is questionable when the survey respondents vary across countries. Also, institutions are quite persistent so there is a likelihood of having little informative variations over time within a country (Blonigen, 2005). Hence, data limitation has impeded extensive testing of these ideas, constraining the existing studies to focus on just one aspect of the issue, normally corruption.

Campos and Kinoshita (2003) examined the importance of institutions as the determinant of FDI for 25 transition economies in Central Europe and the former Soviet Union. They used the institution variables rule of law and quality of bureaucracy. Their econometric results indicated that countries with good institutions could attract more inflows of FDI. Poor quality of bureaucracy was found to be a deterrent of foreign investors as there is an increase in transaction costs, which adversely affect profitability of the investment project.

Like Vittorio and Ugo (2006), it is clear that institutions may affect FDI inflows through three potential channels. First, the presence of good institutions tends to improved factor productivity and subsequently stimulates investments, whether domestic or external. Second, good institutions will result in a reduction of investment-related transaction costs (i.e. corruption-related costs). Finally, as by definition, FDI generally involves high sunk costs. Therefore, good institutions (i.e. proper property right enforcement, effective legal systems) will give more security to multinational firms.

Wilhelms and Witter (1998) have also added that high level of government fitness requires that the legislature's decision- and law-making processes are transparent, efficient and reasonably democratic implying that the societal groups that have to support and carry through policies are included in the government decision- making process, thus facilitating policy implementation. As far as the executive level of government is concerned, high government fitness means that policies are implemented transparently, efficiently and consistently to ensure equitable treatment of all subjects under the law. A transparent, reliable, independent, fair and equitable judiciary guarantees high government fitness of the

legislature and executive branch. High government fitness is expected to increase FDI by decreasing instability and thus investment risk.

From the theoretical framework above, the relation between PTA and FDI is neither self-evident nor straightforward, as the decision for foreign investment depends on lots of factors, including economic, social and political. The extent to which Tanzania becomes the best location FDI choice relative to other EAC countries will depend on the extent to which Tanzania has integrated EAC investment policy change relative to other EAC countries. As well as the opportunity through which Tanzania will realize from the PTA, due to the aggregating individual country market into a PTA market, and additional economic growth associated with PTA formation. The aggregated market will enhance investment climate, stimulate investment inflows, enlarge export market, increase competition and allow countries to exploit economies of scale and permit them to specialize in the production of goods and services to make them best suited to their resources and factor endowment (UNECA, 2004, Choudhri *et al.*, 2006).

The theoretical framework in this paper is premised on three key variables, the Preferential Trade Agreements (EAC), which are independent/explanatory variables, the Country Risks, and international competitiveness are the moderating variables, and FDI inflows to Tanzania are the dependent variable. The independent or explanatory variable has a direct influence on the dependent variable, which has a cause and effect relationship. The moderating variable, 'moderates' the cause and effect relationship by influencing the independent variable negatively (through a reduction) or positively (enhancing). According to the theoretical framework, Tanzania ratification and implementation of the EAC community treaty and protocols will influence macroeconomic stability, reform on regulatory authorities, as well as reform on investment liberalization, protection, and promotion. This will increase investor's confidence which will culminate into the increased FDI inflows. The new economic relationships envisioned by the proponents of Preferential Trade Agreements reveals that multilateral and regional trade agreements either act as instruments of development or eventually result to increased investment inflows of the participating countries (Bhagwati, 2007).

The country risk will measure the location advantage of the country, which comprises Macroeconomic risks and political risks. While international competitiveness is a function of the real effective exchange rate, relative unit labour cost and the quality of labour of the host country in our case Tanzania, macroeconomic risks are the function of economic risks, financial risk and currency Risks. On the second hand, political risk represents the investment provision which is embodied in the EAC protocols and treaties; these provisions will culminate into investment liberalization, promotion, and protection as a result of Tanzania participation in EAC. Hence, this variable is a function of the removal of the restrictions on the investment inflows in Tanzania. Political risk has a profound impact on the admission and establishment, entry and exit regulations and standard of treatment to foreign investors. Standard of treatment involves provisions such as National Treatment Principal; Most favoured nation treatment, and fair and equitable treatment. The protection of foreign investors involves property rights, nationalization, expropriation, investor's dispute settlement and provisions related to the repatriation of capital.

In a nutshell, the factors measuring political risk are basically a set of investment issues covered in the 1990's investment agreements; hence, political risk of Tanzania due to her participation in EAC will comprise; investment provisions in the EAC, bilateral investment treaties signed by Tanzania and multilateral investment agreements.

2.2 Econometric model

This paper has employed gravitation model analysis to investigate the relative effect of EAC on Tanzania export and FDI. The paper will test the three propositions in the literature regarding the PTA effect on FDI and export. UNCTAD (2014) indicated that the linkages between trade and FDI can be divided into three categories: the first school of thought, argue that the determinant of FDI and trade are similar and therefore, what determines trade also determines FDI flows. The second school of thought are those who argue that, FDI, exports, and imports are determined simultaneously, and hence all the variables are endogenous variables, therefore, their interaction should be taken into accounts. The third school of thought are those who look into the impact of PTA on FDI inflows such as (Domazet & Marjanović, 2017) and (Kawai & Naknoi, 2015). They believe that PTA like that of EU can influence FDI inflows into the region as the risks associated with investment decline with

greater regional integration. This paper wishes to test the first proposition whether what determines export performance of Tanzania in the EAC will also determine FDI inflows.

Variables generated in the model will be structured into three aspects: Country risk and international competitiveness. Country risk will involve variables related to macroeconomic risk and political risk. The international competitiveness measure the efficiency generated by the formation of the PTA to the host country. Political risk in our model will measures the extent to which investment provisions contained in EAC will influence investment performance in Tanzania over time. The main assumption here is that the reduction elimination of tariff and non-tariff barriers and harmonization of policies at the common market level is associated with the formation of the PTA. In this case, the region can be regarded as a single investment FDI destination. There by making the large market a more profitable investment opportunity than the single country market alone.

Country risk will involves variables related to macroeconomic stability, economic risk, financial that comprises how the regional market size, growth prospect, location advantage and quality of institutions of the host country will impact on Tanzania FDI performance.

Hence the econometric model will be specified as follows:

$$\ln \left[\frac{TFDI_{i,t}}{EACFDI_{ij,t}} \right] = a + \alpha_i + \gamma_j + \lambda_t + a_1 \ln Y_{i,t} + a_1 REGY_{i,t} + a_2 REGY_{g_{yi,t}} + \delta_1 STFI_{i,t} + \beta_3 \ln INFL_{t,j}, \dots$$

$$+ a_4 \ln TEXR_{ij,t} + \beta_5 ULC_{1,T} + \beta_6 ED_{1,T} + a_7 \ln Y_{g_{i,t}} + a_8 \ln D_{ij} + \varepsilon_{ij}$$

(2)

From the model the dependent variable is the FDI, inflows in Tanzania which is the total FDI inflows in Tanzania relative to the total EAC FDI inflows. The dependent variable is assumed to depend upon host country's market size (GDP), economic growth rate, PTA market size measured by the aggregate GDP of the PTA members, macroeconomic stability indicated by both Inflation Rate (INFL) and Real Effective Exchange Rate (TEXR), level of development and efficiency in financial institutions (STFI), International competitiveness

reflected by the relative Unit Labor Cost (ULC), and quality of labor force indicated by proportional of labor force having attained secondary education (EDU2).

In additional to the above variables, our model also includes bilateral real exchange rate ($TEXR_{ij,t}$) as the relevant price variable in order to control for fluctuations in relative prices among trading partners. This variable is defined as the value of unit of the exporter's currency relative to the importer's currency in a purchasing power parity terms. The depreciation of exporting country currency is expected to show positive relationship with exporter and negative relationship with outward foreign direct investment. On top of that, this variable will also determine whether there is any relationship between FDI inflows to Tanzania and her exchange rate volatility. Bilateral tariff is also included in the model; the whole idea here is to test whether the coefficients of the PTA specific index are sensitive to the tariff variable. Hence, to detect this, a two way estimation techniques will be adopted, the model with tariff and the model without tariff.

Market size and growth prospect will be measured by total EAC GDP represented by $REGY_{i,t}$, the EAC GDP growth rate represented by the variable $REGg_{yi,t}$. Y_i and Y_g represent Tanzania real GDP and GDP growth rate respectively. These variables are included to capture the market size hypothesis, growth prospect, and location hypothesis. GDP and GDP growth rate are the leading determinant of FDI inflows. FDI attracted by these factors are called Market seeking FDI. The market size of the PTA and its growth rate are also employed by the MNE as the incentive to invest in the PTA. All of the market size and growth prospect variables are expected to have positive correlation with the dependent variable. Data for all the two variables will be obtained from World Bank development indicators.

Exchange rate ($TEXR_{ij}$) and the inflation rate ($IFL_{ij,t}$) are applied in this study to measure the macroeconomic stability of the host economy. While high inflation rate indicates domestic policy failure that discourages both saving and investment. Where inflation rate are higher potential direct investments find difficulty even in making short term pricing decisions. Due to this investor, prefer to invest in more stable economies, which reflect a lesser degree of uncertainty, it is reasonable to expect that inflation would have a negative effect on FDI

(Schneider & Frey, 1985). On the second hand, real effective exchange rate is also employed as a proxy for macroeconomic stability, generally the effect of real effective exchange rate level on FDI activity. It follows that an increase in the effective exchange rate indicates an appreciation in the host country currency, while a decrease indicates depreciation. The expected effect may differ by the type and motivation of investment regarding local market or export orientation. Hence, effective exchange rate may motivate or discourage FDI depending on the change of the exchange rate. Data for all the two variables will be obtained from World Bank development indicators.

Variable $SFI_{ij,t}$ represents financial institution's level of development and efficiency. In this study various ratios used to measure financial institutions by the World Bank will be applied. These ratios include Liquidity liability M3 (% of GDP), M3/GDP. The liquidity liabilities of the financial system, also known as broad money, or M3, are the general indicator of the size of financial intermediaries relative to the size of the economy without distinguishing between different financial institutions, or an overall measure of financial sector development. The indicator applied includes three types of financial institutions (i) the central bank (ii) deposit money bank (iii) other financial institutions. A well-developed financial system indicates favourable business operation condition and investment environment. Thus, the expected relationship between financial system's level of development (M3/GDP) and FDI is positive.

The second ratio is the domestic credit provided by the banking sector (% GDP) this ratio is important link in the money transmission process, it finances production, consumption, and capital formation, which in turn affects the level of economic activity. Foreign investors' decisions are affected by host country credit conditions, as they can have access to complementary local finance more easily, and face lower transaction costs for local financial services. Moreover, their customers too, are more likely to have access to bank credit, which should accelerate the demand for their products that are often bought on credit. Hence, it is expected that domestic credit will have positive impact on inward FDI to Tanzania.

The final ratio to be employed as the measure of the financial institution is the interest rate spread. Interest rate reflects the responsiveness of financial institutions to competitions and

price incentives. Narrowing of the interest rate spread reduces transaction costs, which lowers the overall cost of investment and is therefore, crucial for investment decision. This ratio is also known as a summary measure a banking system's efficiency or financial efficiency. It also indicates the quality of financial institutions (Andreff & Andteff, 2006). Hence, it is expected that interest rate spread will have a positive impact on inward FDI in Tanzania. Real Interest rate is the lending interest rate adjusted for inflation adjusted by the GDP deflator. A negative real interest rate indicates a loss in the purchasing power of the principal. Although FDI relies on foreign capital, lending interest rate might be very important for foreign investment decisions. Hence, a host country cost of capital has a direct impact on domestic consumption. Thus the lower the interest rates, the higher the domestic consumption and hence the higher the FDI inflows.

ULC and the quality of education (ED), is employed to measure the international competitiveness. International competitiveness would involve comparison of the success of different countries in raising productivity and thus foster innovation. Cost factors may significantly influence the choice of an investment location for the resources seeking and efficiency seeking FDI. To capture costs in manufacturing with respect to Tanzania, relative ULC and the percentage of labour force that has attained ED is employed to indicate the quality of labour force. Relative ULC measure changes in a country's price competitiveness in international markets based on changes in that country's exchange rate and price level using ULC in manufacturing relative to those of its competitors. The rise in the index indicates deterioration in the country's competitiveness. Hence, it is expected that a positive change in the relative ULC will positively influence FDI in Tanzania.

Investors are concerned not only on the cost of labour but also with its quality. The quality of labour force can be reflected by the level of education of the labour force. A more educated labour force can learn and adopt new technology faster, and the cost of training local workers would be less for investing firms. Empirical studies have concluded that, there is a strong positive relationship between FDI and the quality of labour force. In this study, the proportional of the labour force that has attained secondary education as a percentage of the total labour force will be applied to measure the quality of the labour force in Tanzania. The

share of the labour force that has attained qualification at the secondary level is a key indicator of how well countries are placed to profit from technological progress. The higher the proportional of labour force having attained secondary education, the higher the potential for an investment decision and achievement of expected outcome. Thus, the expected sign on FDI is positive. Data on these variables will be obtained from the World Bank World Development indicator.

Variable D_{ij} is bilateral distance between the two trading partners. Due to the theoretical contribution done by various authors regarding the gravity model such as Anderson (2003), this variable is currently applied as the representation of trade barriers. For the case of the gravity applied to estimate investment, the variable tends to represent the cost of doing business in the host country. The variable is expected to have negative relationship with FDI inflows. Investors are so sensitive with the cost of doing business. Hence, countries with low cost of doing business tend to attract more FDI than countries with high cost. For the proper estimation of this variable, Anderson and VanWincoop (2003) applied the technique of multilateral resistance term. The term tends to incorporate before the border and after the border trade cost. It includes variables such as distances, borders, and income shares. They argue that this method is more efficient than any other. However, the procedure is data consuming and has not been frequently used by other authors. A method frequently used, which will also be used in this study, is to include a proxy for these indexes called remoteness variable as follows:

$$RE = \sum \frac{dist_{ij}}{GDP_j / GDP} \dots\dots\dots(3)$$

Where the numerator would be the bilateral distance among the two countries, and the denominator would be the share between each country's GDP in the rest of the world's GDP

The econometric model (2) represents the baseline model. It examines the impact of EAC on FDI inflows to Tanzania. In addition, financial and competitiveness variables are included in our model to measure relative cost effectiveness of the host country. Since low labour cost and high quality of labour increases productivity of the host country, these factors are an

incentive to efficiency seeking and resources seeking FDI. In addition, the rate of growth of a country and the PTA would seem to be important for attracting FDI, as the faster growing region and the economy would indicate future market potential. Schneider and Frey (1985), Woo et al. (2003), Tobin and Rose-Ackerman (2005), and Niemeyer and Spess (2005) have maintained that the expected relationship between the economy's rate of growth and FDI is positive. Data for both GDP and GDP growth rate will be obtained from the World Bank World Development indicator.

The standard way of assessing the impact of PTA is to add PTA specific binary dummy variables to the augmented gravity model to capture effects not captured through normal bilateral trade creation and diversion effects of PTA. The influence of investment provision on Tanzania FDI inflows will be examined by employing two methodologies. The first one will be to investigate on the change of Tanzania FDI stock as a percentage of GDP in response to the introduction or improvement of investment provision in EAC. The exercise of controlling only for the size of GDP of Tanzania, will serve as a preliminary indication of whether FDI is responsive to trade and investment provision of EAC. Secondly, will be to assess how change of investment rules over time in EAC influence FDI inflows in Tanzania. A technique by Te velde and Bezemer (2004) of assigning scores to a number of investment measures will be applied. Some of the investment measures that will be assessed are national treatment, MFN treatment, performance requirements, transfer of funds, settlement of disputes and expropriation rules.

In addition, non-measurable trade, rules will also be assessed such as rules of origin, and the degree of implementation of the investment provisions. Hence, the index score that will be applied includes; 0 for the period in which the investment provision were not be adopted, 1 for the period in which it has been adopted in PTA, 2 for improved investment provisions such as those in ANDEAN during the 1970s. Indexes on the scale from 0 to 3 will be assigned to trade provisions such as the degree of tariff reductions and the intensity of the MFN clause. The main hypothesis to be tested here is that, the higher values of the investment index should lead to increased FDI in a PTA over time or across groupings. To assess the extent of EAC trade and investment liberalization openness index will be

introduced to model (2). Openness is measured by the sum of bilateral export and import as a ratio of GDP $((X_i + M_i)/GDP)$.

$$\ln \left[\frac{TFDI_{i,t}}{EACFDI_{ij,t}} \right] = a + \alpha_i + \gamma_j + \lambda_t + a_1 \ln Y_{i,t} + a_1 REGY_{i,t} + a_2 REGY_{g_{yi,t}} + \delta_1 STFI_{i,t} + \beta_3 \ln INFL_{i,j,t} + a_4 \ln TEXR_{ij,t} + \beta_5 ULC_{I,T} + \beta_6 ED_{I,T} + a_7 \ln Y_{g_{i,t}} + \beta_8 \ln OPEN_{IJ,T} + \beta_9 EAC_{IJ,T} + a_{10} \ln D_{ij} + \varepsilon_{ij} \dots (3)$$

The augmented gravity model to be estimated is centered on assumption of product differentiation at the country level. Since much of the recent literature on PTA has focused on imperfect competitiveness behaviour, this is important for two reasons: (i) the EAC integration process involves economies with almost similar structural and large volumes of intra industrial trade (ii) there is a positive interaction between market structure and the gains from integration, often called the pre competitive effects of PTAs, in which the third wave of PTA aim to capture. It has also been emphasised that in a model of product differentiation, country similar in size will trade more, more trade also means more FDI, and the trade will be of an intra- industrial nature. The index of size similarities captures this effect. This index measure the distance between the two countries in terms of relative factor endowment. This variable could take the minimum value of 0, which implies equality in relative factor endowments and 0.5 otherwise. This index is included in our model represented by $SIMGDP_{ij,t}$, as per stipulation of the theory is that, the larger the difference, the higher the volume of inter-industry trade, and the lower the share of intra- industry trade. The index can be calculated as follows:

$$SIMGDP_{ij,t} = \ln \left[1 - \left(\frac{GDP_{it}}{GDP_{it} + GDP_{jt}} \right)^2 - \left(\frac{GDP_{jt}}{GDP_{it} + GDP_{jt}} \right)^2 \right] \dots (4)$$

By contrast traditional trade theory state that, country with dissimilar levels of per capital GDP will trade more than the countries with similar levels. The absolute difference in the per capital GDP between exporting and importing countries ($DffGDP_{ij,t}$) is included in our model

as an explanatory variable as a way of distinguishing the traditional from the differentiated product approaches. Equation three of this study will read as follows:

$$\ln \left[\frac{TFDI_{i,t}}{EACFDI_{ij,t}} \right] = a + \alpha_i + \gamma_j + \lambda_t + a_1 \ln Y_{i,t} + a_1 REGY_{i,t} + a_2 REGY_{g_{yi,t}} + \delta_1 STFI_{i,t} + \beta_3 \ln INFL_{t,j,t} + a_4 \ln TEXR_{ij,t} + \beta_5 ULC_{i,t} + \beta_6 ED_{i,t} + a_7 \ln Yg_{i,t} + \beta_8 \ln OPEN_{i,t} + \beta_9 EAC_{ij,t} + a_{10} \ln D_{ij} + \beta_{11} DffGDP_{ij,t} + \beta_{12} SIMGDP_{ij,t} + \varepsilon_{ij}$$

(5)

Where by:

Ln Is the natural logarithmic transformation,

TFDI_{ij,t} stand for bilateral FDI flows from country i to j in period t, and

EAC FDI_{it} Is the total FDI inflows in all EAC partner states. We have used FDI flows as our dependent variable as suggested in a number of studies such as (Neumayer & Spess, 2005; Tobin & Rose – Ackerman, 2005; Hallward – Driemeier, 2003; Buthe & Milner, 2008; Bussel et al., 2010). Hence, the dependent variable in this study will be bilateral FDI inflows in Tanzania relative to bilateral FDI inflows to EAC.

α_i is unobserved specific effects of country i

γ_j Is unobserved specific effects in country j

λ_t is unobserved specific effect in time period t

Y_i Is the real GDP of Country i

REGY_{i,t} is the market size for countries, obtained as a combined GDP of EAC Partner states,

REG_{g_{yi,t}} Average Real growth rate in EAC Partner states (including country i)

$Educ_{i,t}$	Average years of education of people over age 15 in country i
$GAPeduc_{i,t}$	Is the prefix that denote ratio between the domestic value of the variable and the average value for all countries sharing a PTA with country i (including country i itself),
$stabfin_{i,t}$	Is the financial risk index of the political risk services group,
$TEXR_{ij,t}$	is the bilateral real exchange rate between country i and j at year t,
$SIMGDP_{ij,t}$	Similarity in country size between i and j in year t in terms of aggregate GDP,
D_{ij}	Is the distance between the capital cities of country i and j,
$DffGDP_{ij,t}$	Is the absolute differences in GDP per capital of i and j in year t,
$Yg_{i,t}$	Real GDP growth rate of country i,
$OPEN_{ij}$	is the degree of openness of the country i arrived as the ration of export and import over GDP ($EX + IMP/GDP$). This implies that the more open is the trade policy, the greater is the economy gravitation attraction to foreign capital.

From an econometric point of view, the α_i , γ_j , and λ_t specific effects are treated as fixed unknown parameters. The use of these separate fixed effects is advocated by Matyas (1997) and avoids the omitted variable bias identified by Haveman and Hummerls (1998), Anderson and Van Wincoop (2003). Matyas (1997) argued that the correct gravity specification is a three way model. One dimension is time, which reflects the common business cycle or globalization process over the whole sample of countries, and the other two dimensions of group variables are time invariant export and import country effects.

2.3 Model Estimation Technique

This study will use panel data method in the estimation process. The justification for applying panel data in this study is that, until 1990s, it has been usual practice to estimate gravity model using cross sectional data. However, this type of estimation does not control for heterogeneity among countries. The practice has tended to produce different results depending on the country involved leading to estimation bias. To mitigate this problem this

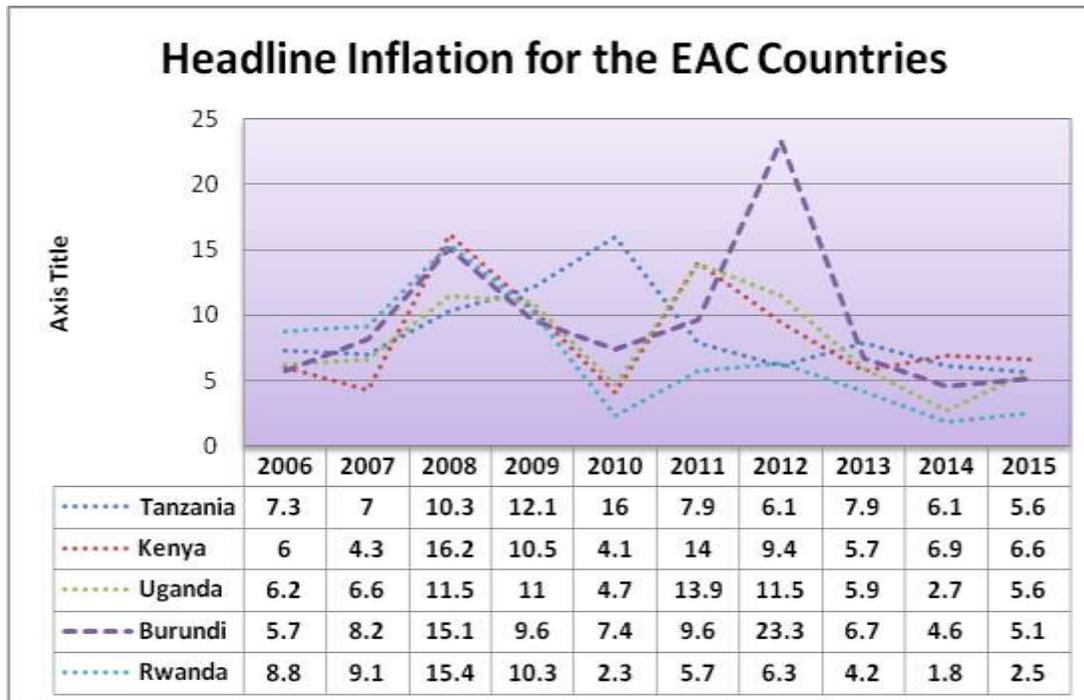
study will use panel data, which has been described by various authors as the cross sectional gravity model for several consecutive years Baltagi, Egger and Pfaffermayr (2005) , Anderson et al. (2001), Brun (2005) and Davis (2012).

The other advantage of using panel data is that it allows to recognize how the relevant variables evolve through time, and to identify the specific time or country effects. The problem of potential multicollinearity that sometimes arise from cross sectional data is completely avoided with panel data. Furthermore, the application of panel data allows capturing important relationship between variables over time. Moreover, panel data tend to monitor partner's individual effects and avoid biased estimates. Egger (2002) added also that, panel approach yield better results than a cross section approach since it allows to capture the overall business cycle phenomenon faced by the trading partners and help to disentangle time invariant country specific effect. These specific effects can be as fixed or random.

More specifically, Tanzania and the rest of EAC countries are data constrained economies, hence, the scarcity of data concerning FDI in EAC will create important constraint to the development of econometric analysis. To minimize the problem, this study will employ panel data analysis in the estimation process. The econometric specification in study will adopt country pair specific effects to capture time invariant unobservable effects that might affect bilateral inward FDI. The country pair specific effect will be taken into account due to the fact that one might suspect that there are factors making Tanzania attractive to FDI that are not captured by the explanatory variables, these will be time invariant, such as cultural factors, colonial masters, language, common borders. Hence, both fixed effect and random effect will be used in this study.

3.0 Macroeconomic Performance

Figure 1 below provides a summary of the trend of the inflation rates for the EAC Countries from 2006 to 2015.



Source: Author Calculation based on EAC Fact and Figure:2016

From figure 1_ above its show that in 2006 when the EAC Custom Union was signed almost all the Partner States had inflation rate between 5.7% to 8.8%. The expectation is that as the integration process move into deeper integration economic variation must also be converged, something which does not seem to be clear in the EAC integration process. For instance, Burundi joined the EAC in 2007 its inflation rate increased from 8.2% in 2007 to 23 percent in 2012. However there is promising decrease for Tanzania, Rwanda, and Uganda. This is in line with the expectation of the integration process. Given the fact that the EAC signed the Custom Union in 2005, and the common market protocol in 2007 which open the free movement of all the factors of production, Labour, Capital, Service, and people. The free movement of the factors production was expected to reduce the macroeconomic risk and hence reduction in the inflation rate, which does not seem to be so clear in EAC.

Figure 2, suggests that, Tanzania's exports to Kenya have been increasing since the signing of the Customs Union in 2005. Figure 1 shows that Tanzania's exports to the rest of EAC countries have changed from 6000 Million USD to 18000 Million USD in 2018, which is equivalent to 200% change. It is apparent that since the tariff phase down was implemented

	Total	2,564.1	3,155.0	3,698.6	3,230.4	3,128.3	23.0		17.2	-12.7	-3.2
Total EAC	Uganda	1,196.4	1,227.2	1,244.0	1,326.9	1,401.8	2.6		1.4	6.7	5.6
	Tanzania	787.1	1,291.9	1,515.0	1,489.3	1,203.4	64.1		17.3	-1.7	-19.2
	Kenya	1,847.2	1,957.3	1,785.5	1,847.7	1,693.7	6.0		-8.8	3.5	-8.3
	Burundi	186.7	193.0	381.6	151.5	178.1	3.4		97.7	-60.3	17.6
	Rwanda	466.2	801.3	879.5	817.5	592.7	71.9		9.8	-7.0	-27.5
	TOTAL	4,483.6	5,470.7	5,805.6	5,632.9	5,069.7	22.0		6.1	-3.0	-10.0

Table 2 provide a summary of the FDI inflows to EAC Partner States from 2010 to 2015

Country	2010	2011	2012	2013	2014	2015	Percentage
							Growth 2014/2015
Burundi	1	3	1	7	32	1.8	-94.4
Kenya	178	335	259	514	874.1	2,187.4	
Rwanda	42	106	160	111	359.2	1,065.3	
Uganda	544	894	1,205	1,146	1,755	517	-70.6
Tanzania	1,813	1,229	1,800	1,872	5,502.9	3,449.7	-37.3

Source: EAC Investment Report, 2016

When you compare figure two and three it seems that EAC Partner States have experienced positive changes between FDI inflows and export performance, apparently it indicate that change in export have also been followed by change in the FDI inflows.

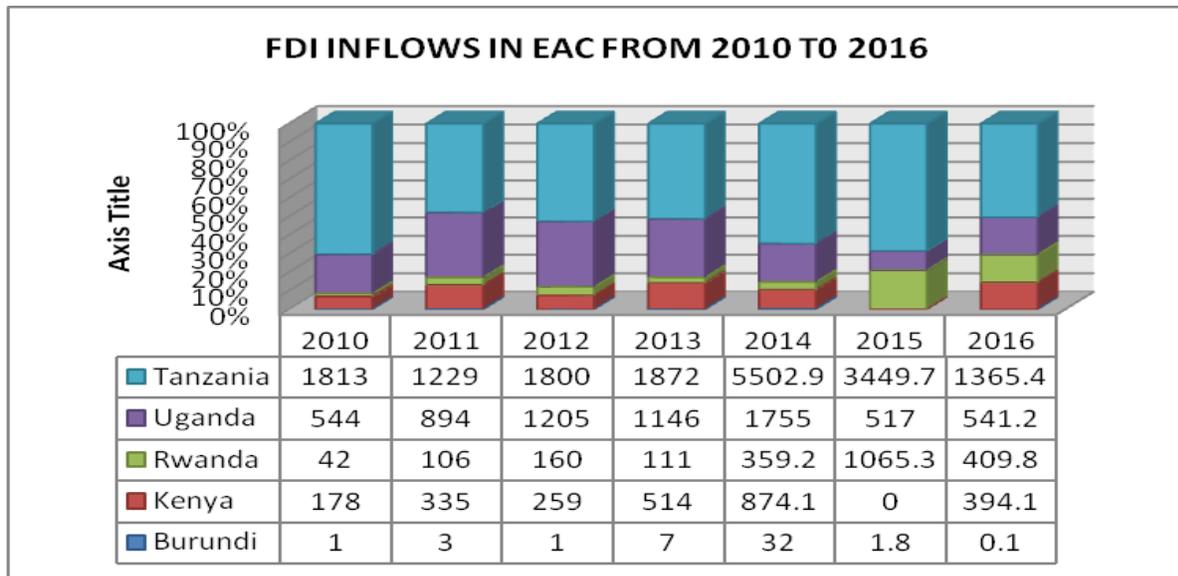
Table 3, Provide the proportionate share of FDI inflows to Tanzania relative to other EAC Countries from 2010 to 2016.

	Percentage FDI Inflows in Tanzania as the Ratio of Total FDI in EAC						
Country	2010	2011	2012	2013	2014	2015	2016
Burundi	1.0	3.0	1.0	7.0	32.0	1.8	0.1
Kenya	178.0	335.0	259.0	514.0	874.1	2,17.4	394.1
Rwanda	42.0	106.0	160.0	111.0	359.2	1065.3	409.8
Uganda	544.0	894.0	1205.0	1146.0	1755.0	517.0	541.2
Tanzania	1813.0	1229.0	1800.0	1872.0	5502.9	3449.7	1365.4
Total	2578.0	2567.0	3425.0	3650.0	8523.2	5033.8	2710.6
%TA/EAC FDI	70%	48%	53%	51%	65%	69%	50%

From Table three above, It indicate that in 2010 when the when the common market was in operational, Tanzania received a lion share of 70 percent of the Total FDI inflows to EAC, this share decreased by 22 percent when Common Market Protocol was induced in 2011. But on average since the establishment of the Customs Union in 2005 Tanzania had been receiving almost 50 percent of the total FDI inflows to EAC. One the key factors being mentioned is the concentration of natural resources, and the discovery of huge deposit of Gases in Mtwala and other places.

4. 0 FDI inflows in EAC

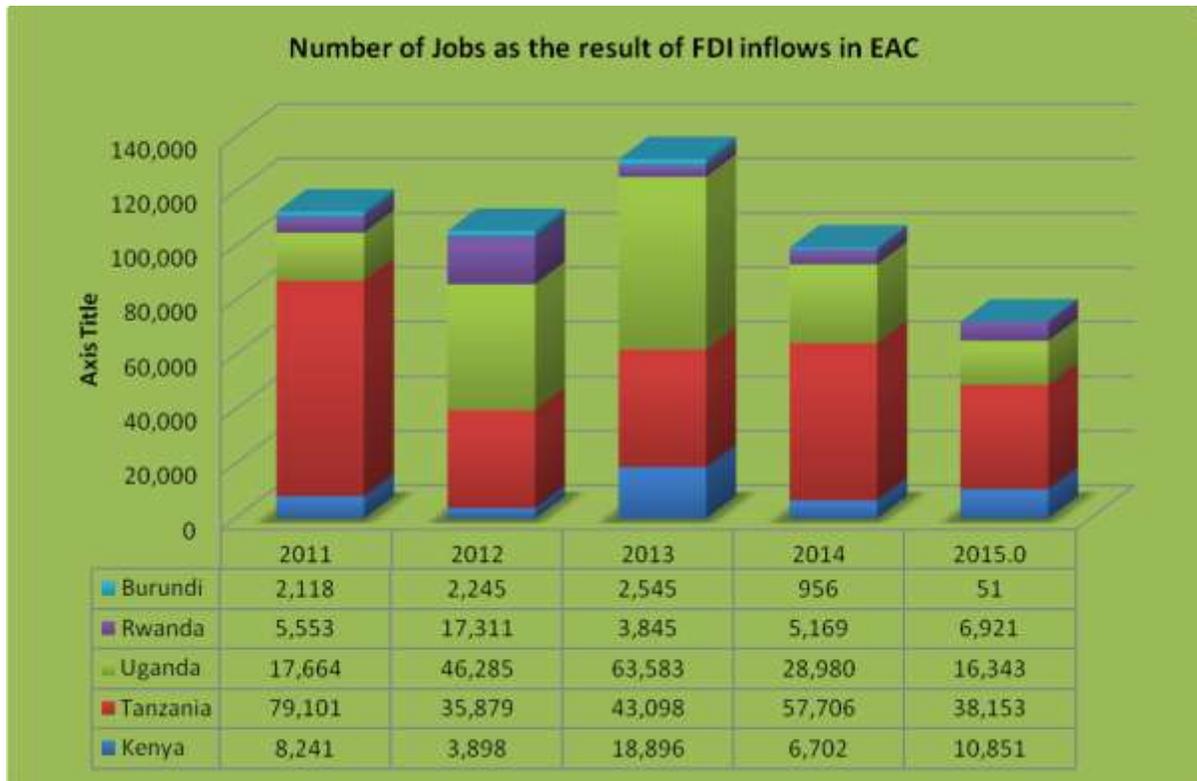
Figure 3 below, provide the summary of the FDI inflows In EAC Partner Sates from 201 to 2016



Source: Author Calculation, based on EAC Fact and Figures, 2018

According to the figure four above on average Tanzania seems to receive the largest proportion of FDI than any other EAC country. The figure shows since the year 2010 when the Common market protocol was signed, which is meant to ensure free movement of Goods, Service, labour and people (deeper integration process) within the community, Tanzania has been receiving an average of 60 percent of the total FDI coming to the EAC. In 2004 when the Custom Union protocol was signed, Tanzania received an average of 50 percent of the total FDI in EAC. Since 2010, Tanzania has been receiving more than 50 percent of the total FDI which has been received by the EAC Community. Most of the FDI which Tanzania has been receiving are coming from the rest of EAC countries. The major sources of Tanzania FDI include: China, the USA, India, the United Kingdom, Kenya, Netherlands, and South Africa.

Tanzania has also been enjoying the lion share of the Total Job created by FDI inflows in Tanzania as summarized below by Figure 4.



Source: Author Calculation based on EAC Fact and Figures, 2018

Tanzania is not only enjoying the lion share of the Total FDI coming to the EAC, but also the jobs which are created by FDI at an average of 50 percent of the total Jobs which are created by the FDI inflows. On average more than 50 percent of the total Jobs being created by FDI inflows in EAC are being enjoyed by Tanzania. This implies that the large benefit of total FDI coming to EAC is enjoyed by Tanzania.

5.0 Export Performance in EAC

Figure 6 below provide summary of the export performance for the EAC Partner States from 1997 to 2015

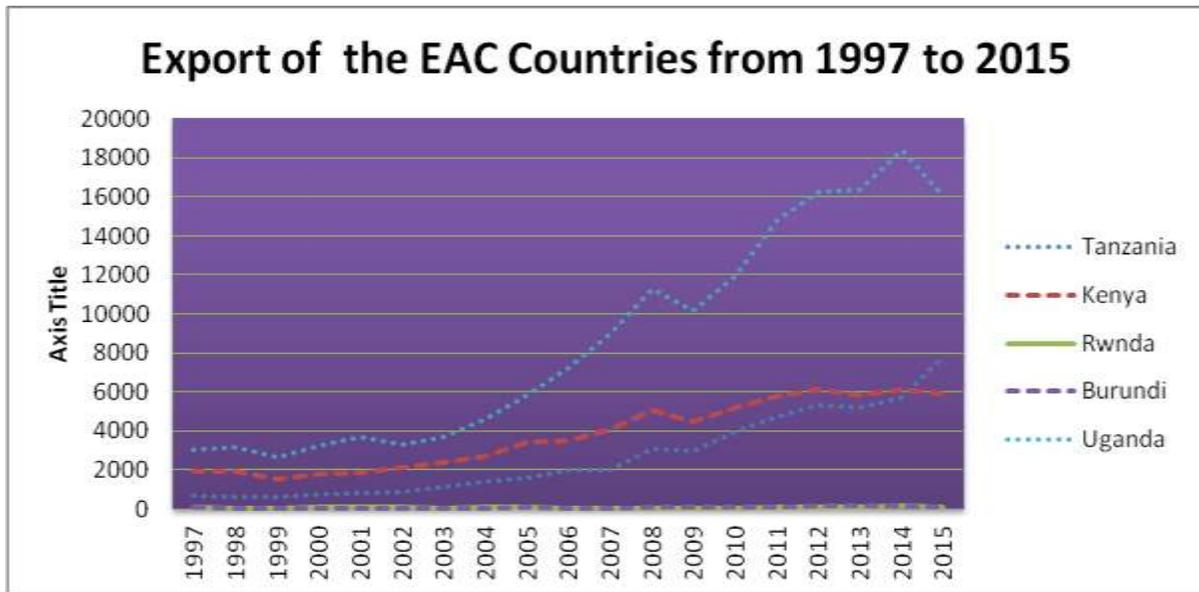
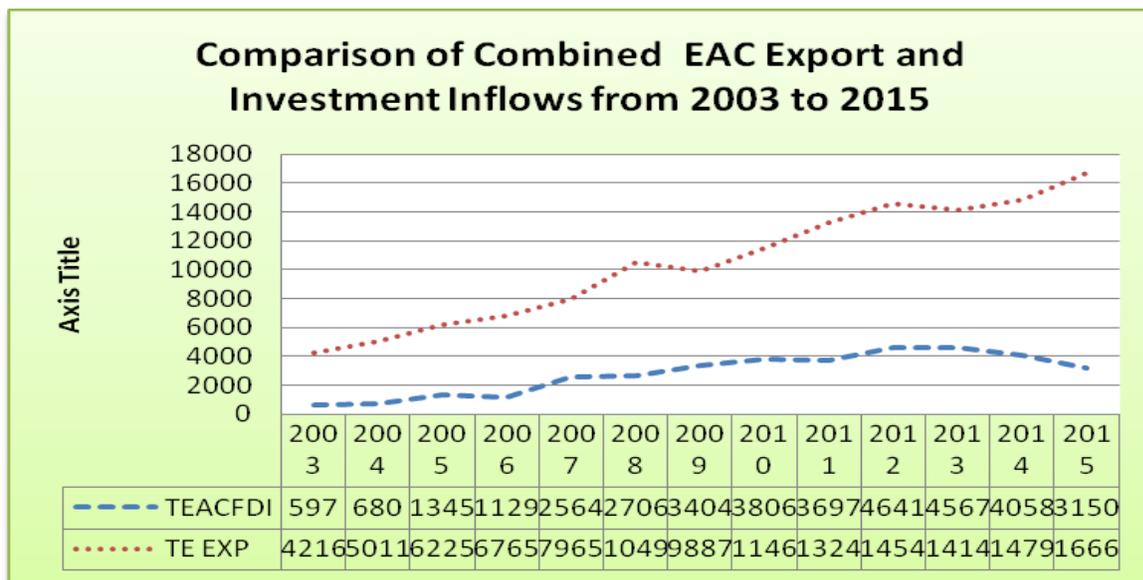


Figure 5, suggests that, Tanzania’s exports to Kenya have been increasing since the signing of the Custom Union in 2005. Figure 1 shows that Tanzania’s exports to the rest of EAC countries have changed from 6000 Million USD to 18000 Million USD in 2018, which is equivalent to 200% change. It is apparent that since the tariff phase down was implemented in line with the reduction of NTB, this change might also be associated with the reduction of the NTB on cross border trade.

Figure 6, Compares Export and FDI inflows to EAC from 2003 to 2015.



According to UNCTAD (2014) has demonstrated that, the linkages between trade and FDI can be divided into three categories: the first school of thought, argue that the determinant of FDI and trade are similar and therefore what determine trade also determine FDI flows. The second school of thought are those who argue that, FDI, exports, and imports are determined simultaneously, and hence all the variables are endogenous variables, therefore, their interaction should be taken into accounts. The third school of thought are those who look into the impact of PTA on FDI inflows such as (Domazet & Marjanović, 2017) and (Kawai & Naknoi, 2015). They believe that PTA like that of EU can influence FDI inflows into the region as the risks associated with investment decline with greater regional integration. As indicated in Figure 6 above since 2003 the general trend of FDI and export in EAC seems to be similar through with different rate of growth. Since 2003 Export and FDI have been increasing with the increasing pace of the integration process. For instance in 2003 Total EAC export was 4216 Millins USD, in 2010 this figure changed to 9887 Million which is almost change of 5671 Million USD, which is 138 percent change. On the other hand FDI inflows was 597 Million USD in 2003 while in 2010 was 3806 Million USD which is the change of 3221 Million USD which is change of 538 percent. In means in terms of percentage change FDI inflows is doing better than Export performance.

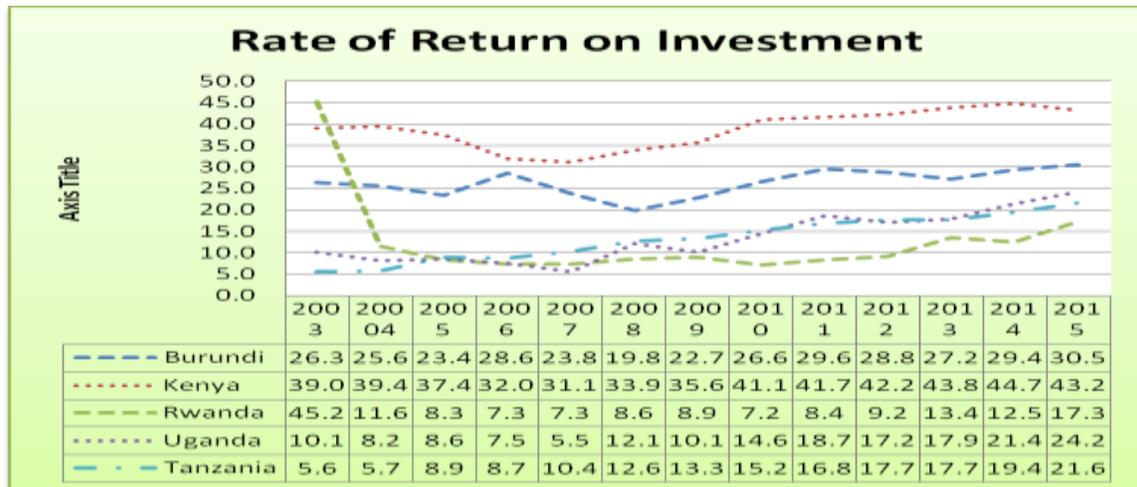
The link between PTA and FDI can also be explained by the quality of the Business Environment, from the Figure two below there are a very few potential advantage EAC Partner states related to Business environment. The business environment in EAC is highly hampered by administrative barriers, including cost to start a business all of these related to economic risk, Political risk as indicated by the WEF is also high as shown by Figure two below.

	Bur udi	Ken ya	Rwan da	Tanza nia	Uga nda	EAC
Ease of Doing Business Rank (World Bank 2017)						
Starting a Business	18	143	112	124	166	113

	Closing a Business/Resolving insolvency	144	134	101	105	98	116
WEF Global Competitiveness Index:							
2016–2017							
1st pillar: Institutions							
<i>Security</i>							
1.13	Business costs of terrorism	106	135	37	99	131	102
1.14	Business costs of crime and violence	115	129	6	88	118	91
1.15	Organized crime	122	125	9	77	108	88
5th pillar: Health and primary education							
4.09	Quality of primary education	131	79	82	132	115	108
4.10	Primary education enrollment rate	70	125	16	38	100	70

Sources, World Bank doing Business Ranking

Return on Investment is one of the barometers applied by the Investor before they decide to invest in a certain country. The Return on Investment (ROI) is a performance measure used to evaluate the efficiency of an investment or compare the efficiency of several different investments. ROI tries directly measures the amount of return on a particular investment, relative to the investment's cost. It is as useful in evaluating the potential return from a stand-alone investment as it is in comparing returns from several investments. This fact is also applied in PTA, the fact that countries have signed PTA but the attractiveness of the Individual Country within the PTA is vital input applied by the Investor to PTA members.



Source: Author's Calculation based on WDI data (2019)

From Figure 7 above, it is clear that Kenya has the highest return on capital than any other member in EAC. Hence, this stands to be the highest FDI destination in EAC. Practices have shown that although Tanzania has a low rate of investment return compared to Kenya, since the signing of the Common Market Protocol in 2009, Tanzania has been enjoying the lion share of the FDI inflows in EAC. Kenya receives an average of 50 percent of the total FDI coming to EAC countries. A high rate of investment in Kenya is humped by regulatory factors; for instance, in Kenya, the telecom industry regulator requires that foreign firms that invest in the sector preserve 20 per cent shareholding for Kenyans within three years of receiving the license while the Mining Act of 2016 restricts foreign participation in the mining sector. This is a similar case in other EAC countries. For instance, foreign companies operating in Tanzania are required to preserve 30 per cent shareholding to local citizens while the Electronic and Postal Communications (Licensing) Regulations provides that Content Services License for free-to-air broadcasting requires 51 per cent local ownership.

The local content requirement is introduced by Kenya by requiring foreign firms to find Kenyan shareholders and sell them 30 per cent shares, a process that was perceived to be costly and time-consuming owing to the due diligence required to secure credible investors. It is difficult for a developing country to support itself with only domestic financial resources because these resources are limited. The dual gap framework identified the need for financial resources from foreign sources to augment available limited domestic financial resources to

achieve sustainable economic growth in a country, especially for a developing country. External (foreign) debt and foreign direct investment (FDI) are required by developing nations to attain the economic status that allows them to be relevant for their residents and to compete globally. FDI and external debt tend to supplement domestic financial resources to empower a country to effectually perform her development programmes as well as elevate living standards of her populace. Figure 2 illustrates the external debt of the EAC countries.



Source: Author's Calculation based on WDI Data (2019)

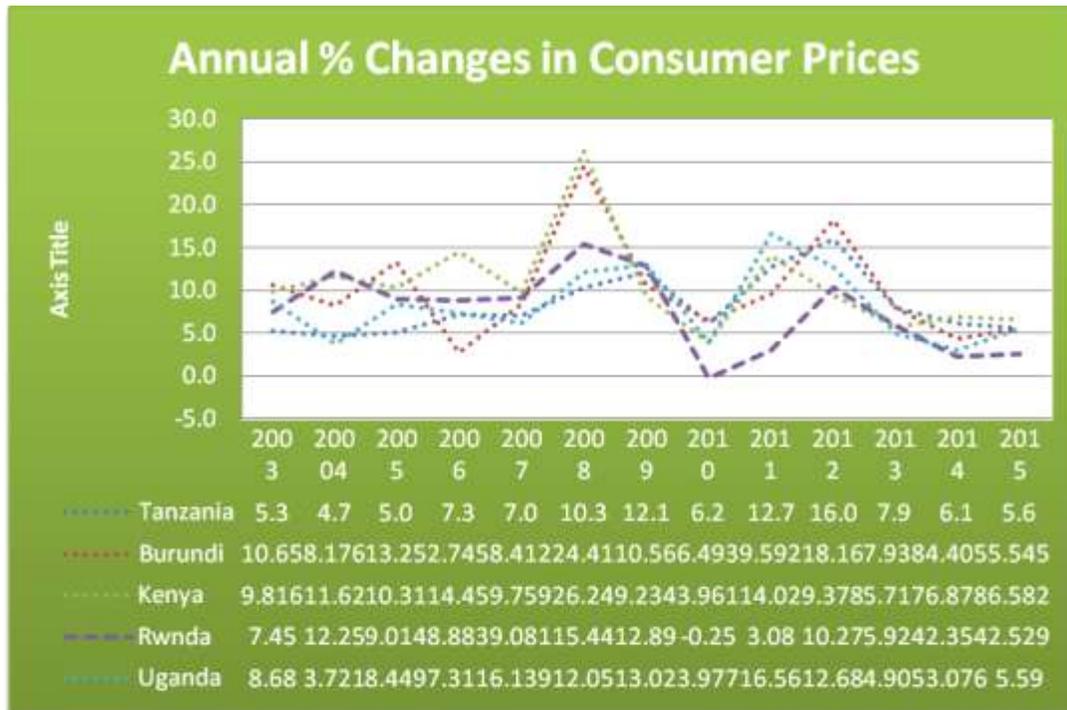
Reading through Table 7, it is clear that Kenya has a very high external debt when compared to other EAC countries. The fact is that both FDI and external debt is the source of capital to developing countries and they tend to complement each other. Hence, a country with very high external debt but low FDI inflows signals to have a problem in the institutional and governance issues. Most EAC countries have resorted to external borrowing as a means of cubing the deficit in their budget but the manner on which the money borrowed has been spent, and has harm on FDI inflows. Since EAC countries are prone to debt overhang

problem due to mismanagement of external debt. Also, they experience capital flight which limits the chances of FDI contribute to economic growth. The expectation is that capital flows from external debt and foreign direct investment should bridge the gap between the desired investments and savings mobilized internally but these have not been the case in the EAC. Likewise, the external debt and FDI are assumed to be beneficial, but inherent problems in Nigeria. These include capital flight, poor governance, macroeconomic instability, corruption, currency (Naira) depreciation, and weak export base among others make the effects of external debt and foreign direct investment in EAC ineffective measure of cubing budget deficit inherent in EAC Countries.

Figure 7 provides the situation of Inflation rate in EAC countries from 2003 to 2015. The reviewed literature has indicated three theoretical rationales which explain the impact of inflation on FDI: (1) Nnadi and Soobaroyen (2015) and Andinuur (2013) observed that inflation is a measure of macro-economic instability and that higher inflation rate could chase away prospective and already existing foreign investors, (2) inflation rate increase in host country reduces FDI as it erodes the value of the profits made by foreign firms (Sayek, 2009) and (3) low inflation reduces nominal interest rates and consequently pushes down the cost of capital for foreign investors. On the contrary, Obiamaka *et al.* (2011) noted that it is possible that inflation in the host country can have a positive impact on FDI inflows on condition that it does not exceed a certain threshold level. Overwhelmingly, literature shows that inflation harms FDI (Nnadi & Soobaroyen, 2015; Sayek, 2009; Andinuur, 2013; Xaypanya *et al.*, 2015).

Furthermore, one of the greatest risks to FDI inflows in EAC is the rate of inflation to the host country. A high inflation rate tends to affect the productivity and the predictability of the investment returns. The expectation is that monetary policy is supposed to shape the economic environment that is conducive in attracting FDI into host countries. However, the characteristics of monetary policy present the impossible trinity, a trilemma problem where trade-offs must be done to maintain economic stability. Two of these anchors are inflation autonomy and exchange rate variability. These trade-offs can impact on the host country's attractiveness on FDI inflow. Hence, a country within the PTA with a high

inflation rate is likely to receive low FDI when compared to a PTA member with low inflation. Figure three below provide the summary of the Inflation rate for the EAC countries from 2003 to 2015.



Source: Author's Calculation based on WDI data (2019)

Reading through Figure 8, it is clear that, on average, all the EAC countries have maintained the inflation from 8 to around 10 percent with ups and downs in some years. Kenya and Burundi had the highest inflation rate in EAC in 2007 and 2008. From the data above suggest that there is a very low deviation of the inflation rate among the EAC countries but the deviation in terms of FDI inflows is very high. Tanzania has proved to be dominant in terms of FDI inflows since the signing of the Common Market Protocol in 2010. EAC countries need FDI to assist in alleviating some of its socio-economic problems, such as unemployment, high level of unskilled labour and finance capital deficits (Akinboade, Siebrits, and Roussot, 2006) as well as volatility in the inflation rate.

6.0 Pre estimation Test

To assess whether there is positive correlation among the independent variable, as the preliminary estimation to assess whether the independent variable will be significant a we computed a correlation matrix. As indicated in the matrix below most of the variable seems to have positive correlation which is an indication of the power of the dependent variable to influence the independent variable. Hence **DEMONSTRATES** that there is a positive movement between Tanzania's exports and the macroeconomic variables of the EAC countries suggesting that the increase in Tanzania export is associated with the macroeconomic performance which also confirm the prediction of the gravity model.

```
. cor logadgpc logDGPT logDGPJ logpopii logpopjj logtvi logpcij logpcii logteacfd logtfdi logecgdp loggfci loggfcj logbrej
(obs=52)
```

	logadgpc	logDGPT	logDGPJ	logpopii	logpopjj	logtvi	logpcij	logpcii	logtea-d	logtfdi	logecgdp	loggfci	loggfcj	logbrej
logadgpc	1.0000													
logDGPT	-0.1725	1.0000												
logDGPJ	-0.5313	0.1447	1.0000											
logpopii	-0.1876	0.9964	0.1448	1.0000										
logpopjj	-0.4606	0.1479	0.9600	0.1484	1.0000									
logtvi	-0.1969	0.5372	0.6550	0.5375	0.6641	1.0000								
logpcij	-0.5547	0.1821	0.9295	0.1815	0.7986	0.5780	1.0000							
logpcii	-0.1773	0.9985	0.1452	0.9987	0.1482	0.5404	0.1821	1.0000						
logteacfd	-0.1270	0.9039	0.1316	0.8818	0.1311	0.5044	0.1639	0.8958	1.0000					
logtfdi	-0.1523	0.8869	0.1309	0.8678	0.1290	0.4857	0.1577	0.8779	0.9117	1.0000				
logecgdp	-0.4021	0.6593	0.8102	0.6592	0.8267	0.8527	0.7276	0.6601	0.5972	0.5809	1.0000			
loggfci	-0.0502	0.8214	0.1206	0.7942	0.1180	0.4715	0.1547	0.8204	0.8572	0.7504	0.5425	1.0000		
loggfcj	0.1667	0.1136	-0.3305	0.1058	-0.3087	-0.2702	-0.2824	0.1098	0.1141	0.1659	-0.2190	0.1017	1.0000	
logbrej	-0.3274	0.2664	0.6165	0.2755	0.5181	0.3558	0.7389	0.2700	0.1822	0.1915	0.5356	0.1510	0.1051	1.0000

6.2 1 Link Test

To assess the model specification the Linktest test was employed. This test is based on the notion that if a regression is properly specified, we should not be able to find any additional explanatory variables that are significant except by chance. The test creates two new variables, the variable of prediction, *hat* and the variable of squared prediction, *_hatsq*. The decision making criteria is that, if the *hat* is significant this will indicate that our model is

correctly specified, and hence we have no reason to find any additional variable. In our case as indicated by the result below the *hat* is significant which suggest that our model is correctly specified.

```
. linktest
```

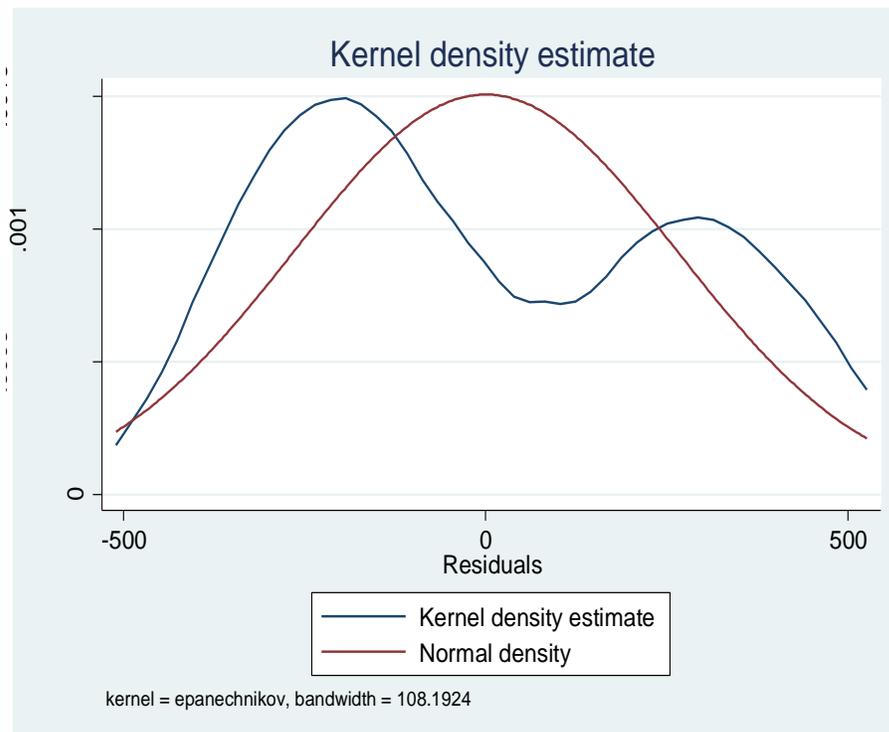
Source	SS	df	MS			
Model	15009634.3	2	7504817.17	Number of obs =	52	
Residual	3491422.52	49	71253.5208	F(2, 49) =	105.33	
Total	18501056.9	51	362765.821	Prob > F =	0.0000	
				R-squared =	0.8113	
				Adj R-squared =	0.8036	
				Root MSE =	266.93	

tfdi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
_hat	1.441353	.4018945	3.59	0.001	.6337154	2.24899
_hatsq	-.0001937	.0001738	-1.11	0.270	-.000543	.0001555
_cons	-195.6637	196.5212	-1.00	0.324	-590.5877	199.2604

As per the result above the *hat* is significance, which implies our model is correctly specified hence we have no reason to include any addition variable..

6.2.3 Checking Normality of Residuals

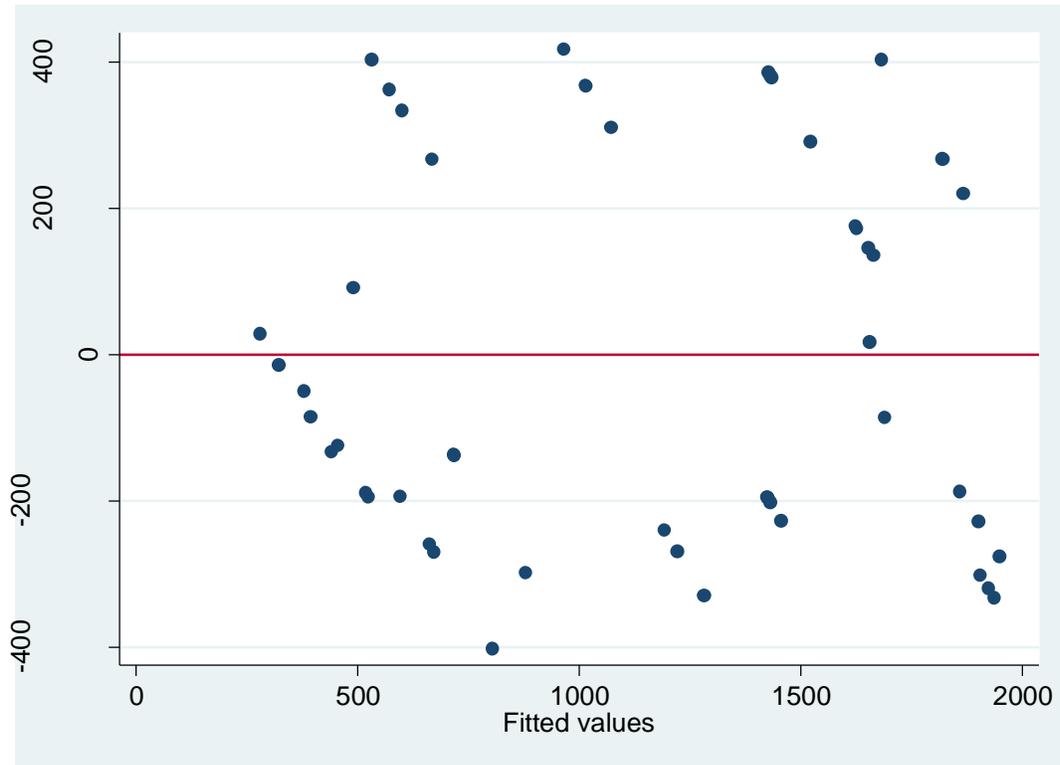
This is not the case. Normality of residuals is only required for valid hypothesis testing, that is, the normality assumption assures that the p-values for the t-tests and F-test will be valid. Normality is not required in order to obtain unbiased estimates of the regression coefficients. OLS regression merely requires that the residuals (errors) be identically and independently distributed. Furthermore, there is no assumption or requirement that the predictor variables be normally distributed. If this were the case than we would not be able to use dummy coded variables in our models.



The **pnorm** command graphs a standardized normal probability (P-P) plot while **qnorm** plots the quantiles of a variable against the quantiles of a normal distribution. **pnorm** is sensitive to non-normality in the middle range of data and **qnorm** is sensitive to non-normality near the tails. As you see below, the results from **pnorm** show no indications of non-normality, while the **qnorm** command shows a slight deviation from normal at the upper tail, as can be seen in the **kdensity** above. Nevertheless, this seems to be a minor and trivial deviation from normality. We can accept that the residuals are close to a normal distribution. As per the kernel density plot above it shows that it has produced a normal curve which suggests that the normal density has been overlaid on the plot which suggests that our data is normally distributed.

6.2.4 Checking Homoscedasticity of Residuals

One of the main assumptions for the ordinary least squares regression is the homogeneity of variance of the residuals. If the model is well-fitted, there should be no pattern to the residuals plotted against the fitted values. If the variance of the residuals is non-constant then the residual variance is said to be "heteroscedastic".



```
. estat imtest
```

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	52.00	51	0.4347
Skewness	2.92	10	0.9833
Kurtosis	11.43	1	0.0007
Total	66.35	62	0.3293

```
. estat hettest
```

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
```

```
Ho: Constant variance
```

```
Variables: fitted values of tfdi
```

```
chi2(1) = 0.32
```

```
Prob > chi2 = 0.5731
```

It is a common practice to combine two test when assessing for heteroscedasticity to make a judgment on the severity of the heteroscedasticity and to decide if any correction is needed for heteroscedasticity. In our case we have employed both the graphical test and the Breusch-Pagan test. The Breusch Pagan test the null hypothesis that the variance of the residuals is homogenous. Therefore, if the p-value is very small, we would have to reject the hypothesis and accept the alternative hypothesis that the variance is not homogenous. In our case, the plot above does not show too strong an evidence of the violation of the Normality assumption .

6.2.7 Checking for Multicollinearity

When there is a perfect linear relationship among the predictors, the estimates for a regression model cannot be uniquely computed. The term collinearity implies that two variables are near perfect linear combinations of one another. When more than two variables are involved it is often called multicollinearity, although the two terms are often used interchangeably. The primary concern is that as the degree of multicollinearity increases, the regression model estimates of the coefficients become unstable and the standard errors for the coefficients can get wildly inflated. We can use the **vif** command after the regression to check for multicollinearity. **vif** stands for *variance inflation factor*. As a rule of thumb, a variable whose VIF values are greater than 10 may merit further investigation. Tolerance, defined as $1/VIF$, is used by many researchers to check on the degree of co linearity. A tolerance value lower than 0.1 is comparable to a VIF

of 10. It means that the variable could be considered as a linear combination of other independent variables. Since in our case all the VFI value is above

. vif

Variable	VIF	1/VIF
logpcii	1643.06	0.000609
logpopii	870.89	0.001148
logDGPT	507.09	0.001972
logDGPJ	347.73	0.002876
logtvi	231.46	0.004320
logexpjj	164.79	0.006068
logpopjj	134.79	0.007419
logpcij	99.84	0.010016
logimpjj	53.85	0.018572
logteacfd	11.47	0.087161
logtfdi	7.79	0.128303
logbrej	5.82	0.171951
logadgpc	3.57	0.279799
loggfcj	1.83	0.545854
Mean VIF	291.71	

6.2 .5 HAUSMAN TEST

To test whether Random effect, fixed effect and pooled effect will be used to estimate our mode. The Hausman tests have been computed, to test for the significance of the parameters. The Hausman specification test compares the fixed versus random effects under the null hypothesis that the individual effects are uncorrelated with the other regressors in the model. The trick is that random effect estimator would be useful if some explanatory variable remain constant over time. The random effect assume that group effect are uncorrelated with regressor , while fixed effect estimator measures the relationship based on time variation within a cross section unit. In our estimation the null hypothesis is that the preferred model is random effects V/S the fixed effect effect. The Hausman test whether the unique error are correlated with the regressors, the null hypothesis is, they are not correlated with the regressor. The decision making creterial is that if the ch^2 is greater than 0.05 i.e is significant then random effect model is preferred, , and hence both time variant and time invariant variable is estimated. The decision making criterial is that The decision making criteria is that if the **Prob \geq 0.05** we have no reason to reject the null hypothesis, hence we accept the Null hypothesis and conclude that the Random effect is appropriate. But if the **Prob \leq 0.05**

we reject the Null hypothesis and accept the alternative hypothesis and conclude that the fixed effect model is appropriate. From the result of the Hausman test below our estimation model will be fixed effect model. Hence as per our result below, the Random effect will be used as our estimation model.

```
. hausman fixed random
```

	Coefficients		(b-B) Difference	sqrt(diag(v_b-v_B)) S.E.
	(b) fixed	(B) random		
logtfdi	-.9999997	-.6091415	-.3908582	.
logDGPT	-6.09e-06	3.884923	-3.884929	.
logDGPI	3.59e-09	-.3910826	.3910826	.
logadgpc	-7.70e-08	.0810498	-.0810499	.
logpopii	-3.87e-06	-13.332	13.332	.
logpopjj	3.03e-07	.5653706	-.5653703	.
logexpjj	-3.57e-07	.5036134	-.5036137	.
logimpjj	-1.04e-08	-.0265513	.0265513	.
logtvi	3.16e-07	-.4327417	.432742	.
logpcij	2.86e-07	.5845737	-.5845734	.
logpci	.0000112	5.474825	-5.474814	.
loggfcj	-1.89e-08	-.0055859	.0055859	.
logbrej	3.09e-07	-.6204526	.6204529	.

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

```
chi2(13) = (b-B)'[(v_b-v_B)^(-1)](b-B)
          = -397.97  chi2<0 ==> model fitted on these
                    data fails to meet the asymptotic
                    assumptions of the Hausman test;
                    see suest for a generalized test
```

In our case the P-Value is greater than 0.05 hence we accept the Null hypothesis and conclude that the Random effect is appropriate estimation model for the model being estimated in this paper.

7.0 Regression analysis

From the Hausman Test above the assumption was either the fixed effect or random effect could be used for the interpretation or publication whereby pooled model is estimated only for comparison purposes. The choice of random or fixed effect depends on the Hausman test. As per the Hausman result, Random effect model is adopted for the estimation of our model. Since random effect model is adopted, the main assumption in our model is that the individual specific effects are uncorrelated with independent variables.

Independent Variables	Fixed Effects Model	Random Effects Model	Pooled Model (OLS)
Logtfdi	2.25 (7.61)	0.000*** (6.57)	-1.90 (7.08)
logGDPI	0.99*** (5.61)	0.000*** (1.47)	0.99*** (5.42)
logGDPJ	3.45 (6.31)	0.99 (4.17)	8.51 (1.56)
logGDPC	3.45 (6.31)	0.073** (4.17)	8.51 (1.56)
logPOPII	5.59 (2.61)	0.19* (0.116)	1.93 (2.33)
logEXPJJ	0.79 (4.76)	0.069** (1.9)	1.93 (2.33)
logtvi	3.79 (1.51)	0.44* (0.21)	1.34 (4.22)
logpcij	5.59 (2.61)	0.19* (0.116)	1.93 (2.33)
logteacfd	5.59 (2.61)	0.000*** (7.30)	2.13 (2.44)
loggfci	1.91 (0.11)	0.19* (0.116)	1.23 (1.43)
loggfci	2.69 (1.13)	0.33* (0.87)	2.77 (3.22)

Logbrei	2.23 (3.41)	0.12* (2.345)	2.93 (4.33)
LogDIS	0.077 (0.11)	-2.224* (1.174)	-1.33 (7.67)
LogEXRT	4.99*** (3.06)	-0.126* (0.067)	2.83* (1.09)
Td dummy	8.21 (5.42)	0.46** (0.17)	1.17* (0.28)
EAC dummy		1.05 (1.38)	-2.00* (7.97)
Border Dummy	0.99* (5.42)	2.21* (0.17)	1.17 (0.45)
R Squire	99%	84%	96%

Notes: (i) the numbers in parenthesis are standard errors

(ii)) *** and ** and * indicate significance levels 1%, 5% and 10% level, respectively

In our estimation process, **logtfdi**, **logDGPCI**, **logPOPI**, **logPOPJ**, **logtvi**, **logPCI**, **logtecffd**, **loggfcj**, **logbre**, **logexr**, and **borderdummy** are significant, while the rest of the variables were found to be insignificant or have no effect to the dependent variables.

The coefficient of Tanzania FDI inflows (**logtfdi**) is positive and significant at 1% level. This suggests that when the Total FDI inflows in EAC increases by 1%, the volume of Tanzania's increases by 6.7 percent. This means there is a positive relationship between Total FDI inflows and Tanzania FDI performance. The coefficient of Combined GDP (**logDGPCI**) for the EAC Partner States is negative at 1 percent significance level. When the EAC combined GDP change by 1 percent, Tanzania FDI decreases by 10 percent. This finding does not confirm to the prediction of the gravitation model, which assumes positive gravitation forces between GDP and the FDI inflows between the Trading Partners.

The coefficient of Tanzania Border compliance (**borderdummy**) is positive and significant at 10% level. This suggests that when the cost of Tanzania border compliance

increase by 1% this also affect Tanzania Export by 10%. This means there is positive relationship between Tanzania cost of border compliance and her export to EAC Trading Partners. This may also suggest that apart from the advancement being made in EAC in trade Protocol and Policy Tanzania Border regulation is still penalizing her export to EAC Partners.

The coefficient of Gross Fixed Capital Formation (**loggfcj**) of Tanzania Trading Partners in EAC is significance at 10%. This suggests that when the Grass fixed Capital Formation for of Tanzania Trading Partner in EAC change by 1% Tanzania FDI decrease by 8%. Gross fixed capital formation has been used as a proxy for infrastructure in this research. Poor quality of infrastructural act as the Non Tarrif barriers and it has negative impact to Tanzania FDI. Hence poor Quality of Infrastructural of Tanzania Trading Partner tend to affect Tanzania FDI by 8%. Examples of researchers that have used Gross Fixed Capital Formation as a proxy for infrastructure in undertaking their research on FDI flows to African countries include Twimukye (2006), and Asiedu and Lien (2011). In order to stimulate trade between Tanzania and her trading partners, policy makers need to concentrate more on policy option that will dramatically reduce trading cost.

Furthermore, Tanzania could raise its FDI inflows through engaging herself into Bilateral Investment Agreements, but should be drafted in a way that both parties should be focused toward the promotion of the sustainable development. It would also be expected to trade more with those countries that are members of EAC and SADC as well as countries which share a common border with Tanzania. This suggests that, the promotion Regional Integration will encourage FDI and trade flows in Tanzania. This strategy would help in the formulation of an appropriate FDI policy. Although gravity usually use distance between two national capital or commercial centres of countries as a measure of international distance, these measures are not appropriate if an exporting port is different from the capital. The recent study by Bougheas et al (1999) also depicted that transport costs are a function not only of distance, but also of a public Infrastructures. They augmented the gravity model by introducing additional infrastructure variables such as stock of public capital and length of

Motorway network. Their model predicted a positive relationship between the level of Infrastructure and the volume of trade.

The positive and significant relationship of Tanzania Population and the Population of the Trading Partners in EAC (**logPOPI, logPOPJ**) indicates that, there is a positive relationship between the FDI inflows in EAC and the population density. A 1 percent change of the Population of Tanzania trading partner increases, Tanzania FDI by 3 percent

The positive relationship of trading partner population could mean that Tanzania's FDI inflows have a positive relationship with the Population of her Trading Partners in EAC. This may also imply that there is less restriction on cross border Investment between Tanzania and her Trading Partners in EAC.

Per Capital Income of Tanzania (**logPCI**) is positive and significant at 10% level. This suggests that there is a positive relationship between Tanzania FDI and the per Capital income. This may also suggest positive income relationship between Tanzania trading in EAC. This means when Tanzania FDI changes by 1%, per capital income change by 4%. This means there is multiplier effect on the income of Tanzania People being attributed by Tanzania Trading in EAC, suggesting a trickledown effect of Tanzania FDI inflows in EAC.

The coefficient of Exchange rate (**logexr**) of Tanzania Trading Partner in EAC is positive and significant at 1% level. This suggests that when Tanzania Trading Partner in EAC increases its FDI by 1%, the volume of Tanzania's FDI inflows decrease by 12%. This means there is a negative relationship between Tanzania FDI inflows and the Exchange rate of her counterpart in EAC. This might be attributed by the incomparability of the fiscal and monetary policies among the EAC Countries. This negative relationship may also mean Tanzania FDI are not exporting to the EAC Market hence Tanzania is importing more than what is exporting to her trading partners. Another possible explanation to this finding is that Tanzania Export FDI inflows is in line with the Leontief paradox which suggests that capital abundant country will tend to produce and export capital intensive goods. The same country will import labour intensive goods from the rest of the World. Since Tanzania is labour intensive country the possibility that she imports more capital intensive and exports

labour intensive goods which in most cases are semi and unprocessed is high, and therefore tends to have low value. This is the reason for negative coefficient on the Tanzania exchange rate, and therefore signifies that tariff liberalization alone is not enough to stimulate export for a Country Participating in Regional Integration.

8.0 Conclusion and Policy Implication

The finding suggests that Tanzania should continue with her objective of attracting FDI inflows through the promoting regional trade agreements. This is due to the fact that as the EAC integration process increases, there is a sign of reduction in the gross fixed capital formation. This is depicted with the positive correlation of Tanzania FDI and the Gross fixed formation which in this study have been applied as the prox to Infrastructure cost. Like wise the study also indicates a very positive sign of the income effect of the Tanzania FDI inflows. This suggests that there is a positive income effect of the FDI inflows in Tanzania.

Likewise Tanzania Export has a positive and significant relationship with the Border compliance cost. This suggests that increase in time taken to cross the border had significantly effect to Tanzania export. This also put the challenge to the efficiency of the One stop border post being implemented by all the EAC Countries as a measure of reducing time taken to comply with the border administration to Tanzania trade flows, but it has no welfare impact to the Tanzania people. This situation suggests that, there is a missing link between the current development being taken to address the behind, before and the after the border issues.

The EAC is now being implementing Common Market and the Monetary Union Protocol have been signed this stage have been arrived only a ten year period. Despite of this advancement at least in terms of the Protocol being signed the intra- EAC is still attracting very low FDI when compared to European Union and NAFTA, As being indicated in the analysis above the key hindrance is the Poor Infrastructure and time compliance at the Border.

Reference

- Anderson, J. E., Wincoop, E. Van, & Hill, C. (2001). Borders , Trade and Welfare, (212).
- Baltagi, B. H., Egger, P., & Pfaffermayr, M. (2005). Estimating Models of Complex FDI : Are There Third-Country Effects ?
- Brun, J.-F. (2005). Has Distance Died? Evidence from a Panel Gravity Model. *The World Bank Economic Review*, 19(1), 99–120. <https://doi.org/10.1093/wber/lhi004>
- Conference, U. N. (2013). United Nations Conference on Trade and Development Regional integration and foreign direct investment in developing and transition economies, (TD /B/C.II/MEM.4/2). Retrieved from http://unctad.org/meetings/en/SessionalDocuments/ciimem4d2_en.pdf
- Davis, U. C. (2012). No Title, (2002).
- Domazet, I. S., & Marjanović, D. M. (2017). Foreign Direct Investment in the Function of Economic Development - Example of Selected Countries in the Western Balkans. *International Letters of Social and Humanistic Sciences*, 79, 1–15. <https://doi.org/10.18052/www.scipress.com/ILSHS.79.1>
- Egger, P. (2002). An Econometric View on the Estimation of Gravity Models and the Calculation of Trade Potentials. *The World Economy*, 25(2), 297–312. <https://doi.org/10.1111/1467-9701.00432>
- Estrin, S. (2017). CEP Discussion Paper No 1518 November 2017 Economic Integration , Foreign Investment and International Trade: The Effects of Membership of the European Union Randolph Bruno Nauro Campos, (1518).
- Kawai, M., & Naknoi, K. (2015). *ASEAN Economic Integration through Trade and Foreign Direct Investment: Long-Term Challenges*. *Ssrn*. <https://doi.org/10.2139/ssrn.2672782>
- Marszk, A. (2014). Economic Integration and Foreign Direct Investment: Review of Main Theoretical Concepts. *Entrepreneurial Business and Economics Review*, 2(3), 79–89. <https://doi.org/10.15678/EBER.2014.020307>

- UNCTAD. (2014). The Impact of International Investment agreements on foreign Direct Investment: an overview of empirical studies IIa Issues note. *Unctad*, (September). <https://doi.org/10.2469/cp.v1995.n6.4>
- Vlahinić-dizdarević, N., & Ph, D. (2005). FDI PERFORMANCE AND DETERMINANTS IN SOUTHEAST EUROPEAN COUNTRIES: EVIDENCE FROM CROSS-COUNTRY DATA Paper presented at 6 th International Conference “ Enterprise in Transition ”, Split , 26-28 May 2005, (May), 26–28.
- Weg, D., Kiel, D.-, Brenton, P., Mauro, F. Di, & Lücke, M. (1998). Economic Integration and FDI: An Empirical Analysis of Foreign Investment in the EU and in Central and Eastern Europe by Economic Integration and FDI: An Empirical Analysis of Foreign Investment in the EU and in Central and Eastern Europe *, (890).
- Willem, D., & Bezemer, D. (2004). *Regional Integration and Foreign Direct Investment in Developing Countries*.
- Woo, T., Noland, M., Brouwer, G. De, Wang, Y., Kang, C., & Ji, C. (2003). International Competition for Foreign Direct Investment: The Case of China Busakorn Chantasasawat , University of California , Santa Cruz.