**Is foreign trade relevant to economic growth in the SADC region?**

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**Abstract**

The relationship between foreign trade and economic growth is one of the controversial subjects in economics. Theoretical models have been developed and empirical studies have been carried out but the results obtained are mixed and up to now, there is no unique answer with regard to the same study. This paper examines the relationship between foreign trade and economic growth taking SADC countries as the laboratory test ground. Growth performances have not been consistent within the SADC region and weak regional trade performance is by the virtue of the fact that they focused more on elimination of trade barriers instead of concentrating on the development of the productive capacities necessary for trade. The research used panel data gathered from SADC trade database, International Monetary Fund, and World Bank. Using panel regression analysis of 15 SADC member states, the paper demonstrates that foreign trade promotes economic growth but it was found to have a moderate effect on growths of SADC countries. Based on the findings, the paper recommends SADC member countries to devise energetic industrial policies geared towards developing export industries and also to implement the SADC Regional Infrastructure Development Master Plan in order to improve trade within the region so as to realise real market access benefits brought about by trade liberalization.

**Keywords:** Foreign trade, economic growth, SADC

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Introduction
The relationship between foreign trade and economic growth is one of the common subjects of debate among development economists. Increasing integration of most economies has revived interest in regional integration schemes following the Asian tigers. Successful records of the Asian tigers received much attention in the literature on economic growth and have produced debatable explanations on the potency of export led growth. The Southern African Development Community (SADC) is one of the trading blocs which are in line with the export led growth strategy by encouraging bilateral trade flows through deeper opening and access to regional markets to the SADC member states for the past decades. This is due to the fact that SADC member states have realised that intra-regional trade can be used as a key instrument for economic growth, provided that it is channelled in national development strategies and policy frameworks. The extent to which bilateral trade has increased and promotes economic growth in SADC countries is the subject of this research.

Background of study
Foreign trade is growing in importance all over the world because of the more recently speedy integration of global economic markets. Increasingly, many governments have recognised that their economic activities are not only influenced by their local economic stakeholders but also by what is happening globally. Following the successful records of the Asian tigers, many developing countries have identified trade as the main driver to economic growth. As a way of increasing trade with other nations, trade liberalization has come in the form of Regional Free Trade Agreements (RTA's). To date, many regional trade agreements have over the years notified to the WTO and many countries have negotiated these agreements with either neighbouring countries or major trading partners to foster smooth trade flow of goods and services and even faster trade liberalisation. One such bloc is The Southern African Development Community (SADC), which in part, has signed many trade agreements as way of promoting interdependence, connectedness and economic growth with important economic or strategic partners Khandelwal, (2004).

The SADC delineated its beginnings to the front line states which include; Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe in the early 1970’s and it was named the Southern African Development Coordination Conference (SADCC) in 1980. Their main aims were to meet the needs of member countries mainly for improving the standards of living and to translate their struggles for independence into broader cooperation in social and economic development. However, the SADCC did not succeeded very well in achieving its objectives because of their reliance on South Africa and internal stability of the member countries.

Meanwhile because of some of these problems, in August 1992, the SADCC countries and all other Southern African countries collaborated and restructured their regional economic integration and the SADCC was transformed from the ‘coordination conference’ and become The Southern African Development Community, (Cox and Anderson 2009).

The SADC has over the years developed Protocols in a number of areas of cooperation, which provides a legal framework for cooperation among member states. In 1996, member countries signed a Trade Protocol and the main aim was to initiate a Free Trade Area (FTA). With regard to this Trade Protocol, several works have been undertaken which include ; the determination of the tariff reduction schedules, rules of origin of goods and services,
elimination of non-tariff barriers as well as harmonisation of customs union and trade documentation and dispute settlement, Sophie et al (2002). The SADC member states have gathered to undertake these measures because they have identified that open regionalism and deep integration is of great importance in the bloc as it helps to solve the problems encountered within the region whilst creating a health basis for regional and global trade so as to increase economic growth within the member states.

There is a concern that tariff reductions under SADC have been backloaded and the pace of liberalization has been slow (Kritzinger-van Niekerk and Moreira, 2002). Another important issue is that over time, the rules of origin in SADC have become restrictive and product-specific under pressure from member states. The fact that in some sectors negotiations on the rules of origin are still ongoing is probably indicative of a lack of political commitment to liberalization. The complicated and restrictive rules of origin are likely to increase administrative costs and will make it difficult for exporters to take advantage of SADC preferences. As such, they constitute a serious obstacle to the liberalization of intraregional trade. There is an attempt to ameliorate possible polarization effects on least developed country (LDC) member states through nonreciprocal market access and more relaxed rules of origin. The agreement also includes provisions for protection of infant industries and antidumping and safeguard measures.

The Southern African Development Community (SADC) member countries have agreed in many activities of trade liberalisation. Maringwa, (2009) argues that, the SADC member states have over the years negotiated and signed different bilateral agreements and they also negotiated not only bilateral trade agreements but they also negotiate at multilateral level under the WTO. The quests of these bilateral and multilateral levels of agreements are of the virtue of the fact that these agreements could foster a positive role not only by giving greater and deeper integration but also on the overall economic development of the member states. Nevertheless, different geographical features across SADC countries make trade integration more imperative in this region. More importantly, countries in the Southern African Development Community are far away from other continents like Asia, North America and Europe where there are big and growing consumer markets. Based on this idea, it makes it difficult to reach the global market and trade integration as well since there are high transportation costs.

The Economic Development in Africa (2013) report and UNCTAD (2013) also denoted that, the great recession of 2008-2009 affected most African countries. It goes further and argues that it results in a decrease in export demand within the SADC region. The analysis of merchandise trade balance reveals that SADC countries also recorded a surplus between the years 2000 and 2012 but it declined in 2008. This can be shown diagrammatically from figure 1 below;
Figure 1 SADC Merchandise Trade Balance (Million USD)

Source: UNCTAD, (2013)
**Figure 1** shows the merchandise trade balance of SADC member countries from 2000 to 2012. From 2000, the SADC region recorded a surplus trade averaging USD 90.7 million between 2000 and 2012. The region suffered from a second-round effect of global financial crisis of 2008 and recorded a deficit of USD 9.320 million in 2009 before reaching its peak of a surplus of USD 8,225.0 million in 2010. Renewed political commitment by SADC member states in order to boost trade within SADC over the years grew at a reasonable rate but economic growth recorded within member states has not created employment and over the years it has been driven by volatile prices. Meanwhile, economic diversification is required to create employment and resuscitate growth within the bloc. Furthermore, increasing intra-regional trade can also be an opportunity to express major challenges to export competitiveness. It will enable enterprises in the SADC to increase competitiveness by exploiting economies of scale which comes as a result of having a large market.

Most of the countries within the bloc are landlocked and they rely on coastal neighbours’ in order to access to the sea and trade to the global market. Many of the member states have low population densities with low per capita income. Furthermore, most SADC countries have a larger proportion of rural communities in which most of them are disconnected because of inadequate infrastructure which lead to high transportation costs as well as remoteness from main markets, Mbekani (2013). These are some of the factors which have negatively impacted the smooth trade flow of goods and services within the SADC. It is apparent that if intra-regional trade of goods and services is improved it will act as a stepping stone by increasing supply, product diversification, value addition and hence economic growth at large.

Having witnessed all the aforementioned information on the overall SADC trade performance has prompted the researcher to embark on research on the relationship between foreign trade and economic growth. Therefore, it is against this background that this study investigated foreign trade and factors hindering intra-regional trade performance with SADC member countries. The research also tries to find out whether foreign trade is of great importance or not to the growth of SADC countries using panel regression methods.

**Statement of the problem**

Regional integration has over the years been perceived in Africa as a means of achieving economic growth through encouraging trade, securing economies of scale and market access. However, available information suggests that, since the formation of SADC in 1992, economies of the SADC member states have remained relatively small, Qualmann (2000), growth performances have not been consistent and all member countries are not strong enough to compete with developed nations in the global market. Additionally, weak regional trade performance is due to the fact that they focused more on the elimination of trade barriers instead of concentrating on the development of the productive capacities necessary for trade. Although the removal of trade barriers is of great importance, it will not have a positive impact if it is not attached to supply-side policies, Subramanian *et al*, (2000).

More recently, distorted trade regimes, high transaction costs due to inadequate transport,
lack of information, lack of political will and frequent policy reversals are among other factors which contribute to weak trade performance within the region (Iqbal and Khan, eds., 1997). Therefore, it is against this background that this study investigates trade flows and also factors affecting trade performance within the SADC member states for the past decade. Thus conducting this study of the relationship between foreign trade and economic growth is of great importance in this globalised era as it helps policymakers to map out appropriate policies by determining the source of productivity growth with respect to international trade. This was the main motivation for undertaking this research.

**Aims of the study**
The main aim of the research is to contribute to literature through understanding foreign trade pattern of the SADC region from different perspectives and to interrogate its ability on economic growth for the past decade. The study also aims to have comprehensive coverage of the effectiveness of different trade agreements within the SADC region in pursuing regionalism for the past decade.

**Research objectives**

**General objective of the study**
The main objective of this study is to outline the relationship between foreign trade and economic growth in SADC countries from (2001-2011) and how a decline in the exports affected the growth of the economies of the SADC region. It is not just to study the relation between causes and effects foreign trade and economic growth but also to ascertain the importance of foreign trade within the region through examining changes in exports and imports while specifically studying the exports and imports to and from SADC members. It is expected that foreign trade would promote economic growth from the supply side by leading to more efficient use of resources, encourages greater competition, and increases flow of ideas and knowledge across boundaries.

**Specific objectives of the study**

- To determine the relationship between foreign trade and economic growth in SADC.
- To analyse trends in SADC exports and imports and attempt to evaluate their impacts on economic growth.
- To empirically analyse factors that affect trade and economic growth in the SADC region.
- To specify a plausible model of the relationship between trade and economic growth for SADC countries.

**Theoretical literature review**
The relationship between foreign trade and growth has been an important issue discussed in the literature for a long time. That is because while foreign is believed to be the engine of growth in developing countries, it is acknowledged that openness is an important factor contributing to growth in developed countries (Amirkhalkhali. et. al 2003). Therefore, the direction of causality between foreign trade and economic growth is important in order to establish whether countries’ growth rates are internal or external (Akilou, 2013).
The classical and neo-classical theories of trade.

Mercantilism is a doctrine discovered about 300 years ago. The main base of this philosophy was the transition from local economies to national economies, from feudalism to capitalism and finally from undeveloped trade to a larger international trade. Mercantilism was dominant during the 16th, 17th, and 18th century and it was the main economic system of the major trading nations in those periods. During those periods, trading nations were based on the notion that national wealth and power were best served by investing exports and collecting precious metals in return. It takes place mainly in Western Europe especially in Holland, France, United Kingdom, Belgium, Portugal and Spain. These countries controlled everything. Their major objective was to export in countries that they controlled and not to import that is they have a positive balance of trade.

Geographical discoveries aroused international trade and also produced an efficient flow of gold and silver which in turn was used to encourage the economy based on money and prices. Under this philosophy, production was regulated cautiously with the aim of producing goods of high quality and low cost and this translates the nation to hold its place in foreign markets. More so, imports were discouraged with heavy tariffs on foreign goods. This means that during this period, trade was a zero-sum game with winners who lose only at the expense of losers. Additionally, the theory goes on to suggest that, the world only contained a fixed amount of wealth and that to increase the country’s wealth one country had to take some wealth from another country either through higher import/export ratio. So because of this principle to export more and import less and to receive in exchange gold (the deficit paid in gold) is called mercantilism. Therefore, because trade was assumed to be a zero-sum game that is, world output is said to be constant, it led to arguments from the classical economists like Smith, (1776), Ricardo, (1817) in the sense that a more dynamic view on trade is necessary as it suggests that all trading countries can mutually benefit from trade enjoying high levels of production and consumption with fewer restrictions on trade.

Towards the end of the 18th century, the theory of mercantilism was attacked by many scholars in economics. David Hume is one of the scholars who criticized the favourable trade balance because of the notion that he viewed it as a short-run phenomenon which could be eliminated automatically over time. He goes on to argue that, in the long run, the other nation is will retaliate. Additionally, Adam Smith also criticized the mercantilist theory based on the notion that the world wealth is fixed with his ideas of the advantages of specialization and division of labour. He argues that specialization and division of labour, in any country will raise the productivity of a country. Despite these shortcomings of mercantilism, the theory is still alive today. New mercantilism now emphasized employment rather than holding some gold. They also postulate that exports are beneficial as job is provided domestically. Imports are considered bad as jobs are taken away and transferred to foreign workers. To the new mercantilist, trade is a zero-sum activity which a country must lose for the other to gain. And that there is no acknowledgement that trade can provide benefits to all countries.

The Absolute Advantage theory traced back to years between 1776 and 1826, which
respectively mark the publications of Adam Smith’s Wealth of Nations. In the 18th century, the mercantilist policies became immaterial for economic progress. In 1776, Adam Smith (The father of liberalism and economical science) brought in the argument that mercantilist policies promoted producers and disadvantaged the interests of the consumers. He argues that it was impossible for all nations to become rich simultaneously following the mercantilist principle because exports of one nation represent another nation’s imports. He goes on to say that all nations would gain simultaneously if they practised free trade and specialised in accordance with their absolute advantage. Therefore a country has absolute advantage in the production of a good if that good is produced more efficiently that is with lower cost of per unit production than in the other country. Furthermore, the theory goes on to say that a country that specialises in the good in which it has high productivity will gain in production and consumption under the assumptions of perfect competition, no transaction costs and transportation costs. As countries open up trade they gain two benefits that is consumption and production gains. According to Adam Smith (1776);

“By opening a more extensive market for whatever part of the produce of their (trading countries) labour may exceed the home consumption, it encourages them to improve its productive powers and to augment its annual produce to the utmost, and thereby to increase the real revenue and wealth of the society.”

In order to simplify his model, Smith assumed that there are only two countries in the world that is country (A and B). There are only two goods produced that is good (X and Y) and labour was used as the only factor of production. Assuming that country A uses more labour than country B to produce a single unit of output X and country B uses more labour than A in producing output Y, in order for the two countries to mutually benefit from trade, country A should produce and export commodity Y whilst importing commodity X. therefore, countries A and B have absolute advantages in producing product Y and X respectively. As a result, the world production increases due to specialisation and the consumption levels also increase. However, when a single country has got absolute advantages in producing all commodities then there is no mutual benefit to trade as the other country will be importing all the commodities. This led to the comparative advantage theory as a way of progressing on the shortcomings of the absolute advantage theory.

David Ricardo (1817), postulated that, if a country has an absolute advantage in the production of all commodities, it doesn’t necessarily mean that there is no mutual benefit as countries trade engages in trade. This led to Ricardo (1772-1823) to develop the theory of comparative advantage and he demonstrated it in his famous Principles of Political Economy and Taxation (1817). To simplify his model, Smith used the assumptions of perfect competition, full employment of resources and that countries can obtain welfare gains by specialising in production of those goods with low opportunity cost over domestic demand. Additionally, he argued that, with the use of opportunity cost, the degree of absolute disadvantage is not the same for all commodities. He reiterated that, goods for which the opportunity cost is low can be exchanged with those goods which have high opportunity costs because there are static gains that can arise from the re-allocation of resources from one sector to another due to increased specialisation based on comparative advantage. Additionally, static gains are obtained by the resource gains to be
obtained by exporting to obtain imports more cheaply in terms of resource sacrificed compared to the production of goods locally. Even if a nation has an absolute advantage in all goods, countries can still trade and mutually gain as long as their advantage their advantages in manufacturing different goods are not the same.

All in all, Smith and Ricardian models, argues that trade would initiate specialisation and optimal distribution of resources. Additionally, they also argued that countries should specialise in producing goods in which they have comparative labour productivity and should also export such goods as they are produced at a low cost. They go on to say that, those sectors that cannot contest with foreign countries were encouraged to use those factors of production in other sectors where there was comparative labour productivity and hence realise more optimal resource allocation and increase world trade.

Alternative theories of comparative advantage

The Heckscher Ohlin theory of the factor proportions model tries to explain the reason why a country has a comparative advantage in good. The theory goes a further step to explain the main reason and the reason was that countries differ in their factor endowments. The theory is based on the notion that a country will have a comparative in and therefore will export, that good whose production is relatively intensive in the factor with which that country is relatively endowed. Therefore it assumes that there are only two factors of production namely capital and labour. The home country is capital abundant and the one with more capital per unit of labour. Conversely, the other country is abundant in labour and has a comparative advantage in the good which uses labour. Additionally, in the home country one of its goods is more capital intensive than the other and countries have the same technical know-how but factor endowments provide the only difference between the countries. Furthermore, when these countries engage in free trade, the capital abundant country that is the home country is capable of producing relatively more capital intensive goods than the other country which is labour intense. As a result, the home country is therefore expected to export capital intensive goods that are, if there is no strong bias in consumption. Additionally, owners of capital abundant country will benefit because of the fact that they see their rents rise relative to the prices of goods. Owners of labour in the home country that is the home workers suffer because they will be a wage fall relative to the prices of their goods. The theory goes on to say that, as long as capital endowments in two countries are not too different and which good is capital intensive is the same in both countries, the wages and rents will remain the same across the countries under free trade with no transportation costs.

The human skills theory was developed by Donald Keesing in 1965. His ideas were very close to the Heckscher-Ohlin (H-O) model but the only difference is that he focused on differences in endowments and intensities of skilled and unskilled workers instead of focusing on differences in capital and labour across countries and goods. Additionally, Keesing argued that for countries to trade, emphasis should be on differences in endowments and intensities of a skilled and unskilled worker. He goes on to say that, some countries have highly skilled labour forces than others. Additionally, some products require greater intensities of highly skilled labour inputs as compared to other countries, for example the computer and textile industries require labour different skills. Those in the computer industry are highly skilled as compared to those in the textile industry.
Therefore countries with relatively large endowments of highly skilled labour will have comparative advantage in products that are relatively intensive in skilled labour. Conversely, countries with relatively large endowments of unskilled labour will have also a comparative advantage in products that are relatively intensive in unskilled labour. As a result, a country will export a product in which it has a comparative advantage and imports the product where it has a comparative disadvantage.

The New Trade Theory of Krugman (1979), Helpman (1981) and Lancaster (1980) were more concerned with the shortcomings of the traditional theories of trade. In trying to explain their views, they come out with the issues of imperfect competition and increasing returns to scale. Looking at the traditional theories, they stressed their emphasis on perfect competition and constant returns to scale. However, global trade is continuously liberalised, those industries with comparative advantage are anticipated to increase in their scales of operations and those with comparative disadvantage are expected to downsize their operations leading to uneven spatial distribution of the corresponding economic activities. Within the same industry, some firms are unable to compete in the world market while others flourish. As a result, intra-industry re-allocations of market shares and productive resources are much more pronounced than inter-industry re-allocations impelled by comparative advantage.

Additionally, new trade theories are mainly centred on the assumptions of imperfect competition and increasing returns to scale and also reiterates for protectionist measures to stimulate industrial base in certain industries in order to influence the global market. In his ideas, Krugman (1996) argues that traditional theorists miss out on returns to scale. He goes on to say that even if a country has a comparative advantage in all products but the intra industry trade theory emphasises trade according to comparative advantage in brand of goods.

Models Of Economic Growth Harrod-

The Domar growth model places more emphasis on investment as the main catalyst for growth. It is also termed the AK model with regard to the fact that it is based on the linear production function with output given by the capital stock (K) times a constant, often denoted by (A). The model states that, for any economy to grow, new investments representing net additions to the capital stock are necessary. According to Harrod (1939) and Domar (1947), investment is considered as one of the perpetrators in the process of economic growth. Additionally, investment creates income as well as augments the productive capacity of the economy by increasing the capital stock. In the same lines, whenever there is net investment real income, output will continue to increase. In order for an economy to reach its full employment and maintain the equilibrium level of income and output, both real income and output should increase proportionately with the productive capacity of the capital stock. The theory goes on to say that, in order for an economy to reach its full employment in the long run, they must be a continuous increase in net investment as well as growth in the real income at a rate which is sufficient enough to ensure full capacity use of a growing stock of capital. As a result, an increase in capital stock in the form of new investment will bring about a more than proportionate increase in the flow of national output. Assuming that there is no government intervention the growth
of national income will be positively related to the savings ratio that is to say the more the amount of savings and investment of a given GDP in an economy, the greater the growth of GDP will be. Overall, for an economy to grow, they must save and invest a certain proportion of their GDP.

The Neo-Classical Growth theory was put forward by Robert Solow. According to the Solow growth model, a sustained increase in capital investments will lead to an increase in the growth rate but temporarily, this is due to the fact that the ratio of capital to labour goes up. They assumed that marginal product of additional units decline and thus an economy eventually moves back to a long term growth-path with the real GDP growing at the same rate as the growth of the workforce plus factor to reflect improving productivity. Neo-classical economists who added further from the Solow growth model argues that, to increase the country’s growth, an economy should increase in labour supply and also a higher level of productivity of labour and capital. Different rates of technological change between countries the reason why there are variations in growth rates. In neo-classical models, productivity improvements are treated exogenous variable that is to say productivity improvements are assumed to be independent of the amount of capital investment.

Endogenous growth theory economists’ believed that improvements in productivity can be linked directly to a faster pace of innovation and extra investment in human capital Odoloye et al.,(2013). They stress the need for government and private sector institutions which successfully nurture innovation, and provide the right incentives for individuals and businesses to be inventive. There is also a central role for the accumulation of knowledge as a determinant of growth. Supporters of endogenous growth theory believed that there are positive externalities to be exploited from the development of a high value-added knowledge economy which is able to develop and maintain a competitive advantage in fast-growth industries within the global and maintain a competitive advantage in fast-growth industries within the global economy. The main points of the endogenous growth theory are as follows: The rate of technological progress should not be taken as a constant in growth model, government policies can permanently raise a country’s growth rate if they lead to more intense competition in markets and help to stimulate product and process innovation. There are increase returns to scale from new capital investment. The assumption of the law of diminishing returns is questionable. Endogenous growth theorists are strong believers in the potential for economies of scale (or increasing returns to scale) to be experienced in nearly every industry and market. Private sector investment in research and development is a key source of technical progress. The protection of private property rights and patents is essential in providing appropriate and effective incentives for businesses and entrepreneurs to engage in research and development. Investment in human capital (including the quantity and quality of education and training made available to the workforce) is an essential ingredient of long-term growth. Government policy should encourage entrepreneurship as a means of creating new businesses and ultimately as an important source of new jobs, investment and innovation.

**Empirical literature review.**
The manner in which foreign trade affects economic growth has long been a subject of
controversy and this situation continues today. Although there are many cross country case studies utilising comparable analytical frameworks, numerous econometric studies and important theoretical advances about the relationship between trade and growth, it remains a debatable subject among economists concerning the nature of the relationship. There are many reasons for this and one of the differences is among the researchers in the way they define the issue being studied. Some researchers focus on causality relationships between foreign trade and economic growth to examine whether economic growth is mainly influenced by foreign trade or vice versa and however others are interested in analysing the contribution of foreign trade to economic growth. However, of course, just how broadly one defines his variables greatly affects one’s conclusions about a particular country or set of countries.

The relationship between trade and economic growth.
Omoju and Adesanya (2012) questioned on the relationship between trade and economic growth in Nigeria. They used the ordinary least squares method for the period 1980 to 2010. The result of study revealed that there is a positive relationship between trade, foreign direct investment, exchange rate and government expenditure to economic growth. They recommended that, the government should try to rebuild an enabling environment for promoting trade so as to increase productivity. In the same year, Osei-Yeboah et al (2012) analysed the effects of trade openness on economic growth. They used panel data to analyse 38 African countries from 1980 to 2008. They used variables namely foreign direct investment, trade openness, capital to labour ratio and government expenditure to estimate the relationship between trade and economic growth. They also implied alternative panel models to study the relationship and they found that there is a positive relationship between trade openness and economic growth in African countries. Therefore, these researches used different samples, variables and time periods but they found the same relationship between trade and economic growth.

Gries and Redlin (2012) analysed 158 countries and questioned the causality between the growth in GDP per capita and openness for the period 1970-2009. In this study the researchers used panel cointegration tests and panel error correction models (ECM) in combination with GMM estimation to explain the causality relationship between economic growth and openness. Long term results of the model suggested a positive causality relationship from openness to growth. However short term coefficients identified a negative short run adjustment. When the countries were classified according to income groups and analysed, the findings supporting growth-led openness and openness led-growth hypotheses were reached only for industrialised countries. While openness led growth hypotheses was valid for developing countries in the long term, it was determined that growth reduced openness. On contrary negative causality was identified in less developed countries. Therefore, from this study it can be denoted that openness could be painful for an economy undergoing short term adjustments while being beneficial in the long run.

On the same lines, Saad (2012) questioned the aforementioned export led growth hypothesis for Lebanon. He used vector error correction models (VECM) and the Granger causality technique. In his study, the results support the validity of the export led growth hypothesis in the period 1970-2011. Iqbal et al (2012) questioned the impact of total
exports to the GDP ratio, import to GDP, terms of trade, trade openness, investment to GDP ratio and inflation in the economy of Pakistan. The study covered the period 1973-2010 using time series data. They used Chow test and the OLS method. In their findings, they noted that, explanatory variables have positive and significant impact on Pakistan. They also discovered that increase in output of the economy of Pakistan was caused by an increase in the import of raw materials which boosted production and employment. Therefore, these two studies provided similar relationship with regard to the same variables understudy although they used different countries and methodologies.

Ogbokor, (2011) analysed the relationship between trade and economic growth. In his study, he used a combination of bivariate and multivariate regression models. The results of the study confirmed that exports and foreign direct investment, including the balance of payments” accounts are good predictors of economic performance.

Kwame, Asiedu Michael (2010) studied on the impact of trade liberalisation on economic growth of Ghana covering the period 1986-2007. He used autoregressive distributed lag model inorder to estimate his model. He used the sum of exports and imports as a percentage of GDP as a proxy of foreign trade. Using time series data he discovered that trade liberalisation promotes economic growth in the long run but deteriorates growth in the short run. Sun and Heshmati (2010) analysed the effects of trade openness and economic growth in China. They used econometric and non-parametric approaches and used a six tear panel data of thirty one of China that is from 2002-2007. The study investigated that increasing participation of China in trade with the rest of the world helped the country to gain the static and dynamic gains and hence stimulated the country’s growth.

More so, Elbeydi, Hamuda and Gadza (2010) questioned the relationship between trade and economic growth for Lybia covering the period from 1980 to 2007. They investigated that there is a long bi-directional causality between exports and imports and economic growth and hence promoting exports in Lybia. Additionally, Li, Cheng,and San (2010) evaluated the relationship between trade and economic growth of East China from 1981-2008. When conducting their study, they used the unit root test and error correction model. The results of their findings were that, foreign trade is the long term and short term reason for GDP growth and there was no evidence that proved the existence of long term stationarity causality between import trade and GDP.

Ulla et al (2009) analysed the export led growth hypothesis in Pakistan using time series econometric techniques from 1970-2008. The results of the study show that exports promote economic growth. De Rosa (2008) investigated determinants of bilateral merchandise trade flow and inward stocks of foreign direct investment applying the gravity model approach in a panel data set up. He found that distance between trading partners and being landlocked as expected, reduce bilateral trade and investment. But GDP of the partners expands bilateral trade, ceteris paribus. Papazoglou, (2007) analysed the potential trade flows in Greece using a gravity model approach on a panel of cross-country data of 14 EU member states. He found a significant positive and negative impact of GDP and population on export, respectively.
Martinez and Suarez (2005) used the OLS with fixed effect model to investigate the relationship between trade flows and transport cost in the EU and five Latin America countries. They included GDP and per capita income as intervening variables. They found a significant positive and negative impact of GDP and per capita income on export, respectively. Furthermore, Thuraya (2004) questioned the relationship between exports and economic growth experience in Saudi Arabia and Sudan. He used co-integration and error correction models. The results from the study showed that export growth rates in Saudi Arabia promoted economic growth and in the results in Sudan were in the opposite direction. In Sudan the results showed that exports growth had a weak influence in the rate of growth. Therefore, the results obtained from these studies are controversial so because of this dust and confusion with regard to the relationship of trade and economic growth, this research tries to add to available empirical literature on trade and economic growth.

More so, Shiraz et al (2004) investigated short run and long run relationship between exports and imports and economic growth. They used cointegration and multivariate Granger causality test developed by Toda and Yamamoto (1995) and they used data covering the period 1960-2003. In their findings, they noted that there is a long run relationship between trade and economic growth and they also found unidirectional causality from exports to output, but they did not find any significant causality between exports and imports.

In trying to explain the relationship between foreign trade and economic growth, Dar and Amirkhalkhali (2003) conducted an analysis of 19 OECD countries for the period 1971-1999. In his study, he used the random coefficients approach to estimate the growth accounting model using time series and cross sectional data. The results suggest that, the impact of trade openness on total and individual factor productivity growth and subsequently on economic growth differed for each country.

Hatemi (2002) tested the export led hypothesis for Japan. In his studies, he used the Granger causality tests using bootstrap simulation technique and bidirectional causality was determined to exist between trade and economic growth and thus evidence obtained alluded that exports were of great importance in the growth of the Japanese economy from 1960-1999. Erfani (1999) questioned the causal relationship between trade and economic growth for the period 1965-1995. He analysed countries in Asia and Latin America. The results showed that foreign trade was important to promote economic growth in these countries during this period.

Vohra (2001) investigated the relationship between exports and economic growth in Malaysia, Philippines, Pakistan, India and Thailand over the period 1973-1993. In his study, empirical results showed that usually economies which have achieved some level of economic development their exports have a significant impact on growth rates of their economies. They also highlighted the potency of liberal market policies by pursuing export expansion strategies and by attracting foreign direct investments. In trying to relate literacy to economic growth Romer (1990) and Monteils (2002) discovered that the effect of human accumulation on economic growth was there but not large. However Benhabib
and Spiegel (1994) discovered that the effect of the growth on human capital produced insignificant coefficient and a negative coefficient. Rodrik (1995) questioned the causality relationship between trade and growth for South Korea, Chile, Turkey and Taiwan. In his study, there was evidence of bidirectional causality but there was no causality between trade and growth in Turkey.

Finally, Jung and Marshall (1985) analysed countries in the Southeast Asia for the period (1950-1981). They used the (OLS) method and their findings obtained were different in these countries. They found that, in Indonesia exports caused economic growth and in Thailand they identified that growth increases exports and in Korea, exports caused growth but at a low rate. Conversely, there was no causality relationship found in Taiwan or the Philippines. Furthermore, Dutt and Gosh (1996) found a causality relationship in Israel and Turkey covering the period from 1953 to 1991. They also identified a bi-directional causality in Morocco. They used a causality test based on the Error Correction Method (ECM) in their study. Additionally, Liu et al. (1997) also tested the causality relationship between trade and growth for China and they found evidence supporting a bi-directional relationship. In their study, they used quarterly data for the period 1983 to 1995.

**Trends in SADC exports and imports and their impact on economic growth.**

There is evidence on the relationship between trade and economic growth in SADC countries but it is rather mixed. Despite its debate around the matter, trade seems to have played a role in economic growth within the region. Previous researches show that trade has been growing within the SADC and it was relatively skewed to few SADC countries for the past decade. Studies conducted by Sophie and Guillaume (2002) designated that the share of exports within the SADC region amounted to only 0.90 per cent in 1980 but it increased to 10 per cent in 1999. However their work indicated that South Africa was more dominant in the region followed by Zimbabwe. The research development unit (2001) also reported that trade within the SADC region was more than 20 per cent of the region’s global trade. Additionally, Botswana and Namibia were the chief importers while South Africa, Swaziland, Botswana and Zimbabwe were the chief exporters and the countries which realised increased growth rates were the chief exporters in this region for example, South Africa’s GDP growth increased relative to other developing countries because it accounted for more than 50 per cent of the SADC’s exports. Additionally, growth performance within the region varies sharply showing the diversity of the economies within the region. In the 1980’s, average growth rates varies from 10 per cent in Botswana to -0.4 per cent in Mozambique and between 1991 to 1999 growth rates in Mozambique increased to 6.4 per cent which was high as comparable to -5.9 per cent in Democratic Republic of Congo.

The studies of Behar and Edwards (2010) shows us that SADC countries have experienced an increase in the flow of exports and imports as comparable to other developing countries. They stressed on the fact that, if market size and geography are taken into account, intra-SADC trade is relatively high. Additionally, SADC countries also trade more products within their region as comparable to the way they do globally. So because of this fact, SADC region is relatively an integrated region. On the other hand, although SADC has made more efforts to reduce tariffs as a way to stimulate trade within
the region, the structure remains multifaceted and could be lowered on arbitrators. The region has also faced other impediments which make it costly and difficult to move goods within the countries but the countries within the region have the levels which are better off as compared to other countries with similar levels of development.

In the same lines, Mashayeki et al (2012) eluded that exports of SADC countries are concentrated mainly in European union and other high income OECD markets. However he stated that the concentration is now diminishing within those countries. Based on his study, he discovered that exports of non-agricultural products to countries like Brazil, Russia, India and China (BRIC) increased significantly from 2005 and 2010. The share of intra-regional trade in SADC in relation to total trade did not change significantly during the integration period and it reached 11 percent in 2010 for both intra-SADC exports. This can be denoted by the table below;

**Table 1 Total exports from SADC**

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>World</strong></td>
<td>USD billion</td>
<td>USD billion</td>
<td>USD billion</td>
</tr>
<tr>
<td>World</td>
<td>52.2</td>
<td>102.1</td>
<td>170.3</td>
</tr>
<tr>
<td><strong>World</strong></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>World</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>SADC</td>
<td>12.6</td>
<td>9.7</td>
<td>10.9</td>
</tr>
<tr>
<td>Rest of Africa</td>
<td>2.4</td>
<td>3.1</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>European Union</strong></td>
<td>37.9</td>
<td>34.0</td>
<td>23.0</td>
</tr>
<tr>
<td><strong>Rest of the World</strong></td>
<td>11.3</td>
<td>11.0</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>BRICs</strong></td>
<td>7.8</td>
<td>13.0</td>
<td>28.8</td>
</tr>
</tbody>
</table>

Source UNCTADStat.

From the table above, it can be denoted that SADC’s exports within the region has not increased significantly over the years although its share of 11 percent is relatively high as compared to other regional communities in Africa. Additionally, intra Africa trade is very low as compared to (BRICs) and intra-EU trade this due to fact that in Africa there have been many obstacles to free movement of capital, labour, goods and services. Some of the
reasons for low intra-Africa trade include; low complementarity of production structures, trade barriers lack of infrastructure and integration into the value (UNCTAD 2009).

In addition, SADC exports are also highly concentrated on few products and they are mainly primary commodities and some manufacturing (UNCTAD and AU 2012). The concentration index increased from 0.18 in 2002 to 0.31 in 2008 in SADC and this index indicates that there is a substantial movement towards greater concentration in exports. In the same lines the SADC region still exports agricultural products to the EU while exports to the high income OECD countries and (BRIC) countries are low. This is due to the fact that these markets attract high shares of non-agricultural products and to add on, the United States, for example imports high labour intensive textile products from the SADC region under its preferential market access (AGOA).

Although there was an impressive growth in SADC total exports with to the African countries as shown from Table 1 above, intra-SADC trade remains weaker. This is due to the fact that most countries within the region trade with South Africa mainly. On the other hand, the growth of extra-regional trade was more as compared to SADC member countries themselves and as a result most of the region’s exports are destined to other African countries at the expense of the region itself. Additionally, studies of (Kalaba and Tsedu, 2008;10) revealed that SADC trade with member countries is very minimal and as a result the members have lost market shares of their own export growth and hence missed on opportunities to take advantage their own integration initiative.

**Factors that affect trade and economic growth in SADC.**

Main factors that affect trade and economic growth in SADC can be broadly divided into two categories namely the physical and economic factors. The manner in which they have affected trade and economic growth is explained below;

**Physical factors.**
The SADC region is faced with many serious internal structural problems that have caused sluggish economic growth of member countries for the past decade. Civil wars have seriously affected economies of countries like Democratic Republic of Congo, Angola and Mozambique. These civil wars have virtually haunted the productive capacities and agricultural sectors of their economies. Additionally, studies of Sioban Clearly, (2002) revealed that wars have left the countryside in these areas land-mined which result in movement of persons and vehicles very risky. To add on, their studies also revealed that, the presence of these landmines disadvantaged the return of rural inhabitants to the fields with result that a country like Angola which was a chief exporter of agricultural products became the chief importer of food so as to feed its citizens.

In the same lines, most economies in the SADC region are government planned and they are epitomised by confused and unpredictable policies. As a result, the ambiguous economic climate has discouraged risk-averse foreign investors and this has disadvantaged the region of the much needed foreign capital and exchange. In addition, the physical stature of the infrastructure is very poor within the SADC region. It is
characterised by limited number of paved roads, working railways and communication systems. This resulted in high transportation costs which retard trade and economic growth within the region. Financial and banking systems are inadequate while labour from most countries is relatively unskilled and entrepreneurial skills are very low. Additionally, costs of production (such as electricity) are very high in other countries and these high production costs make the regional products more expensive relative to the rest of the world. As a result, product competitiveness is reduced and hence haunts trade gains and economic growth of the SADC countries.

**Economic factors.**
Most foreign investments in the SADC region comes from developed economies and is heavily focused in the resources sector. Studies by Jenkins and Thomas (2002) argues that the experience of SADC members in attracting FDI is mixed and the amount received by SADC is relatively very small as compared to the total flows to low income economies. Inflows of foreign direct investment within the SADC region can be explained by a small number of transactions which include investment in natural resources exploitation and infrastructure development and lastly by privatisation. Of all the forms of foreign direct investment privatisation was dominant and an important source of foreign direct investment within the region but there is a slow progress in the sale of major companies. Their findings argue that in most SADC countries FDI promotes economic growth and alleviate poverty to a larger extent. Additionally, South African, investments account for about 6% of the total stock of foreign direct investment in SADC and also above 10% in Botswana, DRC and Malawi, Mozambique and Swaziland. More so, South African investments are greater in resources sector but they have extended to other sectors such as telecommunications and financial services which entail economic growth within the country.

(Keane et al., 2010) suggests that although tariff barriers have been somehow addressed within the region, non-tariff barriers reduce intra-SADC trade, while increasing exports of non-SADC countries into the community. The Chauvin and Gaullier (2002) study pointed out that non-trade barriers relate to surcharges on imports; customs documentation and related procedures; border related controls and transportation of goods and persons; foreign exchange bottlenecks, tend to discourage trade transactions; delays in payments; and clearance and settlement systems.

Non-tariff barriers have created a perverse incentive structure which penalizes instead of encouraging intra-SADC trade in the region. Also SADC member states have attempted to deepen the integration process through establishing the SADC regional infrastructure development master plan. The potential for deepening integration through sharing operations of infrastructure facilities, hubs or development corridors has observed to be useful among member states in order to reduce transaction costs and enabling smooth movement of goods and services. The infrastructure deficit as one of the non-tariff
barriers inhibit intra-regional trade and limit competitiveness in the global economy (UNCTAD, 2013).

Historically, SADC experienced high ratios of labour migration either economically motivated movement and forced displacements which was triggered by liberation struggles. Over the post-colonial years, large number of skilled and unskilled labour from countries like Botswana, Zimbabwe, Malawi, Mozambique and Swaziland moved to South Africa in search for greener pastures. As a result, this movement especially of the skilled labour cause’s brain drain to source countries and this resulted in a decline in economic outputs of these countries and hence promote growth to South Africa. However, unskilled labour which was absorbed in South African mines has declined in recent years and the decline in mining production is due to the fact that production becomes more capital intensive and finally, there has been acceleration in migration from Zimbabwe as there are economic hardships with South Africa the principal destination.

Methodology

Theoretical framework

The classical theories of trade argues that trade would initiate specialisation and optimal distribution of resources. Additionally, they also argued that countries should specialise in producing goods in which they have comparative labour productivity and should also export such goods as they are produced at low cost. This will provide mutual beneficial gains that are in the form of production and consumption and these gains from trade accelerate the rate of economic growth. Furthermore, those sectors that cannot contest with foreign countries were encouraged to use those factors of production in other sectors where there was comparative labour productivity and hence realise more optimal resource allocation and increase world trade.

Following the neoclassical model of economic growth, a sustained increase in capital investments will lead to an increase in the growth rate. Capital accumulation is not subject to diminishing marginal productivity, and hence the aggregate production function captures the effects of technological progress. Therefore, an analysis of the relationship between foreign trade and economic growth is based on the underlying theories and this will provides firm roots for constructing the econometric model. In order to determine the relationship between trade and economic growth, a theoretical model of the form outlined below will be used based on the following neoclassical production function as shown below:

\[ Q = F(A, K, L) \]

Where; \( Q \) is the national output, \( K \) is capital, \( L \) is labour and, \( A \) is a measures the total factor productivity efficiency of production. captures total factor productivity of growth in output not accounted for by increases in capital and labour.

Empirical model specification.
The econometric model derived from the neoclassical production function is used to analyse the relationship between trade and economic growth. To explicitly model the relationship between trade and economic growth, we used ideas from Omoju and Adesanya (2012) and the augmentation of other variables of the study adopted the method used by Ogbokor (2011) and the model will have some slight adjustments based on relevance to SADC.

Ogbokor (2011) used the following functional form to study the relationship between trade and economic growth as shown below;

\[ GDP = F(FDI, EX, IM, Inf, BoP) \]  

Where \( GDP \) is the proxy variable representing economic growth, \( FDI \) is foreign direct investment, \( EX \) the exports, \( IM \) is imports and \( Inf \) is the inflation rate and \( BoP \) represents the balance of payments. Following the ideas of Ogbokor (2011), in this study the researcher added some of the variables not used by Ogbokor but they were used by Omoju and Adesanya (2012) with regard to the same study and the variables are literacy rate and population growth. The researcher used GDP growth instead of output per capita and also include literacy rate and population growth because the studies of Wacziarg (1997) revealed that these variables have a strong relationship to economic growth. For the purpose of this study the researcher has managed to make some slight adjustments on the functional form of equation (a) above with relevant to SADC countries and come up with a new functional form as shown on the next page;

\[ GDP = f(Ex, Imp, Lt, Ppgr, Fdi) \]  

Foreign trade measured by exports \( Ex \) and capital goods imports (\( Imp \)) affect economic growth through the total factor productivity (\( A \)) from equation (1). Exports affect total factor productivity through channels explained by the classical theories while capital imports can boost productivity through technological transfers embodied in imports of capital goods from developed countries, Mutreja et al (2014). As a result, total factor productivity (\( A \)) can be expressed as a function of exports and imports and other exogenous variables, therefore the total factor productivity can be presented as;

\[ A = f(Ft, \alpha) = \ldots Ft, \alpha \]  

Where, \( Ft \) is the sum of exports and imports expressed as a percentage of GDP, therefore, substituting equation (3) in (2) above, the mathematical model becomes;

\[ GDP = (\alpha, Ft, Lt, Fdi, Ppgr, \mu_1) \]

therefore the general model to be estimated will be presented in equation (5) below as;

\[ GDP = \alpha + \beta_1Ft_{it} + \beta_2Lt_{it} + \beta_3Fdi_{it} + \beta_4Ppgr_{it} + \mu_{it} \]

Where, \( \alpha \) is the intercept of the relationship in the model constant, \( \beta \) constants that captures the marginal effects of the respective variables to \( GDP \) growth. \( \mu \) stochastic variable (error term).
Estimation procedure

Many previous studies on foreign trade and economic growth used OLS and time series methodologies on cross country or single country data. However, most cross country and OLS regressions tend to yield biased results due to heterogeneity since observations of a given variable may vary with time and across countries (Baltagi, 2005, Cameroon and Trivedi, 2006). This study employed panel data methods because it can deal with the problem of heterogeneity and yet it is more informative, more efficient, increases the degrees of freedom and capable of dealing with endogeneity problems common in growth models Baltagi (2005).

The study is going to estimate the relationship between trade and economic growth in a framework of panel data analysis for a group of fifteen SADC member countries covering the period 2001 to 2011. The relationship is going to be estimated using the fixed effects and random effects models. The rationale of using these models is due to the fact that, firstly, it is assumed that there is unobserved heterogeneity that influence the relationship between trade and economic growth within the SADC countries and secondly, the unobserved heterogeneity across countries is considered but is assumed to be uncorrelated with the explanatory variables so that we can use the random effects model. Further, countries differ in terms of their colonial history, their political regimes, their ideologies and religious affiliations, their geographical locations and climatic conditions, not to mention a wide range of other country specific variables. And if this heterogeneity is not taken into account it will inevitably bias the results, no matter how large the sample is. The following explain in detail the estimation methods to be used in this study.

Fixed and Random effects estimators

To determine the relationship between economic growth and independent variables, the neoclassical production function defined in equation (1) is going be econometrically estimated using fixed effects model and the random effects model which are the most common static linear panel data analysis models used. GDP growth is modelled as a function of four factors.

A fixed effects model is used in cases where we want only to analyse the impact of variables that do not change over time. This model can also control the biasing effects of time invariant variables and this provides its main strength in assessing the effect of changing variables. The random effects model is different from the fixed effects model because differences between individuals are assumed to be random and uncorrelated rather than fixed. This difference allows the time invariant variables to be included and analysed instead of being absorbed by the intercept as in the fixed effect model. Thus the fixed effects model is;

$$GDP_{it} = \alpha + \beta_1 F_{it} + \beta_2 L_{it} + \beta_3 Fd_{it} + \beta_4 Ppg_{it} + \mu_{it} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (6)$$
and the random effects model can be presented as below;

\[ GDP_{it} = \alpha + \beta_1 F_t + \beta_2 L_t + \beta_3 Fd_{it} + \beta_4 Pp_{gr_{it}} + (\alpha_{it} + \mu_{it}) \] ........................ (7)

Where; \((i)\) stands for country number, \((t)\) stands for the year \((\mu_{it})\) is the error term for fixed effects model and \((\alpha_{it} + \mu_{it})\) is the composite error term for random effects which include cross section error and time series error.

The Hausman specification test
Hausman (1978) specification test is going to be used to test whether the fixed or random effects model is appropriate for the data. The Hausman test reports comparison on whether to use fixed effects or random effects. The test assumes that the Random effects is correct a priori with the null hypothesis against the alternative hypothesis that the Fixed effects is correct. The Hausman test statistics is constructed from the estimated parameters of the random effect and within estimator of Fixed effects. The Hausman test statistics is asymptotically distributed as a Chi-square distribution and is used to make a decision on which model fit best by testing whether to use fixed effects or random effects. In order to choose between the fixed and random we are going to use the rule of thumb which states that, if the Chi-Square probability is less than 0.05 that is at 95% confidence interval we use the fixed effect model and conversely if the Chi-Square probability is greater than 0.05 at 95% confidence interval then we are going to use the random effects model.

Breusch- Pagan Lagrange Multiplier test (LM)
Breusch- Pagan Lagrange Multiplier test (LM) is going to be used to choose the appropriate method of either to use random effects or simple (OLS) model. The (LM) test the chi-square probability greater than 5% enable us to use simple Ordinary Least Squares and conversely the random effects model is used if the chi-square probability is less than 5%.

Definition and justification of the variables.
Taking into consideration the theoretical and empirical body of knowledge and the most frequently cited independent variables when analysing foreign trade influence on the economic growth in the empirical literature with particular emphasis on the works of Levine and Renelt (1992), and Wacziarg (1997), the ensuing six basic predictor variables have been selected for the purposes of the econometric calculations in this paper these include; GDP growth, education by the population of 15 years and above, natural population growth, the level of trade openness, and net inflow of foreign direct investment.
Economic growth \((Gdp)\)
Gross Domestic Product growth measured in percentages is the annual percentage change in GDP. GDP growth is the variable that is to represent the measure of economic activities in SADC countries. Many of the studies such as Omoju and Adesanya (2012), Asiedu, (2012) and many others used GDP growth as the proxy for economic growth. The variable is used as the independent variable having determinants such as exports and imports, foreign direct investment, population growth, literacy rate and foreign direct investment as outlined in the equation (5) above.

Foreign trade \((Ft)\)
Foreign trade is the sum of exports and imports of capital goods and services measured as a ratio to gross domestic product. It is exchange of capital, goods, and services across international borders or territories. Iqbal (2012) used this variable and find that it has a positive effect on economic growth and also this variable was significant in explaining the relationship. In most SADC countries, this variable represents a significant share of gross domestic product (GDP). International or Foreign trade is recognized as the most significant determinants of economic development of a country, all over the world. Efficiency is aided further by production for international markets since this permits greater economies of scale and forces firms to hold down their costs in order to remain competitive in international markets. In addition, profitable export industries stimulate additional investment, encourage an increased flow of new technology and managerial skills, and stimulate increased consumption. Since it promotes economic development of any nation around the world, a positive sign is expected from its relationship with economic growth.

Literacy rate \((Lt)\)
Literacy rate determines the human capital of a country. Human capital is a measure of economic value of employee's skills. Human development is a strong foundation of a continuous process of economic development of the nation for a long period of time. Romer (1990) and Monteils (2002) discovered that the effect of human accumulation on economic growth was there but not large. The importance of the concept of Human capital in generating long-term economic development of the nation cannot be neglected. However Benhabib and Spiegel (1994) discovered that the effect of the growth on human capital produced insignificant coefficient and a negative coefficient. Macroeconomic policies of all the nations in SADC are focused towards promotion of human development and economic development and a positive sign is also expected.

Natural population growth \((Ppgr)\)
Population growth \((Ppgr)\) is the annual percentage change in population of countries in the SADC region. Population here includes all residents in countries within the region regardless of their legal status or citizenship except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of the country of origin. The relationship population growth and economic growth is twofold. Firstly, population growth increases labour force which influence labour supply and total
output. Secondly, an increase in population increases the market size which has an effect of raising aggregate demand in the economy as more goods and services will be required. This increases investment and economic growth Asiedu (2010). Therefore, a positive sign is expected from this research.

**Foreign direct investment.** *(Fdi)*
Foreign direct investment, (Fdi), defined as the investment that a firm headquartered in one country makes in operations in another country, is a component of the total investment in a country. Studies by Jenkins and Thomas (2002) in SADC countries revealed that FDI is important to GDP growth as they found a positive relationship between the two. The main channels through which FDI contributes to economic growth are technology transfer, capital accumulation, access to international market, job creation and managerial and marketing practices. Therefore, a positive sign is expected from this research.

**Error term** *(u_t)*
This is the variable that captures all other information not accounted by the model specified in the study. All other variables such as financial development, political instability, institutional framework just to mention but a few, which explain economic growth shall be captured as residuals.

**Data Type and Data Source**
The panel dataset used in this study consists of 15 SADC countries covering the period 2001-2011. Data for all countries used in the study is taken from World Bank database, International Monetary Fund, Government Finance Statistics Yearbooks and data files, and OECD for all the variables in the study. Panel data is provided by using cross section data and time series data together. By using cross section data and time series data together we can explain economic relations both with time dimension and with unit dimension. Moreover, more number of observations increase degrees of freedom.

**RESULTS**

**Descriptive statistics**
Descriptive statistical analysis explains measures of dispersion and central tendency of the data set. Therefore Table 2 below gives a summary of descriptive statistics for the variables that we described in methodology and also that were used in this study.
Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>pid</td>
<td>overall</td>
<td>8</td>
<td>4.33646</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>between</td>
<td>4.472136</td>
<td>1</td>
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<td>within</td>
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<td>8</td>
<td>8</td>
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<tr>
<td>year</td>
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<td>2011</td>
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<tr>
<td></td>
<td>between</td>
<td>0</td>
<td>2006</td>
<td>2006</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within</td>
<td>3.171904</td>
<td>2001</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>gdp</td>
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<tr>
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<td>10.84688</td>
<td></td>
</tr>
<tr>
<td></td>
<td>within</td>
<td>4.31994</td>
<td>-10.86957</td>
<td>19.21602</td>
<td></td>
</tr>
<tr>
<td>ft</td>
<td>overall</td>
<td>98.49879</td>
<td>45.70665</td>
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<td>217.3047</td>
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<tr>
<td></td>
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<td>44.79067</td>
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</tr>
<tr>
<td></td>
<td>within</td>
<td>14.32562</td>
<td>56.27205</td>
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<tr>
<td>lt</td>
<td>overall</td>
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<td>11.64455</td>
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<tr>
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<td></td>
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<tr>
<td></td>
<td>within</td>
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<td>9.35358</td>
<td></td>
<td></td>
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</tbody>
</table>
Table 2; above exhibits descriptive statistics, that is, the mean and standard deviation of the 165 observations made in this study. It also encompasses the minimum and maximum values of the variables used in the estimation process and these help to depict outliers in the used data. The variable, pid (representing the country number), the within standard deviation is 0. This is because, within each subject, the value of these variables does not vary, that is for each of the fifteen records of the SADC countries, the values of these variables are the same. For year, the between countries standard deviation is 0. This is because all countries have the same set of values on year.

Furthermore, foreign direct investment (fdi), the between and within standard deviations are nearly the same. This tells us that the variation in (fdi) across the SADC countries is nearly equal to that observed within a specific country over time. That is, if we are to draw two countries randomly from the data, the difference in (fdi) is expected to be nearly equal to the difference for the same country in two randomly selected years. More so, foreign direct investment net flows was found to have a maximum 27.52 and a minimum of -4, 618017 recorded in Angola in 2005 and it was due to the fact that, there was relatively very small amount of (FDI) inflows as compared to the total outflows. High outflows of (fdi) in Angola was due to political instability within the country and civil wars from the period understudy.

Significant variability is shown by a standard deviation of 45.70665 of foreign trade. The overall mean of foreign trade was 98.49879 with a maximum of 217.3047 recorded in Seychelles in 2009 and this was attributed by the fact that most countries within the region reached their peak in 2009 (UNCTAD, 2013) just after they suffered from a second round effect of global financial crisis of 2008. The minimum was 25.04 recorded in DRC this was due to the fact that, there was civil wars from the previous years which affected the productive capacities and agricultural sectors of this country.

Pair wise Correlation Analysis

To further explore the data and discover some pair-wise relationship between the variables, the correlation matrix is presented in the Table 3 below;
As shown in Table 3 above, the pair wise correlation matrix indicates that all absolute values are less than 0.8 (modules of $r_{ij} < 0.8$); where $ij$ represents the paired variables in the corrected model. This implies the non-existence of perfect multicollinearity within the stationary variables. Moreover, this suggests that all regressors in the corrected model do not move together in any systematic ways, therefore their individual effects on the regressed variable is separated.

**Regression results.**

The researcher analysed data using SATA 12 econometric package to estimate the relationship between trade and economic growth in SADC region. The researchers used both fixed and random effect models for estimation and then applied the Hausman specification test. The rationale for employing these tests was to discover the method appropriate for the data. As a result, the random effects model was seen as suitable to the data. After choosing the random effects model, we applied the Breusch-Pagan Lagrange multiplier (LM) test in order to decide between a random effects regression and a simple (OLS) regression. The computations of the results of the random and fixed effects model estimators are presented in Table 4 below;

<table>
<thead>
<tr>
<th></th>
<th>gdp</th>
<th>ft</th>
<th>lt</th>
<th>ppgr</th>
<th>fdi</th>
</tr>
</thead>
<tbody>
<tr>
<td>gdp</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ft</td>
<td>-0.0496</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lt</td>
<td>-0.3405</td>
<td>0.3665</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ppgr</td>
<td>0.4203</td>
<td>-0.4916</td>
<td>-0.6074</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>fdi</td>
<td>0.0984</td>
<td>0.2889</td>
<td>-0.0185</td>
<td>0.0636</td>
<td>1.0000</td>
</tr>
</tbody>
</table>
Fixed and random effects model.

Table. 4 fixed effects vs random effects

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>fixed effects</th>
<th>random effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ft</td>
<td>0.0498*</td>
<td>0.0283**</td>
</tr>
<tr>
<td></td>
<td>(0.0253)</td>
<td>(0.0136)</td>
</tr>
<tr>
<td>Lt</td>
<td>0.0788</td>
<td>-0.0469</td>
</tr>
<tr>
<td></td>
<td>(0.0926)</td>
<td>(0.0532)</td>
</tr>
<tr>
<td>Ppgr</td>
<td>1.804**</td>
<td>2.111***</td>
</tr>
<tr>
<td></td>
<td>(0.705)</td>
<td>(0.544)</td>
</tr>
<tr>
<td>Fdi</td>
<td>-0.0691</td>
<td>-0.0213</td>
</tr>
<tr>
<td></td>
<td>(0.0855)</td>
<td>(0.0794)</td>
</tr>
<tr>
<td>Constant</td>
<td>-9.704</td>
<td>1.540</td>
</tr>
<tr>
<td></td>
<td>(7.762)</td>
<td>(4.812)</td>
</tr>
<tr>
<td>Observations</td>
<td>165</td>
<td>165</td>
</tr>
<tr>
<td>Number of countries (pid)</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 above shows the results obtained after running the fixed and random effects models. The results above will be used to interpret the effect of foreign trade and economic growth in SADC countries. In order to determine the appropriate method to be used in this study, we have employed the Hausman test as shown in the next section.

The Hausman test

The Hausman test was used highlight the appropriate method to be used in this study. The null hypothesis that the preferred model is random effects and the alternative hypothesis is that fixed effects is preferred to random effects. The main aim here is to test whether unique errors are correlated with our regressors. The null hypothesis is that, unique errors are not correlated with regressors while the alternative hypothesis is that, they are correlated with regressors. Results of the Hausman test are shown in Table 5 as below;
Table 5 The Hausman specification test.

<table>
<thead>
<tr>
<th></th>
<th>Coefficients (Fixed)</th>
<th>Coefficients (Random)</th>
<th>Difference</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ft</td>
<td>0.497586</td>
<td>0.028346</td>
<td>0.0214126</td>
<td>0.0213576</td>
</tr>
<tr>
<td>Lt</td>
<td>0.0787908</td>
<td>-0.0468715</td>
<td>0.1256623</td>
<td>0.0758197</td>
</tr>
<tr>
<td>Ppgr</td>
<td>1.804319</td>
<td>2.111087</td>
<td>-0.3067682</td>
<td>0.4476411</td>
</tr>
<tr>
<td>Fdi</td>
<td>-0.0691143</td>
<td>-0.021303</td>
<td>-0.0478112</td>
<td>0.0318188</td>
</tr>
</tbody>
</table>

Chi2(4)= 4.11

Prob>chi2=0.3909

As shown from Table 5 above, the decision is to use the random effects model since the Chi-Square probability (0.3909) is greater than 0.05. The rule of thumb says if the Chi-Square probability is greater than 0.05 that is at 5% significance level then we use the random effects model and conversely, if the Chi-Square probability is less than 0.05 that is at 5% level of significance then we use the fixed effects model. Therefore the decision according to this study is going to use the random effects model. Since we have choose the random effects model, we can therefore proceed to do a test for the random effects in order to decide whether to use random effects or the simple (OLS) using the Breusch- Pagan Lagrange multiplier (LM). The null hypothesis of the LM test is that variances across entities are zero. That is to say, there no significant differences across units (no panel effect) and the alternative hypothesis is that there are significant differences across the units. The (LM) test for the study is presented in Table 6 below:

Table 6 Breusch-Pagan Lagrange multiplier (LM) test for random effects.

gdp(pid,t) = Xb + u(pid) + e(pid,t)

<table>
<thead>
<tr>
<th></th>
<th>Var</th>
<th>Sd=sqrt(var)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gdp</td>
<td>27.53417</td>
<td>5.247301</td>
</tr>
<tr>
<td>E</td>
<td>19.48595</td>
<td>4.414289</td>
</tr>
<tr>
<td>U</td>
<td>3.261255</td>
<td>1.805894</td>
</tr>
</tbody>
</table>

Test :var(u)=0

Chibar2(01)=5.32

Prob>chi bar=0.0105
The Breusch and Pagan test can check the significance of random effects. The results obtained after running the LM test shows that we have rejected the null hypothesis in favour of the alternative hypothesis. In other words, the appropriate model is the random effects. We can conclude that in the specification of SADC economic growth as a function of imports, exports, foreign direct investment, literacy and population growth, there are pertinent individual characteristics (individual heterogeneity) that are not relevant correlated with the explanatory variables, that is to say there is panel effect. This result to reject the null hypothesis is based on the fact that Chi-Square probability is 0.0105, which is acceptable at 1 and 5 per cent levels of significance. Therefore the researcher interpreted the estimated results using the random effects model.

Interpretation of estimated results.
The relationship between foreign trade and economic growth was estimated using the random effects estimated as presented by Table 3 above. The estimated regression equation using Random effects is presented as below:

$$GDP_{it} = 1.54 + 0.0283F_{it} - 0.0468Lt_{it} - 0.0213Fdi_{it} + 2.111Ppg_{it}$$

Foreign trade (Ft)
Following the random effects estimates in Table 3, the probability value (p-value) of 0.037 means that the variable is accepted at 5 per cent level of significance and we are 95 per cent confident that foreign trade is statistically different from zero. We can reject the null hypothesis in favour of the alternative hypothesis. The coefficient of foreign trade is positive, that is (0.028) and it clearly shows us that foreign trade has a positive relationship with output that is to say, a percentage change in trade ceteris paribus, will result in a 0.0283 percent increase in GDP growth.

The positive relationship of this study is in line with the international trade theories and also with empirical studies done by Jung and Marshall (1985), Thurayia (2004) just to mention but a few who noted that there is a positive relationship between trade and economic growth. Although there is a positive relationship, the coefficient is very low in explaining the relationship to growth within the SADC region. Some of the root causes are of the fact that trade flows in most countries in SADC region is minimal because of the sizes of their economies, border delays, high costs of road tolls, and poor infrastructure. Additionally, studies of Chauvin and Gaulier (2002) indicates that, countries in the SADC region have also similar trade profiles and also they are based on primary commodities, as result, it limits their economic growth potentials within the region.

Population growth (ppgr).
Results from the regression show that population growth is significant in explaining variations in GDP growth. This is shown by the p-value of 0.0000 which shows that population growth is statistically significant in explaining changes in GDP growth at 1% level of significance and this also means that we have 99% confidence of accepting the
alternative hypothesis that the coefficient of population growth is significantly not equal to zero and it is of great importance in explaining changes in GDP growth. Population growth has a coefficient of 2.111 which can be econometrically interpreted to mean that a percentage increase in population growth holding other things constant will result in 2.111 per cent increase in GDP growth. This means that population growth is positively related to economic growth from the period under study (2001-2011).

A positive relationship between population growth and economic growth in SADC countries is in line with the findings by Opukri et al (2012). This is due to the fact that most countries in the SADC region are labour abundant that is to say economies in this region experience a high share of labour in output. This high share of labour to output is of the virtue that there is lack of technology in most countries as a result most goods produced and companies within the SADC region are labour intensive.

**Foreign direct investment (fdi)**

This variable has proved insignificant in explaining the relationship between trade and economic growth as it has a P-value 0.788 which is a way greater than 0.1. therefore we accept the null hypothesis that the coefficient of foreign direct investment is statistically not different from zero. Additionally, the coefficient is also negative that is to say it is at (-0.0213). This is in line with the studies of Asiedu (2010) who found a negative relationship with regard to the same study. Carolyn Jenkins and Lynne Thomas (2002) also argued that the ambiguous economic climate in the SADC discouraged risk-averse foreign investors and this has disadvantaged the region of the much needed foreign capital and exchange within the region. As a result, if investment is discouraged, then economies will reduce their productive capacities.

**Literacy rate.**

And finally, literacy rate is also insignificant in explaining the relationship between trade and economic growth with a p-value of 0.378 and it has also a negative sign depicting that, a unit increase in literacy will reduce GDP growth by (-0.0468).This means that literacy rate has no significant impact when studying the relationship between trade and economic growth. This is line with the studies of Benhabib and Spiegel (1994) who concluded that literacy has no significant impact on economic growth after they found an insignificant value at all levels of statistical significance.

**5.0 Key findings and Conclusion**

The main objective of the study was to determine the relationship between foreign trade and economic growth using econometrical methods in the context of panel data for fifteen SADC countries covering the period 2001 to 2011. Secondary to this objective the study also investigated the trends in SADC exports and imports and also the factors which affect trade within the SADC region relating to their impacts on economic growth. The study used the random effects model to estimate the relationship between trade and economic growth.
The main findings of this study give evidence of significant effect between foreign trade and economic growth within the SADC region. Foreign trade and population growth are seen as major determinants which promotes economic growth in the SADC region. Following other empirical studies, the panel data was used in this research inorder to determine the relationship between trade and economic growth in SADC countries. Before applying the random effects model, the multicollinearity test was done on all variables and using the Pairwise test for multicollinearity, the data showed that it is not correlated. From the Generalised Least Squares Estimator (GLS) random effects model results obtained, four explanatory variables; foreign trade and population growth were statistically significant with positive coefficients while literacy rate and foreign direct investment were statistically insignificant. This brings us to the conclusion that there is a positive relationship between trade and economic growth in SADC. This implies that an increase in trade does, on average benefits on economic growth of SADC countries. This also entails us that outward oriented economies exhibit faster economic growth. These regression approximations proved that foreign trade has a significant impact on economic growth in SADC and thus the acceptance of the hypothesis of the study.

The macroeconomic relationship of foreign trade on economic growth has entertained a hot debate in the literature. Empirical studies on the matter have employed diverse methodologies and ideologies. Much of the diversity of their approaches, so have been results obtained. For the most part of these studies, they have arrived at conflicting pieces of evidence and the dispute seems to have continued without showing any tendency of begetting a common understanding. Therefore, the literature reveals that the results obtained when studying this relationship are mixed. Studies of Li, Cheng and San (2010), Olumide and Odesanya(2012), San and Heshmati (2010) just to mention but a few found a positive relationship between trade and economic growth. On the other hand, empirical studies of Jung and Marshal (1985), Thurayia (2004) and Amirkhalkhal (2003) suggested that trade does not promote economic growth.

Studies on SADC trends of exports and imports and their impacts on economic growth reveals that trade played an important role on economic growths of SADC countries but it was relatively skewed to few SADC countries. The Research Development Unit (2001), Sophie and Guillaume (2002) designated that trade within the region was more than 20 per cent in the region’s global trade. This leads us to the conclusion that trade is one of the important variables in explaining economic growth within the SADC region.

Factors which affect the relationship between trade and economic growth in SADC countries were all reviewed. The study found that the relationship was mainly affected by physical and economic factors. Different studies indicated that most reasons for small trade flows between SADC member states were mostly non-tariff barriers, including: border delays; lack of adequate infrastructure; poor condition of the roads; lack of
integration into value chains; too many and high costs of road tolls for the use of roadways. Most SADC Member States have similar export profiles, based mainly on primary commodities, which limits the potential growth of trade within the region. Sioban (2002) revealed that countries such as the Democratic Republic of Congo, Angola and Mozambique reported low trade volumes and growth figures from the period under study because of the civil wars which haunted their productive capacities. Poor infrastructure within the region was also a major cause of poor intra SADC trade. Additionally, Jenkins and Thomas (2002) also argued that foreign direct investment was minimal within the region as evidenced by the small number of transactions which investments in natural resources exploitation, infrastructure development and privatization. Keane (2010) alluded that trade was also affected by non-tariff barriers. Non-tariff barriers created a perverse incentive structure which penalizes instead of encouraging SADC trade within the region.

**Recommendations.**

The results of this study show that foreign trade does matter for economic growth within the SADC region. Developing foreign trade is good for stimulating the development of the SADC economies. According to the empirical study results, foreign trade was found to promote economic growth. The studies of Asiedu (2010), Gries and Redlin (2012), although they used different methods and different samples, produced the same results that foreign trade has a positive effect on economic growth.

On the other hand, a positive relationship is not very strong in explaining the relationship between trade and economic growth within the SADC region. The findings of the study alluded that this weak relationship was caused by some of the factors we categorised in the study literature; namely the physical and economic nature of the environment of the SADC region. The sluggish growth in SADC mainly is due to internal and external structures of the member countries coupled with confused and unpredictable policies. However to overcome these problems which affect efficient flows of goods and services and reduce, corresponding economic loses, the SADC member countries are therefore recommended to:

- Firstly, have an energetic industrial policy. Countries in the SADC region should channel most of their funds to export industries in order to develop highly technological industries so as to improve the comparative advantages in order to increase not only on exports but also their competitiveness globally. Countries which are technologically advanced have high comparative advantage which makes their products to be produced efficiently and hence competitive globally. As a result, if the SADC countries focused mainly on developing their industries, the countries will increase productivity which will translate into more exports not only in within but also globally and hence economic growth will be realised.
among the member countries.

☑ Strategic policies with regard to trade must also be executed. In order to achieve this objective, each of the SADC member countries should choose its special industries to protect or through the provision of subsidies with a virtue of gaining a significant market share regionally and globally. As a result, protectionism will increase profits and growth to local firms and therefore increase exports internationally. Increase in exports and profits will mean that they will be funds available for industrial expansion in order to meet higher demand. As a result, firms will employ more citizens and increase their production. Thus, employment creation coupled with an increase in production will mean economic growth.

☑ Additionally, governments of the member countries should implement what is known as—the proactive fiscal policy. Industries should be provided more capital funding so as to improve the financial environment of industries in order to increase exports. The governments can stimulate growths of their economies by reducing income and sales tax. This will reduce production costs and increase profits to firms. As a result, more exports will be produced at a lower cost; therefore the company’s products will be made available to global markets at an efficient price.

☑ There is need for infrastructure development within the region so as to have smooth trade flows of goods and services. With this regard, there is need for an imperative implementation of the SADC Regional Infrastructure Development Master Plan in order to improve trade within the region. There is need to devise a plan that is mainly aimed at connecting landlocked member states such as Zimbabwe, Zambia and Malawi with major population centres and economic activities to the ports. As a result, an improvement in infrastructure will increase trade and hence economic growth within the member states.

☑ Countries in the SADC region should ensure political and macroeconomic stability so as to attract foreign investments. Confusing economic climate in the SADC has over the years discouraged risk-averse foreign investors. This was due to the fact of political and macroeconomic instability. With this regard, if members of the SADC region emphasised more on achieving macroeconomic problems, foreign investments will flow into the region which will create employment and produce more output and hence economic growth. Additionally, investment for example through privatisation will increase technology which increases efficiency which translates into low product prices and hence these products will be competitive on the global markets. To add on, foreign direct investment should also redirected mainly to firms which produce export goods. This will increase exports growth due to the virtue of the fact that it will lead to the change in the exports structure and composition. If it is also redirected to
promote export oriented activities, people will increase their skills, knowledge and largely more technology to domestic firms.

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