

Export-Led Growth Hypothesis and Economic Growth in West Africa: Evidence from Fully Modified OLS and Dynamic OLS

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Abstract

This study uses the fully modify ordinary least square (FMOLS) and the dynamic ordinary least square (DOLS) to examine export-led growth hypothesis in West African countries over the period 1980 to 2018. To achieve the objective of the study, panel data on Real Gross domestic product (RGDP), Exchange rate (REXR), net exports (NXPT), labor (LABR) and investment (INVS)) were collected for seventeen West African countries from database of the international financial statistics (IFS) and World Development Index (WDI). The data were analyzed using dynamic ordinary least square (DOLS) and fully modify ordinary least square (FMOLS). Findings from the study show that exports had significant impact on economic growth of the West African countries investigated in this study. Based on the findings, it is recommended, among other things, that the governments of West African countries should continue with export-led economic growth since there is strong empirical evidence in support of the export-led development agenda. More importantly West African countries need to diversify her export base if the export-led growth agenda is to be sustained. Furthermore, positive impact of investment on RGDP suggests that the government of West Africa need to invest in technologies that can help in processing its primary export commodities in order to boost its export quality and the revenues. Alternatively, this can be done in partnership with foreign investors. Another policy option government should consider is maintaining a lower domestic currency value relative to foreign currencies. This promotes exports because the undervalued domestic currency makes it cheaper for foreigners to buy exports from African countries while making it expensive for African countries to purchase foreign goods.

Keywords: export led growth hypothesis, FMOLS, DOLS

1. Introduction

The role of export in economic growth process, both in the developed and the developing economies is well documented in recent literature. This is against the backdrop that many of the countries of the world that attain the climax of economic growth in the twenty first century were found to be those that ascribed to the philosophy of the export led-growth hypothesis (ELGH). Among such countries which are tagged the “Asian Tigers” include Hong-Kong, Taiwan, Singapore and South-Korea. In Latin America countries such as Mexico and Brazil have also recorded positive growth through adoption export led-growth hypothesis Chia-ye (2016).

The export led-growth hypothesis is a development strategy for promoting the domestic capacity of an economy through the use of international market. The hypothesis postulates that export expansion is one of the main determinants of economic growth. In the word of Alimil and Awomuse (2014), it is a consensus among economists about the gains of economic openness that took hold in the 1970s, which rests on a fusion of three lines of argument; the first, based on Hecksher–Ohlin–Samuelson comparative advantage theory, is about the benefits from trade between countries with different capital–labor ratios, second concerns the benefits of openness for controlling rent seeking and the third which was developed later, concerns the benefits of openness for growth through export promotion.

The return to export promotion policy among many West African countries of the world was triggered by the inability of the import-substitution industrialization strategy (ISI) of the early 1970s and 1980s to bring those economies out of their economic quagmire. For example, despite believe on the efficacy of ISI in countries where it is adopted, the problem of poverty, unemployment and inflation remains unabated in those countries. This is evident in the slow growth rate of some the West African economies including Ghana, Gambia and Nigeria, (M.U. Tukur, Solomon & Audu 2019).

However, evidence from most West African countries that have adopted ELG in the past suggests that the turn to the strategy seems not to have improved their economies over the years. In Nigeria for example, despite the adoption of ELG, the problem of exchange rate volatility, high unemployment and double-digit inflation have

continue to drag on the economy. The volatility of exchange rate poses many challenges to the efficient operation of ELGH. For example, a fall in the value of domestic currency due to volatility of exchange rate could make the price of exports cheaper and the proceeds from exports will be reduced. Unfortunately, most of the previous studies on ELG strategy seem to have overlooked the potentials of exchange rate volatility in undermining the success of the strategy.

The failure of ELG strategy in economic growth process in Nigeria has also been blamed on the persistent rising level of inflation in the country. For example, the rate of inflation in Nigeria averaged 16.5 in the third quarter of 2016 and rises further to about 17.8 in the last quarter of the same year CBN (2016). A highly inflationary economy is usually unstable and could scared the investors form investing their resources in the economy. Inflation reduces the purchasing power of economic agents. It also reduces the demand for exports as well as exports revenue.

Many previous studies on ELG hypothesis have examined the causal relationships between exports and economic growth in different countries. Such studies include Taban and Aktar (2009), Hye and Buobaker (2011) and Zeren and Kilinc (2013), among others. However, these studies have focused on individual countries. This study differs from previous studies in that it uses the fully modified OLS (FMOLS) and the dynamic OLS (DOLS) to investigate ELGH by drawing evidence from West African countries.

The broad objective of the study is to examine export-led growth hypothesis in West African countries using Fully modified OLS and Dynamic OLS. and the specific objectives are thus:

1. Assess the impact of export on economic growth of West Africa countries over the study period.
2. Investigates if a long-run relationship exists among exports, exchange rate, investment and economic growth in countries of study over the study period.

With regards to the above objectives and the problems of the study the following questions are considered significant for the study.

a. what is the long-run relationship in exports, exchange rate, investment and economic growth in countries of study over the study period.

b. What is the impact of export on economic growth of West Africa countries over the study period.

In an attempt to address this and other related questions on the study the following null hypothesis will be tested:

H₀₁: Exports have no significant impact on economic growth of West Africa countries over the study period.

H₀₂: A long-run relationship does not exist among exports, exchange rate, investment and economic growth in West African countries of study over the study period.

This paper consist of six sections: section two discusses the literature review, section three focuses on the presentation of the modelling framework of the paper, section four present techniques for data analysis, the section thereafter present the empirical results; the penultimate section concludes, while the final section proffer recommendations.

2. Literature Review

2.1 Concept of Export-Led- Growth Hypothesis (ELG)

The debate on ELG hypothesis has occupied a primacy of place in recent studies on a related topic. For example, studies such as Ghatak, Milner and Utkulu (1997) reveal that export growth might affect output growth through a number of channels. The exports sector may generate positive externalities on non-exports sector, through more efficient management styles and improved production techniques. The authors added that export growth may increase the scope for economies of scale in exporting economy and encourage the allocative efficiency and dynamic competitiveness. If there are incentives to increase investment and improve technology, this would imply a productivity differential in favor of the export sector (i.e. marginal factor productivities are expected to be higher in the exports sector than in the rest of the economy). Thus, an expansion of exports, even at the cost of other sectors, will have a positive net effect on aggregate output.

For Ramos (2001), ELG hypothesis revolves around four major arguments. First, export growth leads, by the foreign trade multiplier, to an expansion of production and employment. Second, the foreign exchange made available by export growth allows the importation of capital goods which, in turn, increase the production

potential of an economy. Third, the volume of and the competition in exports markets cause economies of scale and an acceleration of technical progress in production. Fourth, given the theoretical arguments mentioned above, the observed strong correlation of export and production growth is interpreted as empirical evidence in favour of the ELG hypothesis.

Michael (1977), Feder (1982), Marin (1992.), Thornton (1996) as cited by Ramos (2001) found that countries exporting a large share of their output seem to grow faster than others. The growth of exports has a stimulating influence across the economy as a whole in the form of technological spillovers and other externalities.

Herzer (2011) posits that the theoretical arguments supporting export-led hypothesis have been examined from different perspectives. From a demand-side perspective, it is argued that sustained growth cannot be maintained in domestic markets because of their limited size. Export markets, in contrast, are almost limitless and hence do not involve growth restrictions on the demand side, implying that they can act as a catalyst for output growth through an expansion of aggregate demand.

Alimil and Awomuse (2014) posit that export-led growth is a development strategy aimed at growing productive capacity by focusing on international markets. The export-led growth hypothesis is part of consensus among economists about the gains of economic openness that took hold in the 1970s, which rests on a fusion of three lines of argument; the first, based on Heckscher–Ohlin–Samuelson comparative advantage theory, is about the benefits from trade between countries with different capital–labor ratios, second concerns the benefits of openness for controlling rent seeking and the third which was developed later, concerns the benefits of openness for growth. The claim is trade encourages technology diffusion and knowledge spillovers that contribute to faster productivity growth

Grossman and Helpman (1991), Kunst and Marin (1989), Feder (1983) and Helpman and Krugman (1985) argue that there are several ways in which exports can affect productivity. First, exports can provide the foreign exchange to finance imports that incorporate knowledge of foreign technology and production know-how, thereby promoting cross-border knowledge spillovers. Second, exports can increase productivity by concentrating investment in the most efficient sectors of an economy, those in which the country has a comparative advantage. Third, since combining the international market with the domestic market facilitates larger-scale operations than does the domestic market alone, an expansion of exports allows countries to benefit from economies of scale. Fourth, and perhaps most importantly, the export sector may generate positive externalities on the non-export sector. Several arguments suggest, however, that the positive productivity effects predicted by the export-led growth hypothesis do not necessarily occur in developing countries. One concern is that many developing countries are heavily dependent on primary commodity exports.

Dawe (1996) notes that exports of primary goods tend to hike prices and volume fluctuations. Increased exports may therefore lead to increased macroeconomic uncertainty, which, in turn, may hamper efforts for economic planning and reduce the quantity as well as the efficiency of domestic investment. Another concern is that the ability of the non-export sector to absorb potential knowledge spillovers from the export sector depends on its absorptive capacity. In particular, domestically oriented firms using very backward production technology and low-skilled workers may be unable to make effective use of knowledge spillovers. Similarly, it can be argued that a certain level of technology and human capital in the export sector itself may be necessary to acquire foreign technology.

Edward (2009) observes that the productivity effects of exports are ambiguous and depend upon several factors, such as the level of primary export dependence, the degree of absorptive capacity, and the degree of business and labor regulations. One important implication of this is that the effects of exports on output through productivity may differ significantly from country to country. Another implication of the above discussion is that the productivity effects of exports may differ over time, as well. For example, in the short run, exports may increase productivity through specialization according to comparative advantage. If, however, the increase in exports induces an expansion of sectors that do not exhibit negative externalities while other sectors with positive externalities shrink, the associated productivity loss will more than offset the traditional static specialization gains in the long run. Accordingly, exports may have positive short-run, but negative long-run effect.

Sait (2005) states that an export-led growth strategy aims at providing producers with incentives to export their goods through various policies. The strategy also aims at increasing the capability of producing goods that can compete in the world market using advanced technology and make provision for foreign exchange needed to import capital goods. Exports can help the country to integrate into the world economy and help to reduce the impact of external shocks on the domestic economy. Exports allow domestic production to achieve a high level of economies of scale.

Tsen (2006) stated that the experiences of East Asian economies provide good examples of the importance of the export sector to economic growth and development, and this stress the role of exports as an engine for economic growth. The major argument is that some East Asian Tiger economies (South Korea, Hong Kong, Taiwan and Singapore) and the Latino-American countries like Mexico and Brazil over the past three decades are usually driven by exports or that it is economic growth that leads to export performance. This argument is key in the sense that, establishing the causality between export and growth has a great implication for policy-makers' decision about the appropriate and relevant strategies and policies to adopt for economic growth and development.

According to Chu, Ata and Justo (2013), export-led growth hypothesis (ELGH) postulates that export expansion is one of the main determinants of growth. Many developing countries like Nigeria pursued import substitution strategy for growth and development but with the spectacular success story of the four East Asian Tiger economies (South Korea, Hong Kong, Taiwan and Singapore) and the Latino-American countries like Mexico and Brazil over the past three decades, appeared to provide empirical support for export-led growth hypothesis (ELGH). A significant amount of research has been conducted in developed countries and emerging economies to prove and establish this hypothesis.

Titus (2003) posits that ELG hypothesis reflects the view that export-oriented policies help to stimulate economic growth. Export expansion can be a catalyst for output growth both directly, as a component of aggregate output, as well as indirectly through efficient resource allocation, greater capacity utilization, exploitation of economies of scale, and stimulation of technological improvement due to foreign market competition. Exports provide foreign exchange that allows for increasing levels of imports of capital goods and intermediate goods that in turn raise the growth of capital formation and thus stimulate output growth (McKinnon 1964; Balassa 1978; Buffie 1992).

Furthermore, export growth through an expanded market base allows for the exploitation of economies of scale for open economies and promotes the transfer and diffusion of technical knowledge in the long run. There are limits to the comparisons between the current analysis and the previous studies on Canada. While both Serletis (1992) and Henriques and Sadorsky (1996) used annual data extending back to 1870 and focused more on the development context of the export-growth nexus, in this paper quarterly data and a much shorter time frame are used. Exports can be viewed as economies of scale that are external to the individual firms in the non-export sector but internal to the overall economy. The ELG hypothesis implies that the rate of export growth will lead to economy-wide efficiency and productivity growth.

2.2 Concept of Economic Growth

National Bureau of Statistics (NBS) (2013) posits that economic growth describes the persistent increase in real per capita income over time. It measures the amount of goods and services produced in a country and how the goods affect the welfare of the population living within the country over a specific period. It is conventionally measured as the percentage rate of increase in real gross domestic product or real GDP. Economic growth is considered to have occurred whenever people take resources and rearrange them in ways that are more valuable. Samuelson and Nordhaus (2002) define economic growth as the expansion of a country potential GDP or national output. Put differently, economic growth occurs when a nation's production possibility frontier (PPF) shifts outward. They identified four factors of growth which are human resources, natural resources, capital formation and technology. Thus, economic growth implies increase in the production of goods and services, through the use of, natural resources, human resources, capital formation and technology, which translates into an increase in the real gross domestic product (GDP) and the per capital income of a country thus improving the standard of living of the citizenry.

According to Dwivedi (2004), economic growth is a sustained increase in per capita national output or net national product over a long period of time. It implies that the rate on increase in total output must be greater than the rate of population growth. Another quantification of economic growth is that national output should be composed of such goods and services which satisfy the maximum want of the maximum number of people. Economic growth can be determined by four important determinants namely; human resources, natural resources, capital formation and technological advancement.

The theories of economic growth can be examined under the Harrod-Domar theory of growth, Kaldor model of distribution, Pasinetti model of profit and growth, Joan Robinson's model of capital accumulation, Meade's Neo-classical model of economic growth and the Solow model of long-run growth. All these models of economic growth are the various views of scholars on the most suitable explanation of growth.

For such authors such as Lewis (1978), the mere increase in the aggregate level of production of goods and services in an economy tells us nothing about the "quality of life" of a citizenry, given the threats of global pollution, abysmal lop-sided distribution of aggregate output and income, environmental degradation, prevalence of chronic and deadly disease, abject poverty and the absence of freedom and justice.

Woodford (2000), while distinguishing growth from development explained that economic growth refers to a positive increase in the aggregate level of output within a given time period in a country while economic development is seen as sustainable increase in the aggregate level of output and incomes, with due consideration given to the quality of life which hopefully takes account of such issues as equal distribution of income, healthcare, education, environmental degradation, reduction in global pollution, freedom and justice. Therefore, economic development could be referred to as a process by which an economy experiences three main phenomena namely – sustained growth in output, structural changes and institutional changes. If these three phenomena take place, it will lead to a rise in standard of living of the populace. That is why growth could be enjoyed by many countries but not all experience development.

2.2 Theoretical Literature

2.2.1 Hecksher-Ohlin Theory of Factor Endowment

The Hecksher-Ohlin theory, also known as the theory of factor endowment is credited to two Swedish economists, Hecksher (1919) and Ohlin (1939) to take into account differences in factor supplies mainly; Land, Labour, capital on international specialization. Unlike the classical model, where trade arises because of fixed but differing labour productiveness for different commodities for different countries, the H-O model assumes away inherent difference in relative labor productivities by postulating that all countries have access to the same technological possibilities for all commodities.

If domestic factor prices were the same, all countries will use identical methods of production and will therefore have the same domestic product price ratios and factor productivities. The basis for trade arises not because of the inherent technological differences in labor productivity for different commodities between different countries but because countries are endowed with different factor supplies. Given relative factor endowments, relative factor prices will differ (e.g. labor will be relatively cheap in labor abundant countries), and so will domestic commodity price ratios and factor combinations. Countries with cheap labor will have a relative cost and price advantage over countries with relatively expensive labor in commodities that make intensive use of labor (e.g primary products). They should therefore focus on the production of these labor intensive products and export the surplus in return for import of capital intensive goods.

Conversely, countries well-endowed with capital, will have a relative cost and price advantage in the production of manufactured goods, which tend to require relatively large inputs of capital compared with labor. They can thus benefit from specialization in export of capital intensive manufactures in return for labor intensive products from labor abundant countries. Trade therefore serves as a vehicle for the nation to capitalize on its abundant resources through more intensive production and export of commodities that require large input of those resources while relieving its factor shortage through the importation of commodities that use large amount of its relatively scarce resources.

The summaries of H-O theory are that:

a. Different products require productive factor in different relative proportions. For example, agricultural products generally require relatively greater proportions of greater per unit of capital than manufactured goods that require more machine time (capital) per worker than most primary products. Proportions in which factors are actually used to produce different goods will depend on their relative prices. But no matter what factor prices may be, the factor endowment model assumes that certain products will always be relatively more capital intensive while others will be relatively more labor intensive.

b. The main conclusions of the neoclassical model of free trade are that all countries gain from trade and the world output is increased. However, there are several others in addition to these two basic conclusions. First, due to increasing opportunity costs associated with resources shifting among commodities with different factor intensities of production, complete specialization will not occur in the classical comparative advantage model. Countries will tend to specialize in products that use their abundant resources intensively. They will compensate for scarce resources most intensively. But rising domestic costs and therefore prices in excess of world prices will prevent complete specialization from occurring.

Second, given identical technologies of production throughout the world, the equalization of domestic product price ratios with international free-trade price ratio will tend to equalize factor prices across trading countries. Wage rates, for example, will rise in labor-abundant developing world as a result of the more intensive use of human resources in the production of additional agricultural output. But the price of scarce capital will decline due to the diminished production of manufactured goods, which are heavy users of capital will rise relative to its scarce labor as more emphasis is placed on the production of capital- intensive manufactured goods and less on labor intensive agriculture.

The neo-classical factor endowment theory makes the important prediction that international real wage rates and capital costs will gradually tend toward equalization. In recent years, many highly paid manufacturing workers in the more developed countries were worried that free trade and greater international competition would drive their wages down to the Low Developing Countries (LDC).

2.2.2 Export-Led Growth Theory or Hypothesis

The Export-led growth implies opening domestic markets to foreign competition in exchange for market access in other countries. The origin of ELG is traceable to the Great Depression of 1929 which brings hardship to many economies. After the Depression is over during the 1950s and 1960s, the Asian countries, like Taiwan and South Korea, started focusing their development outward, resulting in an export-led growth strategy. Many of the Latin American countries continued with import substitution industrialization, just expanding its scope. Some have pointed out that because of the success of the Asian countries, especially Taiwan and South Korea, export-led growth should be considered the best strategy to promote development

The ELG hypothesis postulates that export expansion is one of the main determinants of growth. It holds that the overall growth of countries can be generated not only by increasing the amounts of labor and capital within the economy, but also by expanding exports. According to its advocates, exports can perform as an “engine of growth economic growth” (Emilio, 2001). The Export led Growth further shows the relationship between the growth of exports and the economy such that export expansion becomes one of the main determinants of economic growth. This hypothesis holds that overall growth of different economies could be generated not by increasing the amounts of labor and capital, but also by expanding exports. The theoretical rationale for this hypothesis hinges on a number of arguments which include the following:

First, that the export sector may generate positive externalities on non-export sectors through more efficient management styles and improved production techniques, Feder (1983). Second, export expansion will increase productivity by offering potential for scale economies, Helpman and Krugman (1985); Krugman (1994). Thirdly, exports are likely to alleviate foreign exchange constraints and can thereby provide greater access to international markets, Esfahani (1991). These arguments have recently been extended by the literature on endogenous growth theory which emphasizes the role of exports on long-run growth via a high rate of technological innovation and dynamic learning from abroad, Lucas (1998); Romer (1986, 1989); Grossman and Helpman (1991, 1995); Edwards (1992); Alisna and Rodrick (1999).

2.3 Empirical Literature

Tarek, Yousef, Haider & Zafar (2016) examine the linkages between exports and economic growth in Saudi Arabia over the period of 1980 to 2013. Using co-integration and causality tests, findings from the study reveal that there is a long-run co-integration relationship in the export-growth model. The result shows that the feedback effect in export-growth relationships and suggest the further export-promotion to foster economic growth in Saudi Arabia. Similarly, Etale and Lyndon (2016) examine the relationship among exports, foreign direct investment and economic growth in Malaysia from year 1980 – 2013. Using causality test analysis, the results obtained showed that there is a significant bidirectional long run relationship between FDI Inflows per capita and GDP per capita. On the other hand there is a unidirectional long run relationship from Exports to FDI Inflows and Exports to GDP per capita.

Chia-Yee (2016) examines the validity of Export-Led Growth (ELG) hypothesis in selected Sub-Saharan African (SSA) countries for the period from 1985 to 2014. The techniques of panel unit root, panel co-integration, Fully Modified OLS (FMOLS) and Dynamic Ordinary Least Square (DOLS) were used in the study. The empirical findings reveal that, there is a long-run relationship between exports and growth based on FMOLS and DOLS results. FMOLS and DOLS estimation showed a positive impact of investment, government expenditure and exports on the economic growth. Hence, the findings proved that export-oriented growth strategy is valid in the SSA countries.

Mduduzi and Talent (2014) investigate the export-led growth (ELG) hypothesis for African countries for the period of 1990 to 2005. The data used is a panel data covering 30 African countries for the period of 1990 to 2005. Using four panel data models, pooled ordinary least square (OLS), fixed effects model (FE), random effects model (RE) and two-stage least-squares (2SLS). The results from these models provide some modest support for the export-led growth paradigm in Africa – a 1% increase in export leads to 0.1% increase in economic growth.

Deepika and Neena (2014) conducted a study on export-led-growth hypothesis in India over the period 1980 to 2012 and explore the causal relationship between exports and economic growth by employing Johansen co-integration and Granger causality approach. The result of co-integration approach shows that there is no long run equilibrium relationship between exports and GDP per capita. Granger causality test exhibits bidirectional causality running from exports to GDP per capita and GDP per capita to exports. It suggests that the variables granger causes each other.

Majeed (2014) examines the relationship among exports, imports and economic growth in Pakistan over the period 1976-2011, using Granger causality test and Johansen co-integration. The result shows evidence of relationship existing between economic growth (GDP) and exports; however, worthy of note is that causality runs from economic growth to exports. This suggests that increase growth in the economy of Pakistan by variables that may not have been considered in the study causes an increase in the level of export.

Ruba and Thikraiat (2014) examine the causal relationship between economic growth and exports in Jordan over the period 2000 – 2012, using the Granger methodology in order to determine the direction of the relationship between the two variables. The result shows that there is a causal relationship emerging from the economic growth to Export, with no feedback. Based on the outcome of causality tests, the changes in the economic growth help explain the changes that occur in the Export.

Zeren and Kilinc (2013) examine the export-led growth hypothesis in a panel of selected European countries from 1970 to 2011. For this purpose, a panel co-integration test was used. Initially, cumulative negative and positive changes are constructed for each panel variable. Then the potential panel co-integration is examined. The empirical results from the study support that there is hidden co-integration in panel, thus the authors assert that there exists a long-term relationship between economic growth and exports.

Abbas (2017) investigates causal relationship between GDP and exports of Pakistan for the period of 1975 to 2010, using Johansen test of Co-integration and Granger Causality to determine short run and long run causalities. Findings of Co-integration reveal existence of one positive co-integrating equation and that of

Causality test show short run and long run causality run from GDP to exports. The result concludes that both in short and long run only growth in production cause exports growth.

Muhammad, Zahid and Shafaqatmehmood (2017) investigate the export-led growth and growth-led export hypotheses in case of Pakistan exports to top three exports partners namely: USA, UAE and UK over the period of 1975 to 2012 using granger causality test and Johansen's co-integration test. Findings of Johansen's co-integration test revealed the presence of co-integration among variables. Result show that the major portion of Pakistani exports approximately 30 percent is towards the top three exports partners.

Ranjan (2015) investigate the causal relationship between export growth and economic growth in India for post-liberalization period 1992–2007. Using co-integration and error-correction models. The results indicate that there exists a long-term relationship between output and exports, and it is unidirectional, running from exports to output growth.

Shahbaz, Ahmad and Asad(2010) examines the exports-led growth hypothesis of Pakistan from 1990 to 2008. Using ARDL bounds testing approach, Error Correction Method (ECM) and Ng-Perron test for integration was employed. The empirical findings show that exports are positively correlated with economic growth. This confirms the validity of exports-led growth hypothesis in the case of Pakistan both for short run and long span of time.

TsenH.W (2014) examines the export-led growth (ELG) hypothesis for Canada for the period of 1961-2000. Using granger causality test, vector error correction models (VECM) and the augmented vector autoregressive (VAR) methodology. The findings of the results suggest that a long-run steady state exists among the model's six variables and that Granger causal flow is unidirectional from real exports to real GDP. Empirical evidence from Granger causality tests indicates that changes in real exports precede changes in real GDP. Furthermore, our inclusion of additional variables was justified, since capital, labor, and foreign output shocks are statistically significant in the models. In addition to finding support for the ELG hypothesis in the short run, the results from co-integration analysis and levels VAR also provide support for ELG in the long run.

Nain and Ahmad (2010) examine the export-led growth hypothesis in India using the quarterly data for the period 1996 to 2009. It uses Granger causality test (Toda and Yamamoto, 1995) and forecast error variance decomposition (within VAR framework) to investigate the interrelationship among exports, imports, real effective exchange rate, and economic growth in the short run as well as long run. The results of the study do not support the export-led growth hypothesis rather it supports the growth-led export hypothesis.

Taban and Aktar (2009) use the export-led growth [ELG] hypothesis to investigate a causal connection between export and growth. The study investigate export-led growth ELG hypothesis in Turkey for the period 1980 - 2007. The hypothesis is tested by applying the co-integration and error correction procedures. Findings reveal evidence in support of the hypothesis that there is a long-run and short-run bidirectional causality relationship between export growth and real GDP growth in Turkey.

André and Joel (2017) investigate the causal relationship between export and economic growth for Botswana for the period 1995-2005. Using granger causality test where two measures of economic growth are used namely, GDP and GDP excluding export. When using GDP excluding export as a proxy for economic growth. The findings show that there is bi-directional causality between export and economic growth. The results suggest that Botswana can promote its economic growth by exporting more products. The results also suggest that export in Botswana can be raised by increasing economic growth.

Edward S. (2017) investigates the relationship of two components of exports (oil exports and non-oil exports) with economic growth by examining the ELG hypothesis using annual time series data for the Kuwaiti economy over the period 1970-2004. The study applies a number of econometric techniques: unit root test, co-integration test, error correction model (ECM), impulse responds function (IRF), and Granger causality test. The findings of the study show that all the variables are stationary in the first difference. Moreover, the co-integration test confirms the existence of the long run relationship among the three variables. The Granger test shows bidirectional causality between oil exports and economic growth, and a unidirectional causality from non-oil exports to economic growth. However, the causality results are consistent with the results reported by the ECM.

Ramos (2016) examines the validity of the Export-Led Growth (ELG) hypothesis in nine Southern African countries using annual data for the period 1980-2002. The study uses time series econometric techniques to test for the causal linkage between exports and economic growth in Southern African economies. The econometric models used in the study were the unit root test, co-integration test of Johansen and Granger-causality. The results of the unit root tests show that most of the series are stationary in first differences. The results of the co-integration show that variables have long-run relationship. The Granger-causality shows a bi-directional causality among the variables. Evidence suggests that the ELG hypothesis is found to be valid in Lesotho and Swaziland, and, with exogenous variables, it is valid in Botswana, Lesotho, and Swaziland, implying that expanding exports can contribute to economic growth, poverty reduction, and job creation in all three countries. This research reveals that, even though some countries have adopted export-friendly policies, the long-term impact of such policies is yet to be observed for most countries.

3. Model Specification

The panel co-integration regression method of model specification will be adopted in this study. This method allows a set of pooled time series data to be modeled simultaneously. Traditionally it involves a substantial degree of sacrifice in terms of the permissible heterogeneity of the individual time series. In order to ensure broad applicability of any panel co-integration test, it will be important to allow for as much heterogeneity as possible among the individual members of the panel Pedroni (1999). In its most general form, the panel co-integration model is specify as:

$$Y_{it} = \alpha_i + \delta_i t + \gamma_t + \beta_i X_{it} + \mu_{it} \dots\dots\dots (1)$$

Where;

Y_{it} = observable time series panel of dependent variable

X_{it} = observable time series panel of independent variables

i = panel component = 1, 2,.....N

T = time series component = 1, 2,.....T

The variables Y_{it} and X_{it} are assumed to be integrated of order one, denoted $I(1)$, for each member i of the panel, and under the null of no co-integration the residual will also be $I(1)$, in which case we refer to (1) as the spurious regression. The parameters α_i and δ_i of the model in (1) above allow for the possibility of member specific fixed effects and deterministic trends respectively while γ_t will allow the possibility of common effects that are shared across individual members of the panel in any given period. In general, the slope coefficient β_i will be permitted to vary by individual, though the study will also consider the special case in which it takes on a common value for all members.

In keeping with many panel data models, we will assume that the underlying error process can be decomposed into common disturbances that are shared among all members of the panel and independent idiosyncratic disturbances that are specific to each member i . Specifically, let $Z_{it} = (Y_{it}, X_{it})$ such that the process is generated as:

$$Z_{it} = Z_{it-1} + \zeta_{it} \dots\dots\dots (2)$$

And $\zeta_{it} = (\zeta_{it}^y, \zeta_{it}^x)$ is conditional on any common effects. To introduce the variables of the study into the model in equation (1) above, the co-integrating regressions in heterogeneous panels form is for a panel is re-specify as:

$$Y_{it} = \alpha_i + \beta X_{it} + \mu_{it} \dots\dots\dots (3)$$

$$X_{it} = X_{it-1} + \xi_{it} \dots\dots\dots (4)$$

Where;

$$Y_i(RGDP)_t = X_i(\beta_1 NXPT, \beta_2 REXC, \beta_3 LABR, \beta_4 INSV) \dots\dots\dots (5)$$

Where;

Equation (5) is a panel member co-integrating vector of the dependent and the independent variables, with co-integrating vector β .

Y_{it} = dimensional vector of regressand which is integrated of order one.

X_i = dimensional vector of regressors, which are not co-integrated with each other.

α_i = the intercept which allows the co-integrating relationship to include member specific fixed effects.

$\xi_{it} = (\mu_{it}, \lambda_{it})$ is the vector error process which is stationary with asymptotic covariance matrix.

4. Techniques of Data Analysis

4.1 Panel Unit Root Test

To check the stationarity status of the data set, this study will use the panel unit root of the kind developed by Breitung (2000). The mathematical model for the test is specified as:

$$y_{it} = \eta_{it} + \sum_{k=1}^{p+1} \beta_{ik} x_{i,t-k} + \varepsilon_t \quad \dots \dots \dots (6)$$

From (6), the null hypothesis (H_0) is given as:

H_0 = the data set is difference stationary. Mathematically, H_0 is stated as:

$$H_0: \sum_{k=1}^{p+1} \beta_{ik} - 1 = 0 \quad \dots \dots \dots (7)$$

The alternative hypothesis (H_1) is given as:

H_1 : the panel series is stationary. Mathematically, it is given as:

$$\sum_{k=1}^{p+1} \beta_{ik} - 1 < 0 \text{ for all } i.$$

Breitung (2000) uses the following transformed vectors to construct the test statistics:

$$Y_i^* = AY_i = [y_{i,1}^*, y_{i,2}^*, \dots, y_{i,T}^*] \quad \dots \dots \dots (8)$$

$$X_i^* = AX_i = [x_{i,1}^*, x_{i,2}^*, \dots, x_{i,T}^*]', \quad \dots \dots \dots (9)$$

The standardized form of (8) and (9) above is given as:

$$\lambda_B = \frac{\sum_{i=1}^N \sigma_1^{-2} Y_i^{*'} X_i^*}{\sqrt{\sum_{i=1}^N \sigma_1^{-2} X_i^{*'} A' A X_i^*}} \quad \dots \dots \dots (10)$$

4.2 Panel Unit Root Test

Pedroni (1999) develops two types of asymptotic tests (the within- dimension approach and the between- dimension approach) that allow for heterogeneity among individual members of the panel, and heterogeneity in both the long-run cointegrating vectors. The ‘within- dimension approach’ comprises four panel statistics which are the panel v-statistic, the panel ρ - statistic, the panel PP-statistic, and the panel ADF-statistic. On the other hand, the ‘between-dimension approach’ includes three statistics which are group q-statistic, group PP-statistic, and group ADF-statistic. The mathematical notation for the various statistic(s) is as follows:

Panel v-statistic

$$Z_v = \left(\sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{e}_{it-1}^2 \right)^{-1} \quad \dots \dots \dots (12)$$

Panel ρ -statistic

$$Z_\rho = \left(\sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{e}_{it-1}^2 \right)^{-1} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\lambda}_i) \quad \dots \dots \dots (13)$$

Panel PP statistic:

$$Z_t = \left(\hat{\sigma}^2 \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} \hat{e}_{it-1}^2 \right)^{-\frac{1}{2}} \sum_{i=1}^N \sum_{t=1}^T \hat{L}_{11i}^{-2} (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\lambda}_i) \quad \dots \dots \dots (14)$$

Panel ADF

$$Z_t^* = \left(\hat{s}^2 \sum_{i=1}^N \sum_{t=1}^T L_{11i}^{-2} \hat{e}_{it-1}^2 \right)^{-\frac{1}{2}} \sum_{i=1}^N \sum_{t=1}^T L_{11i}^{-2} \hat{e}_{it-1}^* \Delta \hat{e}_{it}^* \dots \dots \dots (15)$$

Group ρ -statistic:

$$\tilde{Z}_\rho = \sum_{i=1}^N \left(\sum_{t=1}^T \hat{e}_{it-1}^2 \right)^{-1} \sum_{t=1}^T (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\lambda}_i) \dots \dots \dots (16)$$

Group PP-statistic

$$\tilde{Z}_t = \sum_{i=1}^N \left(\hat{\sigma}^2 \sum_{t=1}^T \hat{e}_{it-1}^2 \right)^{-1/2} \sum_{t=1}^T (\hat{e}_{it-1} \Delta \hat{e}_{it} - \hat{\lambda}_i) \dots \dots \dots (17)$$

Group ADF

$$\tilde{Z}_t^* = \sum_{i=1}^N \left(\sum_{t=1}^T \hat{s}_i^2 \hat{e}_{it-1}^2 \right)^{-1/2} \sum_{t=1}^T (\hat{e}_{it-1}^* \Delta \hat{e}_{it}^*) \dots \dots \dots (18)$$

5. Empirical Results

Table 1: Summary of Descriptive Statistic

	INVS	LABR	NXPT	RGDP	REXR
Mean	6.10E+09	4158265.	5.90E+09	1.64E+10	775.6984
Median	6.27E+08	1717194.	7.85E+08	2.50E+09	248.4900
Maximum	9.65E+10	58959450	1.17E+11	4.64E+11	18935.00
Minimum	104562.2	18575.00	6045983.	19843261	0.005000
Std. Dev.	1.37E+10	8322418.	1.45E+10	5.45E+10	2376.029
Skewness	3.485014	4.101452	4.526658	5.692939	5.503500
Kurtosis	16.94845	21.00953	27.98297	39.15929	35.81075
Jarque-Bera	8256.652	13299.13	23978.36	48802.62	40671.87
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	4.97E+12	3.39E+09	4.81E+12	1.33E+13	632194.2
Sum Sq. Dev.	1.54E+23	5.64E+16	1.72E+23	2.42E+24	4.60E+09
Observations	815	815	815	815	815

Source: E-views 9 Output

Table 1 shows the summary statistics for all the variables used in the study. Form the estimated result, the means values for all the variables are positive and the standard deviations for all the variables, except LABR and REXR are as minimal as possible. This suggests that the estimated values are as close as possible to their true values. In other word, the errors that are due to the estimates are negligible. Furthermore, all the variables are positively skewed except that they fail the test of normality as revealed by Jarque-Bera probabilities for each variable. Overall, the result of descriptive statistic is fairly robust.

Table 2: Result of Panel Unit Root

 H_0 : Variables contain unit root

Variables	LLC at Levels	LLC at 1 st Diff.	IPS at levels	IPS at 1 st Diff	Remark
RGDP	-2.087 (0.019)	-41.62* (0.000)	-10.62 (1.000)	-1.035* (0.011)	I(1)
NXPT	3.552 (1.000)	26.35* (0.000)	-2.126 (1.000)	-2.335* (0.000)	I(1)
REXR	0.812 (0.572)	24.50* (0.000)	-0.219 (0.587)	-21.37* (0.000)	I(1)

LABR	8.211 (1.000)	35.79* (0.000)	-9.949 (1.000)	-25.18* (0.000)	I(1)
INSV	8.159 (1.000)	16.68* (0.000)	10.03 (1.000)	27.64* (0.000)	I(1)

* denotes stationary at first difference

Values in parenthesis () are probability values.

Source: E-views 9 Output

Table 2 above shows the result of panel unit root test of stationarity. The test was conducted without intercept and trend by using Levin, Lin and Chu (LLC) and Im, Pesaran and Shin (IPS) panel unit root test options. The choice of the LLC and IPS is to allow for comparison of results. The estimated results show that for both LLC and IPS, all the variables are not stationary at levels because the probability values for the estimates are greater than 5 per cent. This implies that the null hypothesis that the variables contain unit root cannot be rejected. At first difference however, the estimated probability for the estimates are less than 5 per cent, implying that the variables are stationary. Hence, all the variables are integrated of order one (I(1)). The presence of unit root in the variables implies that the variables may be co-integrated. Hence, a test of co-integration was conducted to confirm whether or not a long-run relationship exist among the variables of the study.

Table 3: Panel Co-integration: H_0 = No co-integration

	Statistic	Prob.
Panel v-Statistic	1.395130	0.0815
Panel rho-Statistic	-1.008087	0.1567
Panel PP-Statistic	-2.560567	0.0052
Panel ADF-Statistic	-2.270833	0.0116
Group rho-Statistic	0.565724	0.7142
Group PP-Statistic	-1.890928	0.0293
Group ADF-Statistic	-1.535444	0.0623

Source: E-views 9 Output

The table 3 above shows the result of panel co-integration. The test was conducted both for “within and between dimensions”. The result shows that all the panel statistics and group statistic, except panel rho and group rho, are significant as revealed by their probability values. In other word, in a list of seven statistics, five statistics (panel v-statistic, panel PP, panel ADF, group PP and group ADF) reject the null hypothesis of no co-integration at 5% and 10% levels of significance. On this basis it is logical to conclude that the variables of the study are co-integrated. Hence, the variables have a long-run equilibrium relationship. In other word, they move together over the long-run in a balancing manner.

Table 4 Results of Dynamic OLS (DOLS) and Fully Modify OLS (FMOLS)

Variables	FMOLS			DOLS		
	Coefficients	t-statistics	Prob.	Coefficients	t-statistics	Prob.
Log LABR	-1.186283	-2.151399	0.0000	1.215377	2.136870	0.0000
Log INVS	0.399407	4.356489	0.0000	1.011763	8.547047	0.0000
Log NXPT	1.673107	14.28980	0.0000	1.604963	8.428294	0.0000
Log REXR	0.367587	2.068883	0.0389	0.585160	3.068687	0.0023
R ²	0.621			0.790		

Source: eviews 9 Output

Table 4 shows the estimated results for fully modified ordinary least square (FMOLS) and dynamic ordinary least square (DOLS). All the results are highly statistically significant. The result of FMOLS shows that all the variables, except LABR, have positive impact on RGDP. While the estimated coefficients of LABR and NXPT are elastic (1.186 and 1.673 respectively) those of INVS and REXR are inelastic (0.399 and 0.368). In other

word, the elasticity of RGDP with respect to LABR and NXPT are 1.186 and 1.673. The elastic nature of the estimates implies that when LABR and NXPT increases by one unit each, RGDP increases faster than the increase LABR and NXPT. However, INVS and REXR are inelastic suggesting that when the increase by one unit each, RGDP increases slower than the increase INVS and REXR.

Like FMOLS, the result of DOLS shows that all the estimated coefficients are highly significant and elastic except REXR which is inelastic. What could be inferred from the result of FMOLS and DOLS is that export has positive impact on RGDP for all the West African countries investigated. This again supports the economic theory that investment (domestic or foreign) adds to a nation's GDP and promotes economic growth. Similarly, the R^2 from both the FMOLS and DOLS are within acceptable limit as they explained a very significant proportion of variation in RGDP.

5. Conclusion

This study uses the fully modified OLS (FMOLS) and the dynamic OLS (DOLS) to examine export-led growth hypothesis in West African countries over the period 1970 to 2018. The empirical results reveal that investment, Net exports, labor, and real exchange rate significantly affect RGDP for the West African countries investigated. This is in accordance with recent studies such as Chia-yee (2016), Shabaz, Ahmad & Asad (2016) respectively, which highlight the importance of investment and in particular physical capital accumulation in the extraordinary growth experienced by the Asian Tigers.

In addition, evidence from the study clearly endorses the neoclassical theory of exchange rate and supports to a lesser extent the new-fashioned economic wisdom represented by the advocates of free trade and the export led growth hypothesis. The results of the FMOLS and the DOLS verify the export led growth hypothesis (ELGH) as it shows that economic growth is significantly driven by net exports and labor, both of them having positive elasticities in relation to RGDP. The findings reveal that exports had significant impact on economic growth of the West African countries investigated in this study.

6. Recommendation

Based on the findings, the study recommends that the government of West Africa countries should further promote export-oriented firms and should continue with export-led economic growth since there is strong empirical evidence in support of the export-led development agenda. More importantly West African countries need to diversify their export base if the export-led growth agenda is to be sustained.

Furthermore, the positive impact of investment on RGDP suggests that the government needs to invest in technologies that can help in processing its primary export commodities in order to boost its export quality and the revenues. Alternatively, this can be done in partnership with foreign investors. Thus West African countries need to create conducive investment climate for foreign direct investment in the export sector.

Reference

- i. Abbas (2017). *Causality between exports and economic growth: Investigating suitable trade policy for Pakistan*, *Eurasian J. Bus. Econ.* 5(10): 91-98.
- ii. Ahmed, Q.M., Butt, M.S., & Alam, S. (2015), "Economic Growth, Export, and External Debt Causality: The Case of Asian Countries" *The Pakistan Development Review* 39: 4 Part II (Winter 2000) pp. 591-608
- iii. Awokuse, T.O. (2014). *Is the Export-led growth hypothesis valid for Canada?* *Canadian Journal of Economics*, 36(1):126-36.
- iv. Alimil & Awomuse, (2014). *An Econometrics Analysis of Export- Led Growth Hypothesis: Reflection from Pakistan*. *IJCRB*, 2(12), 732-744
- v. André and Joel (2017) *Testing the Export-Led Growth Hypothesis for Botswana: A Causality Analysis*. University of Pretoria
- vi. Balassa, B. (2014) *Export incentives and export performance in developing countries: a comparative Analysis*. *Weltwirtschaftliches Archive* 114, 24-61.

- vii. Buffie, E. (2013), "On the Condition for Export-led Growth?", *Canadian Journal of Economics*, Vol. 25, pp. 211-225.
- viii. Chia-Yee, (2016). Export-led Growth Hypothesis: Empirical Evidence from Selected Sub-saharan African Countries Labuan Faculty of International Finance, Universiti Malaysia Sabah Labuan International Campus Jalan Sungai Pagar, *Procedia Economics and Finance* Volume 35, Pages 232-240
- ix. Chu, A., & Justo (2013). Export-led development hypothesis: Evidence from Turkey *The Global Journal of Finance and Economics*, Vol. 10, No. 2, : 173-182 Department, College of Business, University of Houston
- x. Dawe, D. (2016). A new look at the effects of export instability on investment and growth, *World Development*, 24(12), 1905 – 14.
- xi. Deepika & Neena (2014) Trade-Led Growth in India and China: A Comparative Analysis *The Journal of International and Global Economic Studies*, 68-8
- xii. Edwards, S., (2017). Trade orientation, distortions and growth in developing countries. *Journal of Development Economics* 39, 31– 57.
- xiii. Etale, & lyndon (2016). Export and Economic Growth in Nigeria: A Reconsideration of Evidence": *Journal of Economic Management* Vol. No.1, Pp. 100- 117.
- xiv. Emilio (2014). Is the export-led growth hypothesis Valid for developing countries? A case study of costa rica. Policy issues in international trade and commodities Study series no. 7
- xv. Feder, G. (2013). On exports and economic growth, *Journal of Development Economics*, vol. 12, 59-73
- xvi. Ghatak, S. M. C., & Utku U. (2012). "Exports, Export Composition and Growth: Cointegration and Causality Evidence for Malaysia", *Applied Economics*, Volume 29, Issue 2, pp. 213-223.
- xvii. Grossman, G., & Helpman, E. (2015). *Innovation and Growth in the Global Economy*, Cambridge, MA: MIT Press.
- xviii. Helpman, E., & Krugman, P. (2014). *Market Structure and Foreign Trade. Increasing Returns, Imperfect Competition, and the International Economy*, Cambridge, MA: MIT Press.
- xix. Henriques, I., & Sadorsky, P. (2012). 'Export-led growth or growth-driven exports? The Canadian case,' *Canadian Journal of Economics* 29, 540-55
- xx. Hye, Q.M.A., & Boubaker, H.B.H., (2011). Exports, imports and economic growth: an empirical analysis of Tunisia. *IUP Monet. Econ.* 9 (1), 6–21
- xxi. Tukur M.U., Solomon O.I., & Audu M. (2019). *International Journal of Management and Business Research*, Jan-2019 ISSN(2226-8235) Vol-8, Issue 1
- xxii. Kunst, R.M., & Marin, D. (1989). On exports and productivity: a causal analysis. *Rev Econ Statist* 71 699-703.
- xxiii. Lucas, R.E., (1998). On the mechanics of economic development. *Journal of Monetary Economics* 22, 3 –42.
- xxiv. McKinnon, R. (1964). 'Foreign exchange constraint in economic development and efficient aid allocation,' *Economic Journal* 74, 338-409
- xxv. Mduduzi, & Talent. (2014). Is the export-led growth hypothesis valid for African countries? An application of panel data approach *Public and Municipal Finance*, Volume 3,
- xxvi. Muhammad, Z., & Shafaqatmehmood. (2017). Investigation of export-led growth and growth-led export hypotheses: A study on Pakistan exports to USA, UEA and UK paradigms: A research journal of commerce, economics and social sciences vol. 5, no. 1, pp. 01-13.
- xxvii. Nain, & Ahmad. (2010). "Export-led Hypothesis in Indian : Some Further Evidences *IUP Journal of Monetary Economics*, Vol. 8, No. 3, p. 69-82
- xxviii. Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors", *Oxford Bulletin of Economics and Statistics*, Vol. 61, pp. 653-70
- xxix. Pedroni, P. (2000). Fully modified OLS for heterogeneous cointegrated panels. *Advances in Econometrics* 15: 93-130.

- xxx. Ruba & Thikraiat R., (2014). *Government Size and Economic Growth: A New Framework and Some Evidence from Cross-Section and Time Series Data*, the American Economic Review, 76(1), 191-203.
- xxxi. Ranjan, P.M., (2015). 'Increasing returns and long-run growth', *Journal of Political Economy*, 94, 1002–37.
- xxxii. Ramos, F. R., (2016). "Exports, Imports, and Economic Growth in Portugal: Evidence from Causality and Cointegration Analysis", *Journal of Economic Modeling*, Vol. 18, pp. 613- 623.
- xxxiii. Serletis, A. (20). 14 "Export growth and Canadian economic development", *Journal of Development Economics*, 38, 1 (January): 133-45.
- xxxiv. Shahbaz, Ahmad & Asad, (2016). A contribution to the theory of economic growth. *Quarterly Journal of Economics* 70: 65–94.
- xxxv. Smith, A. (1776), *An Inquiry into the Nature and Causes of the Wealth of Nations*. London, Strahan and Caddell.
- xxxvi. Taban, S., & Akhtar, I. (2016). "An Empirical Examination of the Export Led-Growth Hypotheses in Turkey", *Journal of Yasar University*, pp: 549-564.
- xxxvii. Tsen, W.H. (2014). Granger Causality Tests Among Openness to International Trade, Human Capital Accumulation and Economic Growth in China: 1952 – 1999. *International Economic Journal*, 20(3): 285-302.
- xxxviii. Yelwa, M., & Diyoke, K.O (2013). An empirical investigation of export-led growth amongst some selected ECOWAS countries: an alternative to Foreign Domestic Investment? *Economic Journal of Management Sciences and Economics*, 1(1), 30 – 48.