



EVALUATION OF EXPORT EXPANSION IMPACT ON THE ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

Alieu Gibba

Szent István University, Hungary

Annotation

There is no unanimity in the empirical and theoretical literature on the causal relationship between exports and economic growth. Hence, the article aims to investigate empirically how export determines and sustains economic growth in Sub-Saharan Africa using Angola, Cote d' Ivoire, Nigeria, and South Africa as case studies. The study employs the estimation of the Augmented Dickey Fuller (ADF), unit root, and Granger causality tests to examine the positive effects of export expansion and diversification to economic growth with the aid of a vector auto regression (VAR) model.

The empirical results indicate that the total export of the examined countries positively affects their economic growth (GDP) at a rate of 85.7%, 49.1%, 76.9%, and 87%, for Angola, Cote d' Ivoire, Nigeria, and South Africa respectively. The study suggests appropriate and progressive policies to be implemented in order to diversify and promote exports (including non-oil exports) and construct efficient service infrastructure to support and attract domestic and foreign investment.

KEY WORDS: Economic growth, export, infrastructure, investment, Sub-Saharan Africa.

Introduction

Export development and diversification play a critical role in Sub-Saharan Africa's economy, influencing the level of economic progress, the balance of payments, the balance of trade, and employment. Globalization, reduced tariff barriers, economies of scale, and lowered transport costs, are factors that have assisted export to become a bigger share of national income in Sub-Saharan Africa. Exports are a component of aggregate demand (AD) and growth in this component can create employment, increase AD and cause higher economic growth. The strength of exports has a significant role in determining the current account deficits of Sub-Saharan African countries likewise its relative competitiveness, quality and value added, exchange rate, and long run productivity.

There is no concord in the empirical and theoretical literature on the causal relationship between export expansion and economic growth (GDP). Therefore, this article explores empirically, how export expansion, diversification, and promotion determines economic progress in Sub-Saharan Africa using Angola, Cote d' Ivoire, Nigeria, and South Africa as examined sample countries. The study adopts the estimation of ADF, unit root, and Granger causality tests to investigate the positive effects of export development to economic wellbeing with the aid of a vector auto regression (VAR) model.

The empirical results indicate that the total export of the examined countries positively affects their economic progress and wellbeing (GDP) at a rate of 85.7%, 49.1%, 76.9%, and 87%, for Angola, Cote d' Ivoire, Nigeria, and South Africa respectively. The study suggested appropriate and progressive policies to be adopted in order to diversify and promote exports (including non-oil

exports) and construct efficient service infrastructure to support and attract domestic and foreign investment to finance the balance of payment deficits. The structure of the article is sectioned as follows: Section 2 provides the theoretical and conceptual framework on the causal link between export expansion and economic growth (GDP) Section 3 elucidates the data, methodology, and empirical evidence. Conclusions and policy implications are presented in Section 4.

Theoretical and Conceptual Framework

In recent empirical and theoretical studies on economic growth, poverty alleviation, and the increasing issue of inequality in Africa and beyond, many literature have revealed the determinants / sources of economic growth for better productivity, which were aimed to improve the living standards of the Sub-Saharan African people. "There is available evidence that suggests that investment in public goods such as agricultural research, extension, and roads constitutes one of the most effective tools available for stimulating economic growth and poverty reduction" (Chiona et al., 2014). The achievement of economic growth and development is an important macroeconomic objective in all developed and developing countries. Furthermore, several studies revealed that export expansion is one of the main determinants of economic progress and development which plays a vital role in the reduction of the widespread poverty and inequality in sub-Saharan Africa. The economies of the Asian (especially the four Asian 3 tiger economies; South Korea, Hong Kong, Taiwan and Singapore) and Latin American countries were successfully transformed due to the important role that exports play in the process of economic growth and development (About-Stait, 2005).

Export is viewed as a major driver of economic growth due to its effects on foreign exchange earnings which enables a country to finance its unavailable imports, easing the balance of payment pressure, and creating job opportunities. Mah (2015) investigates the sources of economic growth in Tanzania since its market reforms in the late 1980s. The study adopts the application of the variance bounds co-integration test to economic growth, investment, exports, and aid flow into Tanzania using an error correction model (ECM). His findings reveal that export expansion in Tanzania leads to rapid economic progress due to the positive externalities and economies of scale involved. Since export expansion leads to economic growth, he further argued that the latter does not influence export development in Tanzania. Many researchers believe that sustainable economic growth depends on the ability of economies to create jobs and livelihoods on continuous basis. Some argue that this could be better implemented by private entities rather than state-owned enterprises in sub-Saharan Africa (Kuada, 2014).

It is a well-known fact that poverty alleviation through economic advancement is the fundamental objective of governments of Sub-Saharan African countries. This could be realized through sustainable economic progress and income distribution. For instance, in sub-Saharan Africa, the relationship between economic progress, poverty alleviation, and income distribution has been the major concern of their economies several decades ago. Okodua and Ewetan (2013) used the VAR model to examine the applicability of the Export-Led-Growth (ELG) hypothesis for Nigeria for the period 1970-2010. Their findings from the co-integration and Granger Causality tests did not support the ELG for Nigeria, but however, the authors recommended that government must diversify the product base of the economy, promote non-oil exports, and construct efficient service infrastructure to support private domestic and foreign investment.

A number of studies [as mentioned by Okodua and Ewetan, 2013], with mixed findings that explore the correlation between exports and economic progress in Nigeria include: Omisaki (2009), Chimobi (2010), and Alimi (2012). The relationship between export and growth could also depend on the country's level of economic progress (About-Stait 2005). Martin (1992)

argues that export causes economic growth and development for some major economies including United States, United Kingdom, Germany, and Japan. Conversely, About-Stait (2005) and Arthar et al (2012), find no positive correlation and empirical evidence in support of the export-led hypothesis for Egypt and Pakistan respectively. A number of influential studies investigate the causal relationship between export and economic growth for developed countries, and conclude with empirical evidence in support of the export-led growth hypothesis (Lim, Chia and Man, 2009; Grossman, Rivera-Batiz, and Romer, 1991; Subasat, 2002; Martin, 1992; Boltho, 1996; Helpman, 1990; Awokuse, 2003).

Data, Methodology, and Empirical Evidence

This research collected data from secondary sources including the United Nations Statistics Division database (UNSD). The total export values and GDP of the four most striving Sub-Saharan African countries for a time period of 25 years (1990 – 2014) were collected to test empirically, the long run positive relationship between export expansion and the economic wellbeing of the observed (sample) countries from Sub-Saharan Africa using SPSS and E-views applications. The implications of the findings will have an impact on the rest of the Sub-Saharan Countries. The paper also employs a variety of analytical tools, including co-integration analysis, Granger causality tests, and unit root tests, combined with vector auto regression (VAR) model. The following VAR model was therefore considered for the estimation techniques:

$$\ln GDP(t) = \alpha_0 + \alpha_1 \ln EXPA(t) + \alpha_2 \ln EXPC(t) + \alpha_3 \ln EXPN(t) + \alpha_4 \ln EXPS(t) + \alpha_4 \ln INST + e(t)$$

Where, GDP denotes the gross domestic product. EXPA, EXPC, EXPN, EXPS and INST, represent total exports of Angola, Cote d' Ivoire, Nigeria, South Africa, and institutions respectively. GDP is considered to be the dependent variable while EXPA, EXPC, EXPN, EXPS and INST, are considered to be the independent factors. Well reformed and established inclusive political and economic institutions immensely contribute in economic transformation and have a direct positive effect on the overall economic growth (GDP) and vice-vers

Table 1. Results for Simple Time Series VAR Model for **Angola**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPORTS	1.744353	0.058785	29.67338	0.0000
R-squared	0.856615	Mean dependent var		34.69320
Adjusted R-squared	0.856615	S.D. dependent var		16.87298
S.E. of regression	6.389149	Akaike info criterion		6.586257
Sum squared resid	979.7093	Schwarz criterion		6.635012
Log likelihood	-81.32821	Hannan-Quinn criter.		6.599780
Durbin-Watson stat	0.330745			

(Source: Own study based on the data from UNSD)

Table 2. Results for Simple Time Series VAR Model for **Cote d' Ivoire**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPORTS	2.186293	0.051585	42.38238	0.0000
R-squared	0.490866	Mean dependent var		17.14040
Adjusted R-squared	0.490866	S.D. dependent var		2.852365
S.E. of regression	2.035265	Akaike info criterion		4.298307
Sum squared resid	99.41530	Schwarz criterion		4.347062
Log likelihood	-52.72884	Hannan-Quinn criter.		4.311830
Durbin-Watson stat	0.367426			

(Source: Own study based on the data from UNSD)

Table 3. Results for Simple Time Series VAR Model for **Nigeria**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPORTS	3.742897	0.151435	24.71619	0.0000
R-squared	0.768855	Mean dependent var		161.0648
Adjusted R-squared	0.768855	S.D. dependent var		72.68705
S.E. of regression	34.94614	Akaike info criterion		9.984671
Sum squared resid	29309.59	Schwarz criterion		10.03343
Log likelihood	-123.8084	Hannan-Quinn criter.		9.998194
Durbin-Watson stat	1.510300			

(Source: Own study based on the data from UNSD)

Table 4. Results for Simple Time Series VAR Model for **South Africa**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXPORTS	3.970144	0.063031	62.98745	0.0000
R-squared	0.869858	Mean dependent var		239.6492
Adjusted R-squared	0.869858	S.D. dependent var		53.83256
S.E. of regression	19.42022	Akaike info criterion		8.809685
Sum squared resid	9051.482	Schwarz criterion		8.858440
Log likelihood	-109.1211	Hannan-Quinn criter.		8.823208
Durbin-Watson stat	0.399906			

(Source: Own study based on the data from UNSD)

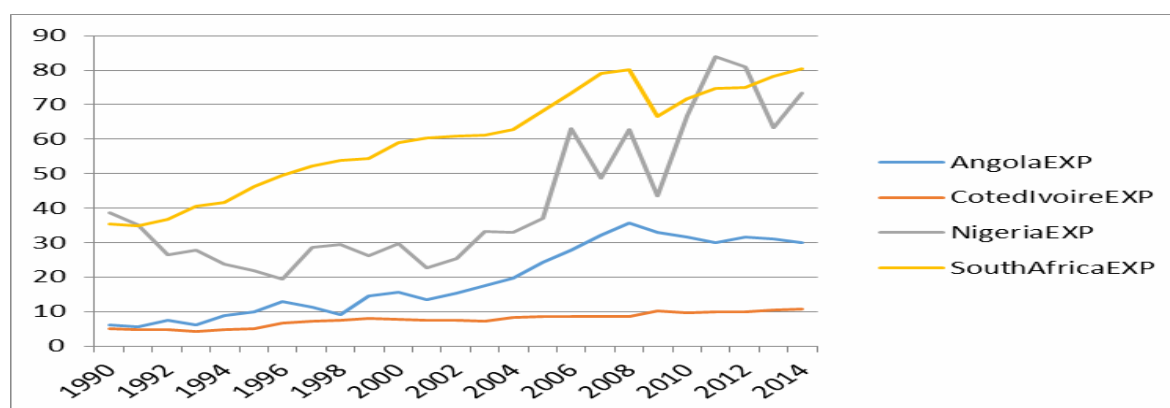


Fig. 1. Export performance of the examined countries from 1990 – 2014

(Source: Own study based on the data from UNSD)

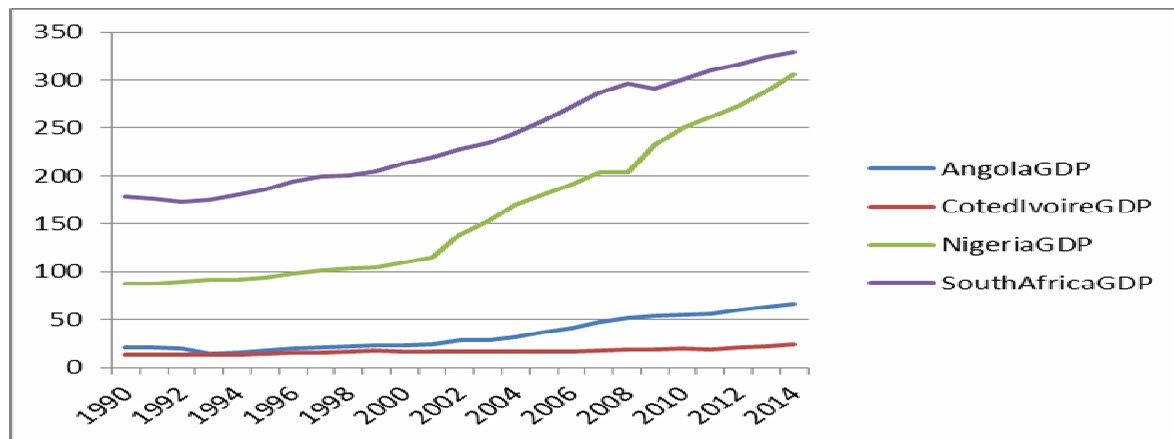


Fig. 2. GDP of the examined countries from 1990 - 2014
(Source: Own study based on the data from UNSD)

From table 1 to 4, it could be observed that the variables are stable [with positive coefficients] and due to this stability, the vector auto-regression (VAR) model was established because the p -value = 0.0000. The coefficients are reasonable because the examined variables can explain GDP at a rate of 85.7%, 49.1%, 76.9%, and 87%, for Angola, Cote d' Ivoire, Nigeria, and South Africa, respectively. Export diversification of the examined countries will greatly impact their economies due to the positive externalities involved. A structural or policy change in the economy might affect these results 5 - 10 years later, but right at this point, this is the situation. The findings from this research conform with the findings of Martin (1992); Lim, Chia and Man (2009); Grossman, Rivera-Batiz, and Romer (1991); Subasat (2002); Boltho (1996); Helpman (1990); and Awokuse (2003), which emphasize that export expansion is a good determinant of economic progress for the examined countries.

Generally speaking, the four countries' GDP are still increasing. South Africa's economic situation is performing better than others'. Nigeria's economy and export industry show visible improvement from 2000 to 2014. South Africa and Nigeria export increased after the 2008 financial tsunami. Angola's export drastically decreased due to the tsunami and some policy changes.

Conclusion and Policy Implications

The main purpose of this article was to test empirically how total export determines economic progress in Sub-Saharan Africa using Angola, Cote d' Ivoire, Nigeria, and South Africa as case studies. The study adopts the estimation of ADF, unit root, and Granger causality tests to examine the positive effects of export expansion and diversification using the vector auto-regression (VAR) model. The empirical results indicate that the total export of the examined [sample] countries positively affects their economic progress and wellbeing (GDP) at a rate of 85.7%, 49.1%, 76.9%, and 87%, for Angola, Cote d' Ivoire, Nigeria, and South Africa, respectively, which quite conforms with the studies of Martin (1992); Lim, Chia and Man (2009); Grossman, Rivera-Batiz, and Romer (1991); Subasat

(2002); Boltho (1996); Helpman (1990); and Awokuse (2003).

Part of the policy implications of this research is that governments of the examined countries as well as those of the remaining Sub-Saharan Africa must adopt appropriate progressive policies to diversify the productive base of their economies. Non-oil exports should also be promoted and expanded in countries like The Gambia, Senegal, Mali, etc. Efficient service infrastructure should be constructed and there should be progressive policies to support domestic and foreign investment. The only way to sustain higher productivity, expand, and diversify exports in Sub-Saharan Africa is to improve the efficiency of resource utilization and to discover the factors affecting them.

References

- About-Stait, F. (2005), Are Exports the Engine of Economic Growth? An Application of Cointegration and Causality Analysis for Egypt, 1977-2003. Economic Research Working Paper, No. 76, Tunis: African Development Bank.
- Alimi, S. (2012), Is the Export-Led Growth Hypothesis Valid for Nigeria? Research Journal of Economics and Business Studies, 12(2), 8-14.
- Arthar, I., Hameed, I. and K. Devi (2012), Relationship between Exports and Economic Growth of Pakistan. European Journal of Social Sciences, 32(3), 453-460.
- Awokuse, T.O. (2004), Is the Export-Led Growth Hypothesis Valid for Canada? Canadian Journal of Economics, 36, 126-136.
- Boltho, A. (1996), Was Japanese Growth Export-Led?. Oxford Economic Papers, 48, 415-432.
- Chimobi, O.P. (2010), The Estimation of Long-run Relationship between Economic and Growth, Investment and Export in Nigeria. International Journal of Business and Management, 5(4); 215-222
- Chiona, S., Kalinda, T., & Tembo, G. (2014). Stochastic Frontier Analysis of the Technical Efficiency of Smallholder Maize Farmers in Central Province, Zambia. *Journal of Agricultural Science*, 6(10), 108.
- Grossman, G.M. and E. Helpman (1990), Comparative Advantage and Long-Run Growth, *American Economic Review*, 80, 796-815.
- Kuada, J. (2014). Economic growth and poverty alleviation in Africa – linking hard and soft economics. *African Journal*

- of *Economic and Management Studies*, 5(1), 2–8.
<http://doi.org/10.1108/AJEMS-03-2014-0016>.
- Lim, S.Y., Chia, R.C.I. and C.H. Mun (2009), Long-run Validity of Export-Led Growth: An Empirical Reinvestigation from Linear and Nonlinear Cointegration Test. *Economics Bulletin*, 30(2), 1182-1190.
- Mah, J. S. (2015). Export Expansion and Economic Growth in Tanzania. *Global Economy Journal*, 15(1), 173–185.
<http://doi.org/10.1515/gej-2014-0047>.
- Marin, D. (1992), Is the Export-Led Growth Hypothesis valid for Industrialized Countries? *Review of Economics and Statistics*, 74(4), 678-688
- Okodua, H., & Ewetan, O. O. (2013). Econometric Analysis of Exports and Economic Growth in Nigeria. *Journal of Business Management and applied Economics*, 2(3), 1-14.
- Omisakin, O.A. (2009), Export-Led Growth Hypothesis: Further Econometric Evidence from Nigeria. *Pakistan Journal of Social Science*, 6(4), 219-223
- Subasat, T. (2002), Does Export Promotion Increase Economic Growth? Some Cross-Section Evidence, *Development Policy Review*, 20, 333-349.
- UNSD – National Accounts
[/http://unstats.un.org/unsd/snaama/dnlList.asp/Gambia](http://unstats.un.org/unsd/snaama/dnlList.asp/Gambia).
Accessed on: [01/05/2016]

RECEIVED: 1 June 2016

ACCEPTED: 20 October 2016

Aliu Gibba, PhD Candidate, Szent István University, Doctoral School of Management and Business Administration, Faculty of Economic and Social Sciences, Institute of Economics, Law and Methodology, Field of Scientific Research: Evaluation of Determinants of Economic Performance in Sub-Saharan Africa: Focusing on Exports and Efficiency in Agriculture, H-2100 Gödöllő, Péter Károly u. 1, Hungary, Fax: +3628410804, e-mail: agibba1@gmail.com

