Article

# Growth Effect of Export Promotion on Non-oil Output in Sub-Saharan Africa (1970–2014)

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### Abstract

The study examines the growth effect of export promotion strategies on non-oil output in the sub-Saharan African (SSA) countries between 1970 and 2014. The study employed panel data and three estimation techniques (pooled ordinary least square [OLS], fixed effect, and dynamic generalized moment method [GMM]) to analyze the data. In addition, export promotion policies (EPPs) such as commercial bank credit to private sector, foreign direct investment (FDI) to non-oil sector, real effective exchange rate, and government expenditure were used. Results show that all export promotion policy instruments used have a significant effect on non-oil output in SSA. Also, while bank credit to private sector have positive and significant effect, FDI, government expenditure, and exchange rate will crowd out growth effect of export promotion. The study concluded that favorable EPPs will stimulate non-oil output growth.

#### **Keywords**

Export promotion strategies, non-oil output, growth, GMM, SSA

## Introduction

Empirical evidences have shown that the economic prosperity of many successful economies today has been mainly driven by the volume of trade, interpreted as the volume of exports traded and the level of export competitiveness. Many forces determine the international flow of goods and services; export promotion is one of the principal opportunities that governments have to influence the volume and types of goods and services exported from their countries. Export promotion has been defined as those policy measures which actually or potentially enhance exporting activities at the firm, industry, or national level (Coughlin & Cartwright, 1987; Fayos, 2003; Freixanet, 2012;

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Gencturk & Koabe, 2001; Girma, Gong, & Zhihong, 2008; Houston, Adhikari, & Paudel, 2003; Jalali, 2012; Jung & Lee, 1986; Lederman, Olarreaga, & Pavion, 2010; Mah, 2007; Onunkwo & Epperson, 2000; Wang, 2005).

The export promotion stated in relation to exporting in general is purposeful governmental efforts to expand the volume of a country's export through export incentives and other means in order to generate more foreign exchange and improve the current amount of its balance of payments (Todaro, 1994). According to Todaro (1994), export incentives also include preferential investment financing and low-cost labor, assistance in getting new technologies, export credit insurance, information about foreign markets, training, etc. Export success, as argued in the literature, is attributed to different issues such as cost competitiveness (Carlin, Glyn, & Van Reenen, 2001), quality of products (Seyoum, 2009, p. 70), export subsidies (Kokko, 2002), and foreign direct investment (FDI) (Pain & Wakelin, 1998; Potter, Moore, & Spires, 2002). OECD (1984) also defines export promotion policies (EPPs) as the set of specific measures that generally amount to the government bearing a portion of the private cost of production of export. Instead, others have more narrowly defined EPPs as the effective exchange rate policy (e.g., Bhagwati, 1990). In general, EPPs involve all the measures and programs aimed at assisting current and potential exporters in foreign markets penetration and, for instance, export subsidies, reduced tax rates to exporting firms' earnings, favorable insurance rates, advantageous financial conditions, or variations in the exchange rates (Belloc & Di Maio, 2011).

In view of this, various EPPs have been established by various countries to pool the economy out of the woods. Increasing export is rated among the highest priorities of any government in both developed and developing countries (Belloc & Di Maio, 2011). The underling idea is that favoring domestic export is conducive to economic growth (Giles & Williams, 2000; Harrison & Rodríguez-Clare, 2009; UNCTAD, 2008b). EPPs have been widely used by most of the countries around the world (Belloc & Di Maio, 2011). The countries in the sub-Saharan Africa (SSA) have also adopted and used various EPP instruments ranging from export subsidies, export financing, effective exchange rate policy to training programs for exporters. Since the early 1980s, many SSA countries have adopted economic and trade policy reforms under structural adjustment programs sponsored by the Bretton Woods institutions, channeled toward promoting export and economic growth. Emphasis has been placed on a reduced role for the state, greater reliance on market forces, and a rapid opening up to international competition as the keys to unlocking Africa's growth potential. However, despite many years of policy reform, hardly any country in the region has successfully completed its adjustment program with a return to sustained growth.

For instance, the percentage share of primary commodities export in SSA to world's primary commodities export fell from 6.6 percent in 1971 to 4.9 percent and 4.1 percent consecutively in 1979 and 1986 (UNCTAD, 1989c). Regarding declining export shares, SSA countries, like other developing countries, faced slow growth in world markets for their traditional primary commodity exports. But they also failed to boost alternative exports, for example, nontraditional primary products and manufactures (Svedberg, 1988). Between the periods 1970-1980 and 1980-1987, some SSA countries experienced very sharp declines in their gross domestic product (GDP) growth rates; Gabon, from 9 percent to 0.6 percent; Nigeria, from 5.4 percent to 1.9 percent; Sao Tome and Principe from 5.4 percent to 5.9 percent; Seychelles from 5.8 percent to 0.7 percent, and many other countries in SSA. Also, improvements in export performance following trade and export liberalization policies have been limited in most African countries. Within the period 1995-2006, as a proportion of GDP, exports in Africa increased by only 10 percent following

liberalization. In comparison, non-African developing countries saw their exports as a share of GDP increase by 62 percent (UNCTAD, 2008a).

In view of these challenges as stated above, one begins to doubt the efficacy of the export promotion strategies being adopted by SSA countries. This brings to the fore the reason and motivation behind this study and provoked the study to examine if export promotion strategies adopted by SSA countries have effect on non-oil output. This article investigates the growth effects of export promotion strategies on non-oil output in SSA. Apart from the introductory section, the second section briefly looks at the instruments of EPPs to promote export in SSA. The third section reviews the literature, both theoretical and empirical. The fourth section presents the empirical methodology, analysis, results of findings, and discussion, while the fifth section concludes and presents policy implications.

# An Overview of the Instruments of Export Promotion Policies in SSA

Reduction of domestic marketing costs is a policy for promoting exports. Marketing costs in some SSA countries absorbed the largest share of export proceeds, taxation took the next largest share (although in certain countries, such as Uganda, taxes on coffee exports took the largest share of export proceeds), and growers received the residual share. As stated by Lyakurwa (1991), the reasons for the high marketing costs include overemployment, high transport costs relative to efficient fleet operators, long delays in sales and collection of proceeds (increasing finance and storage cost as well as high physical losses), poor management, and embezzlement.

Tariff protections are another EPP which is commonly used in SSA countries. Most SSA economies are characterized by high levels of tariff protection coupled with pervasive quantitative restrictions (QRs). Tariffs on imports were one of the main instruments used to protect domestic industries in Africa. Trade liberalization policy sought to simplify tariff structures, reduce the number of tariff bands, and reduce tariff levels. During the 1960s and the 1970s, most African countries built up, quite often in a rather disorganized manner, highly interventionist and protectionist trade regimes. From the early 1980s, many African countries started the process of rationalizing and liberalizing their trade regimes. Although progress across the countries involved was not even, there is clear evidence that, by the early 1990s, protection of import substituted by tariffs and nontariff barriers in SSA as a whole has declined (Nash, 1993). It was estimated that the level of protection fell by between 30 percent and 50 percent over the period from the mid-1980s to the early 1990s. In addition, most African countries have substantially reduced the number of import subject to quantitative barriers while also moving from tightly controlled to more open importing systems. According to the World Bank (1995), the greatest progress was achieved in replacing QRs with less dispersed tariff levels; more than half the countries have average tariff rates of 15-20 percent with the highest rates set at 35-40 percent, and the number of tariff categories reduced to 4-5 percent. Overall, tariff levels in Africa were nearly halved between 1995 and 2006, from 22 percent to 13 percent (UNCTAD, 2008a).

In some SSA countries, trade tax is another EPP used to stimulate export. Trade taxes constitute, on an average, around a quarter of government recurrent revenues and close to half of total tax revenues. The governments in Uganda, Burkina Faso, Sierra Leone, Sudan, Swaziland, and Mauritius collect as much revenue from trade as they do from all other sources combined (Rodrik, 1988). The term tax is used to describe the margin between export and producer prices regardless of the institutional arrangements in the markets for export crops (UNCTAD, 1998). The rate of taxation is dependent on the exchange rate. The border price is determined by the nominal exchange rate and dollar prices received by exporters in international markets. A lower exchange rate would thus raise the domestic currency prices received by exporters. If prices paid to farmers remain unchanged, or are raised by less than the rate of devaluation of the currency, the tax rate will rise. Such behavior was observed after the post-1986 devaluations in a number of countries in SSA when prices received by farmers declined relative to unit export values. Even when devaluations lead to a widening of the margin, they tend to raise real producer prices of export crops vis-à-vis nontradables, thus providing incentives for exports (UNCTAD, 1998).

Africa needs to attract private capital with a long-term commitment to the region. The facilitation of FDI is another strategy annexed by some SSA countries in promoting export. FDI can make a growing and positive contribution to the extent that it brings productive assets to complement domestic resources and improves linkages with overseas markets. Many SSA governments have, over the past decade, made concerted efforts to attract FDI by liberalizing their investment laws, including easing restrictions on entry and on-profit remittances and strengthening protection of intellectual property, as well as by offering generous fiscal incentives (UNCTAD, 1995). However, the flow of FDI to Africa continues to be minimal, a situation which reflects the weak growth performance of the region. Whether in search of markets or cost advantages, FDI is attracted by success.

Exchange rate policy is another EPP undertaken by some SSA countries to maintain flexible rate, have one-shot devaluation, raise price of exports, create/strengthen export promotion unit, subsidize credit by increasing export development fund, remove licenses by simplifying procedures, reimburse import duties to exporters, subsidize exports directly, introduce/improve export insurance, reduce export taxes, reduce variations in effective rates of protection, introduce/expand free-trade zones/ bonded warehouses, facilitate direct foreign investment, and assist firm with transitional problems (Lyakurwa, 1991; Meier & Steel, 1989; Rodrik, 1988). The key objectives of these exchange rate policies are to raise the price received by exporters, simplify the trade regime, and reduce the reliance on QRs (Rodrik, 1988). According to him, devaluation increases the relative price of tradeables relative to those of nontradeables. In principle, devaluation is less selective than commodity-specific tax reductions (or subsidy increases) and should be neutral between commodity and other exports and among commodities. Many African countries suffered from a severe overvaluation of their currencies prior to trade liberalization. This constituted an important disincentive for exports as it rendered domestic products less competitive in foreign markets and created important pressures for trade protection. Exchange rate liberalization has been largely successful in Africa. From an average unweighted average of over 200 percent in the period 1981-1985, the parallel exchange rate premium fell to under 50 percent in the late 1990s (UNCTAD, 1998).

Despite the various efforts by countries of SSA toward promoting export in order to unlock the export and growth potentials of the region, several problems still persist. First, as identified by Nash (1993), there has been little progress in establishing efficient systems to give exporters access to inputs at internationally competitive prices. Apparently, the various institutional mechanisms for achieving this objective, such as exportprocessing zones or duty drawback and exemption schemes have proved to be surprisingly difficult to effectively establish in many African countries. Second, the trade liberalization efforts in African countries have generally suffered from credibility and sustainability problems that are traceable to frequent reversals (Oyejide, Ndulu, & Gunning, 1999). And last, at the end of the 1990s, African trade barriers remained much higher than those of other developing regions in Asia and Latin America and the Caribbean. According to Oyejide (1999), three factors suggest that these observations by Nash (1993) should not be surprising because: (a) unlike Africa, other developing regions have succeeded in establishing fairly efficient, robust, and export-oriented manufacturing sectors that need much less protection; (b) they are much less dependent on trade taxes for fiscal revenue; and (c) the developing country regions of Asia and Latin America started their trade liberalization experiments much earlier than African countries and have therefore moved much further along the way.

# Export Promotion and Growth: A Review of Relevant Literature

Many authors have tried to show the relationship between export and output growth in different ways. The aggregate production function specifies the level of exports, labor, and capital as inputs in production function. Other frameworks such as that of Kaldor (1970), Thirlwall (1979), and Feder (1982) also incorporated export in their production function. The broad literature concerning the relationship between trade and growth has been the consequence of the many changes that have taken place in the fields of development economics and international trade policy in the last three decades. The transition from inward-oriented policies to export promotion strategy is an example of these changes. In the early 1980s, export-led orientation and export promotion had already held a wide consensus among researchers and policymakers, to an extent that they had become common knowledge among most economists in the developing world (Balassa, 1985).

In recent times, the need for assessing and improving EPPs has been considered one of the most important emerging issues in international business research (Czinkota, 2002). The main objective for these EPPs (as argued by Gencturk & Koabe, 2001; Shamsuddoha & Ali, 2006) is to act as external resources for firms to gain knowledge and experience that is vital for successful foreign market involvement. Some of these EPPs involve the creation of awareness of exporting as a growth and market expansion opportunity, the reduction of export barriers, and providing incentives and different forms of assistance to potential and current exporters (Seringhaus & Rosson, 1990).

EPPs have been found effective in many countries of the world in stimulating export and economic growth. Chao-Wei Lan (2001) presented empirical evidence to show the contributions of the EPPs and foreign capital to Singapore's economic growth, using growth-accounting data. He found that Singapore has grown entirely through high capital accumulation from domestic savings and foreign capital. The EPPs also played a major role in the accumulation of physical capital through forced national saving and the policies to attract foreign capital. Seringhaus and Botschen (1991) evaluated, from a company perspective, export promotion systems in Canada and Austria. They conducted a survey of stratified samples of 271 exporters in Canada and 312 in Austria, and their result shows significant differences in perceived usefulness of services given similar exporter needs. In their investigation, Austrian companies appear more inclined to use export support and generally seem more willing to acquire exporting know-how externally compared to Canadian firms. The result of this investigation was inconclusive; this is because both Canadian and Austrian systems suffer from low program use, and both levy criticisms at the usefulness and make concrete suggestions on how to improve their systems.

Furthermore, EPPs have been found effective in Mexico and Honduras, while in Costa Rica there were no significant effect of export promotion programs on rice export (Wang, 2005). EPPs have been found to have positive effect in South Africa (Shamsuddoha, 2004), in Chile (Roberto & Gustavo, 2000), and developing countries (Martineus & Carballo, 2010).

However, some early researchers found two common weaknesses of export promotion programs: the lack of information about what services specific groups require and the inability of policy developers to effectively target export assistance efforts to prospective users (Weil, 1978). Nothdurft (1992) also argued that the competitive position and export performance of companies are attributed to the private market forces and not to government promotion programs. Furthermore, claims of considerable improvement in export performance credited to these programs are considered self-serving post hoc rationalizations by many critics, since most states do not have reliable evidence or crucial statistics to either support or contradict these claims.

In a survey carried out by Fu and Gao (2007) on the role of export processing zones (EPZs) on the economy of China, they asserted that the national and provincial development zones have played an important role in the Chinese economy and are regarded as the engine of growth in the regions. According to them, despite their limited area they have greatly contributed to FDI inflows and trade, especially the processing trade and high tech exports, together with industrial output and GDP. However, apart from the economic impact of the EPZs, they have social impact in China which varies across different fields from wage levels, informal and female employment, labor training and skill upgrading, and the setting up of worker's organizations to assure corporate social responsibility. Though EPZs phenomenally increased gross exports, foreign exchange earnings, and employment in absolute terms in India, their growth rates declined substantially. However, EPZs failed to promote nontraditional exports in India (Aggarwal, 2004).

More countries have established export promotion agencies (EPAs) as part of their export promotion strategies as well as means of facilitating export. Lederman et al. (2006) investigated the impact of existing EPAs and their strategies, based on a new data set covering 104 developing and developed countries. The results using a 2SLS maximum likelihood Heckman estimator suggest that on average, EPAs have a strong and statistically significant impact on exports. For each \$1 of export promotion, they estimated a \$40 increase in exports for the median EPAs.

In further investigating the effects of EPAs on export and economic growth, Usman and Salami (2009) conducted a study on the contribution of Nigerian Export-Import (NEXIM) Bank toward export (non-oil) growth in Nigeria. The study took into cognizance the simple econometric analysis model, using the ordinary least square (OLS) method of estimation. They suggest that non-oil exports performances during these periods remained less than satisfactory, as evidenced with high sensitivity of prevailing levels of exporter's transparency or lack of it. Also, a related study being carried out in Nigeria to establish the effect of export promotion strategies on export and output growth, Onaolapo and Odevemi (2012) investigated the relationship between available forms of finance and performance of cocoa-processing firms in Lagos State, Nigeria, and confirmed strong and positive correlation between finance sources and the performance of agricultural sectors. Efobi and Osabuohien (2010) assessed interaction between Agricultural Credit Guarantee Scheme Fund (ACGSF) which was established with the aim of enhancing commercial bank's loans to the agricultural sector in Nigeria with focus on agro-allied and agricultural production and non-oil export using the Vector Auto-Regressive (VAR) technique. Their study found, among others, that there exists a long-run relationship between the ACGSF and export, but the magnitude is minimal.

As argued by Pain and Wakelin (1997) and Potter et al. (2002), FDI can also be used as an instrument of EPP. Investigating the effect of FDI on export performance, Gu, Awokuse, and Yuan (2008) stated that FDI flow into China has statistically significant and positive effects on its exports, and it exhibits differences across sectors. There are other conflicting theoretical views on the role of FDI on export. Several cross-country studies found support for the hypothesis of a negative relationship between FDI and export (Horst, 1972; Jeon, 1992; Sharma, 2000). Furthermore, Lall and Mohammad (1983) and Sharma (2000) do not see any statistically significant impact of FDI on Indian exports. In contrast, other studies indicated that FDI actually have a positive effect on export performance of host countries, as found in Ireland (O'Sullivan, 1993), Portugal (Cabral, 1995), and the United Kingdom (Blake & Pain, 1994), etc.

## Methodology, Measurement of Variables, and Data Source

This study adopts the Cobb–Douglas production function with constant returns. Non-oil output is specified as a function of technology, capital, and labor (as shown in Equation 1). Taking logarithm of both sides in Equation (1), we obtain Equation (2). To incorporate instruments of EPP into Equation (2), ln(A) is decomposed into five separately observable parts. The reason behind this is that measures of export promotion are classified as part of technological innovations (Romer, 1986). Therefore, technology can be decomposed into five parts (as shown in Equation [3]). By substituting Equation (3) into Equation (2), it gives Equation (4), as shown in Appendix 2 where:

$Y_{it} =$	Non-oil Output
$\varphi_{it} =$	Intercept
$K_{it} =$	Capital
$L_{it}$ =	Labor
$CB_{it} =$	Commercial Bank Credit to Private Sector
$FD_{it} =$	Foreign Direct Investment
$EX_{it} =$	Real Effective Exchange Rate
$GE_{it} =$	Government Expenditure
$\in_{it}$ =	Error Term

The study used panel data for the analysis. Data were selected from 44 SSA countries, covering the

period of 1970 to 2014 (44 years). Due to incomplete data in few of the selected countries used, the study adopted unbalanced panel data. The list of the selected countries is provided in Appendix 1. The dependent variable is the non-oil output. This is defined as output from all sectors of the economic minus oil output. Capital is proxied by the gross fixed capital formation while labor is measured by total workforce. Measures of export promotion includes commercial bank credit to private sector, FDI to non-oil sector as a percentage of net inflows, real effective exchange rate, and government expenditure, measured by government final consumption expenditure. All data were sourced from the World Bank indicators (online version). Data were measured in logarithm form.

## **Data Analysis and Empirical Results**

In order to examine the growth effect of export promotion on non-oil output in SSA, this study describes the characteristics of the data used. We investigate the descriptive statistics and the correlation matrix of the sample countries used in SSA. The descriptive statistics of data series provide information about sample statistics such as mean, median, minimum value, maximum value, and distribution of the sample measured by the skewness, kurtosis, and the Jarque–Bera statistic. Table 1 shows the descriptive statistics of the SSA countries used in this study from 1970 to 2014.

The result in Table 1 shows that all the series display a high level of consistency as their mean and median values stay within the maximum and minimum values of these series. For instance, the growth rates of capital and non-oil gross domestic product are a little high though, with mean values of 20.3 percent and 21.8 percent, respectively. The mean values of FDI and government expenditure of 0.534277 and 2.702167, respectively, reveals that FDI and government expenditure are minimal for the study. The deviation of the actual data used from the mean values is very small. This is shown in the relatively low values of the studyard provides of the study.

deviation, which measures the degree of dispersion or the level of variation. The standard deviation of exchange rate of 3.482556 is the highest comparatively, and it shows the unstableness in the growth rate of exchange rate. This tells the rate of volatility in the exchange rate among countries of SSA. Though some of this countries practice fixed exchange rate system, a large proportion of the countries allow market forces to determine their exchange rates. The result also shows that capital, government expenditure on agriculture, and non-oil GDP has near-normal distribution as their skewness values are 0.037, 0.08, and 0.019, respectively. Three variables are leptokurtic peaked; commercial bank loan to private sector, real exchange rate, and FDI.

The correlation matrix was obtained for both the independent and dependent variables to examine the degree of a possible association among the variables. The correlation matrix usually provides information about the degree and direction of the relationship among the variables. The correlation matrix result is presented in Table 2. The result of Table 2 shows that only government expenditure and real exchange rate have negative relationship with non-oil output while others are positively related with non-oil GDP. The result shows that there is strong and positive association between capital and non-oil GDP with value 0.827 and it is also significant (with p-value = 0.0000). It also shows that there is strong association between FDI and commercial bank to private sector, while other variables are weakly associated with non-oil GDP. The correlation matrix has shown interesting results on the relationship between dependent and independent variables. One of the major considerations in econometric analysis concerning time series data is the nonstationarity of underlying data. If nonstationarity is not reported in the estimation process, it may lead to spurious regression with dire negative consequences for public policy. Therefore, we performed a unit root test in the study on the basis of research by Im, Pesaran, and

Shin (2003) and Levin, Lin, and Chu (2002). The results of the unit root test are shown in Table 3.

The unit root test result of Levin et al. (2002) and Im et al. (2003) in Table 3 show that some of the variables are stationary at level while others are at first difference, both without trend and with trend. By implication, this means that all variables are not stationary at level despite the fact that they are at first difference. However, among all the variables, government expenditure alone is consistently stationary for both Levin et al. (2002) and Im et al. (2003) tests, while all other variables are integrated of order I(1), and we reject the null hypothesis of unit root.

This study uses three forms of functional estimation techniques in order to determine the relationship between export promotion and non-oil output in SSA. The three functional forms used include: pooled OLS, the fixed effect model, and generalized moment method (GMM) estimation. The results of the pooled OLS, fixed effect, and GMM are presented in Table 4 (as shown in Appendix 3). The pool OLS result shows that two out of the four export promotion instruments (i.e., government expenditure and FDI) have negative relationship with non-oil GDP and are statistically significant. For instance, FDI and government expe-nditure with coefficient -0.036853 and -0.011989 shows a statistically significant negative relationship with non-oil GDP at 5 percent level of significance which is consistent with the results in the fixed effect and panel GMM estimation. To check for the rob-ustness of pool OLS, the model was further estimated using panel fixed effect and panel GMM. The coe-fficient of exchange rate is consistent with a priori expectation and economic theory and also in line with the works of Imoughele and Ismaila (2015); Ojo and Alege (2014); Akinlo and Apanisile (2015); and Kuijs (1998). This by implication says that a higher exchange rate leads to a lower growth of nonoil output in SSA countries. The direction of relationship of government expenditure with non-oil output is consistent all through. The negatively signed coefficient of government expenditure shows that an

increase in government expenditure will lead to a reduction in non-oil GDP. This is contrary to the findings of Belgrave and Craigwell (1995), though a disaggregated approach; they suggested that government spending in most sectors has positive effect on economic growth. N. P Chude and D. I. Chude (2013) and Yasin (2002) also found a positive relationship between government expenditure and growth. However, the result in this study is in line with the findings of Koeda and Kramarenko (2008). Government expenditure may have crowding-out effect on the economy of SSA, this can be attributed to the negative sign of government expenditure.

FDI shows a negative and significant relationship with non-oil output, as repeated both in the fixed effect and the panel GMM. Contrary to the work of Rachdi and Saidi (2011); Juma (2012); and Alici and Ucal (2003), we found that an increase in FDI will lower non-oil output. This is not consistent with what the theory says. This could be due to the channeling of foreign investment in some of the countries in SSA. Some bulk of FDI comes in form of human resources and other forms that may not have direct impact on the host economy. The commercial bank's credit to private sector has positive and statistically significant relationship with nonoil output, similar to the result in panel GMM. This implies that 1 percent growth in commercial bank's loan will lead to 0.09 percent growth in non-oil output in SSA. This positive relationship of commercial bank's loan with non-oil GDP is consistent with the findings of Fukuda (1999) and Yakubu and Affoi (2014). Other variables (i.e., labor and capital) have positive relationship with non-oil GDP, and the results are also statistically sig-nificant. The coefficient of capital is very high, significant, and positive; this implies that an inc-rease in capital will lead to a huge increase in non-oil output. Growth in labor will also lead to growth in non-oil output in SSA, though the result is statistically insignificant under panel GMM. The lagged dependent variable is positive and statistically significant at 1 percent with a value of 0.787407 and

a *p*-value of 0.0000. This fundamentally means that the level of non-oil output in SSA in the pre-vious period will definitely impact on the level of non-oil output in the current period. The R<sup>2</sup> value of 0.73 for pool OLS estimation implies that the proportion of variance that cannot be explained is lower in this study.

### Conclusion

Many studies have investigated the effect of EPPs on economic growth, both in developed and developing countries. Most of these studies have focused on specific EPPs such as exchange rate policy, tax policy, incentives by way of subsidies, grants, financial supports, trainings, etc. Some studies have also used a holistic approach on the effect of export promotion on output. This study, therefore, examines the effect of EPPs on non-oil output in SSA. This study is a little different to other studies as it focuses on the effect of EPPs on non-oil output using a holistic approach (i.e., using multiple export promotion instruments) and a quantitative measure. The study used three different estimations, namely the pooled OLS, fixed effect, and GMM to determine the effect of EPPs on non-oil output in SSA. The study used EPPs such as commercial bank credit to private sector (measuring the contribution of private sector), FDI to non-oil sector as a percentage of net inflows, real effective exchange rate, and government expenditure (to capture all government incentive, that is, subsidies, grants, financial supports, institutional effects, etc.), measured by government final consumption expenditure.

The results of this study showed that all the EPPs instruments used have significant effect on non-oil output in SSA. The export promotion instruments we used in this study (i.e., commercial bank's loans to private sector, FDI, exchange rate, and government expenditure) have significant effect on non-oil output. This, for instance, implies that high exchange rate will have adverse effect on non-oil output in SSA. Thus, we conclude that favorable EPPs (i.e., using the instruments appropriately) will stimulate non-oil output growth. Policymakers should encourage implementation of EPPs in order to stimulate growth in non-oil sectors in SSA. One of the limitations of this study is the inability to capture data of more specific export promotion instruments of countries under consideration. General instruments that were available and could stand as a proxy to capture the export promotion effort by the countries under consideration were used in the study. However, further studies should improve on the comprehensiveness of data to enhance more qualitative results.

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#### Appendix 1. List of the Selected Sub-Saharan African Countries

Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroun, Cape Verde, Central African Republic, Chad, Comoros, Congo Democratic, Congo Republic, Cote d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Mali, Malawi, Mauritania, Mauritius, Mozambique, Niger, Namibia, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, South Sudan, South Africa, Sudan, Swaziland, Togo, Uganda, Zambia.

## **Appendix 2. List of Equations**

Equation (1): 
$$Y_{it} = AK_{it}^{\alpha}L_{it}^{\beta}$$
  
Equation (2):  $\ln(Y_{it}) = \ln(A_{it}) + \alpha ln(K_{it}) + \beta ln(L_{it})$   
Equation (3):  $ln(A_{it}) = \ln(\varphi_{it}) + ln(CB_{it}) + \ln(FD_{it}) + \ln(EX_{it}) + \ln(GE_{it})$   
Equation (4):  $\ln(Y_{it}) = \ln(\varphi_{it}) + \alpha ln(K_{it}) + \beta ln(L_{it}) + ln(CB_{it}) + \ln(FD_{it}) + \ln(EX_{it})$   
 $+ \ln(GE_{it}) + \epsilon_{it}$ 

## Appendix 3. List of Tables

Table I. Descriptive Statistics

	CAP	СВ	EXC	FDI	GE	LAB	NGDP
Mean	20.3086	2.85878	3.82747	0.53428	2.70217	14.8737	21.795
Median	20.3991	2.64899	4.62755	0.49403	2.67723	15.0791	21.8601
Maximum	25.0805	15.2837	9.85579	17.9666	4.46482	18.986	27.0663
Minimum	14.4887	-0.2043	-17.524	-13.553	0.71644	10.4757	17.4191
Std. Dev.	1.59527	1.81534	3.48256	2.81121	0.45315	1.42391	1.56904
Skewness	0.03706	4.60818	-3.3916	2.46716	0.08285	-0.3642	0.01949
Kurtosis	3.02929	28.1911	18.7832	16.2919	3.72647	3.08375	3.27776
Jarque-Bera	0.48657	55134.4	22613.7	15403.2	42.5432	41.1808	6.02815
Probability	0.78405	0	0	0	0	0	0.04909
Sum	37347.5	5257.3	7038.71	982.536	4969.29	27352.8	40080.9
Sum Sq. Dev.	4677.51	6057.06	22291.6	14525.5	377.429	3726.56	4524.94
Observations	1839	1839	1839	1839	1839	1839	1839

Source: Computed with Eviews 9 by the authors.

## Table 2. Correlation Matrix with Probability

Prob.	САР	CBL	EXC	FDI	GE	LAB	NGDP
CAP	I						
	—						
CBL	0.11519	I					
	(0.0000)	_					
EXC	-0.0932	0.02046	I				

(Table 2 continued)

	(0.0001)	(0.3807)	_					
FDI	0.11988	0.64283	0.02303	I				
	(0.0000)	(0.0000)	(0.3236)	—				
GE	-0.1552	-0.0413	-0.2155	-0.0598	I			
	(0.0000)	(0.0768)	(0.0000)	(0.0103)	_			
LAB	0.43295	0.08568	-0.2463	0.02331	-0.2563	I		
	(0.0000)	(0.0002)	0.0000)	(0.3178)	(0.0000)	—		
NGDP	0.82744	0.17341	-0.118	0.10364	-0.229	0.51712	I	
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	—	

(Table 2 continued)

Source: Computed with Eviews 9 by the authors.

## Table 3. Unit Root Test

	Levine et al				Im et al			
Variables	without trend	rmk	with trend	rmk	without trend	rmk	with trend	rmk
InCBL	-11.1625***	l(1)	-7.74300***	l(1)	-21.3537***	l(1)	-18.6621***	l(1)
	(0.0000)	(1)	(0.0000)	(')	(0.0000)	(1)	(0.0000)	
InFDI	-7.92094***	1(1)	-2.34702***	1(1)	-3.99452***	1(0)	-3.33837***	I(0)
	(0.0000)	l(1)	(0.0095)	l(1)	(0.0000)	I(0)	(0.0004)	
InGE	-4.54169***	1(0)	-2.98561***	1(0)	-4.1975***	1(0)	-1.66485**	I(0)
	(0.0000)	l(0)	(0.0014)	I(0)	(0.0000)	I(0)	(0.0480)	
InEXC	-4.07797***	1(0)	-6.49178***	1(0)	-19.196***	l(1)	-3.33047***	I(0)
	(0.0000)	I(0)	(0.0000)	I(0)	(0.0000)		(0.0004)	
InNGDP	-2.94372***	1(0)	-18.8834***	1(1)	-18.9118***	l(1)	-17.1127***	l(1)
	(0.0016)	I(0)	(0.0000)	l(1)	(0.0000)		(0.0000)	
InCAP	-15.5141***	1(1)	-1.89531**	l(0)	-18.3794***	1(1)	-17.1043***	1(1)
	(0.0000)	l(1)	(0.0290)	1(0)	(0.0000)	l(1)	(0.0000)	l(1)
InLAB	-7.74708***	1(0)	0.12006*	l(1)	-4.54075***	1(0)	-3.93412***	1(1)
	(0.0000)	I(0)	(0.0547)		(0.0000)	I(0)	(0.0000)	I(I)

**Source:** Computed with Eviews 9 by the authors.

#### Table 4. Estimates of Panel Analysis

Variables	Pool OLS Effect	Fixed Effect	GMM
С	4.908394***	12.4827***	
	(0.0000)	(0.0000)	
InNGDP(-1)			0.787407***
			(0.0000)
InCBL	0.098800***	-0.135847***	0.01565**
	(0.0000)	(0.0000)	(0.0121)
InFDI	-0.036853***	-0.005998	-0.001874*
	0.0000	(0.4710)	(0.0838)
InGE	-0.269117***	-0.322701***	-0.101435***
	(0.0014)	(0.0000)	(0.0000)
InEXC	-0.011989**	-0.06945***	0.022523***
	(0.0436)	(0.0000)	(0.0000)
InCAP	0.724799***	0.504258***	0.170038***
	(0.0000)	(0.0000)	(0.0000)
InLAB	0.179998***	0.040397**	0.008793
	(0.0000)	(0.0278)	(0.1971)
R <sup>2</sup>	0.728139	0.8726	
Adjusted R <sup>2</sup>	0.727249	0.865733	
F-statistics	817.79	127.0765	
D-Watson	0.121775	0.159912	
J-statistics			18.93551
Instrument Rank			48
No. of Observation	1839	1839	1652
Cross Section Included	45	45	45

Source: Computed with Eviews 9 by the authors.

Note: t-values are in parentheses. Due to endogeneity problem between FDI and GDP, also between volatility of oil price and exchange rate volatility. The list of instrument employed for GMM include: c NGDP (-1) CBL (-1) GE(-1) EXC(-1) LAB(-1) CAP(-1) FDI(-1); \*\*\* denote significant at 1 percent, \*\* significant at 5 percent, and \* at 10 percent.

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