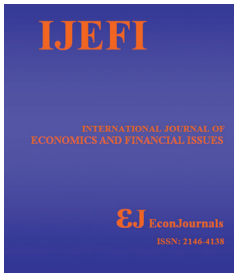

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Effects of Foreign Direct Investment in Sub-Saharan Africa Economic Growth: Evidence from Panel Data Analysis

Christie Dike*

Department of Finance, College of Business Administration, Prince Sultan University, Riyadh, Kingdom of Saudi Arabia.
*Email: cdike@psu.edu.sa

ABSTRACT

Agriculture is the strength of the most Sub-Saharan Africa (SSA) Countries; it promotes significantly to the production of food and raw materials for businesses, and expands opportunities for foreign exchange earnings. Foreign Agricultural Investment is an important source of capital inflow that stimulates economic growth. This paper examines the presence of a long-run positive relationship between Foreign Agricultural Investment and economic growth in the SSA region by using the dynamic panel vector error correction model technique. We justify that there is a positive link between Foreign Agricultural Investment and economic growth in the long run.

Keywords: Foreign Direct Investment, Economic Growth, Panel Vector Error Correction Model, Sub-Saharan Africa Countries
JEL Classifications: F21, O40, O55

1. INTRODUCTION

The Foreign direct investment (FDI) size is much lesser than of domestic investment in developing countries. The segment of FDI inflow to developing countries going to the agricultural sector is lower, and mostly directed to ensuring accomplishments in medium income group countries. However, many interrelated factors led to a significant increase in FDI in primary agriculture in some of the less developed countries during the end half of the 2000's. This increase is comparatively low in rigorously financial terms, but affects the transfer of control over significant regions of land and other agricultural productive resources.

FDI in agriculture can transform production and marketing aspects of agriculture, both at the domestic and international levels. Considering the enormous needs of investment in agriculture and limited financial resources of the domestic private sector and public budgets increased FDI inflow in agricultural sector can be positive. Agro-FDI can create jobs, increase wages, advance innovation, increase development in infrastructure, development of domestic value chains and approach to international markets and lead to uptake of business models. All investments are not uniformly attractive however; it is more identified that if they are extensive some types of agricultural investments – particularly large-scale investment in land can involve significant risks.

There is lack of resources on the food security impacts of Agro-FDI. An increase in market seeking FDI, both in production and in barriers of supply chains could take values such as increased productivity and food production for domestic consumption and connections between poor small-scale producers and poor urban consumers. Particular the prompt growing urban populations in the developing countries, there is obviously a commercial case for such investment. Therefore, foreign investment in agricultural sector in developing countries is frequently resource pursuing and export-oriented. Such investment may have positive impacts on export revenues, productivity and service formation. Addition of advanced technologies may also spread to small-scale producers and increase their ability to produce excessively for domestic markets.

Given this introduction, the foremost focus of this paper is on the prospective effects of Agro-FDI with specific focus on Sub-Saharan Africa (SSA) Countries' agriculture. In general, Agro-FDI is comparatively small with other economic sectors (UNCTAD, 2012). At present the FDI in agriculture takes several different

forms. These include foreign investment in land, agribusinesses and water entitlements (Moir, 2011; Deininger et al., 2011). Furthermore, FDI in agriculture can affect different components onward the production and marketing chain, from direct production of food and cash crops to entry of providers of farm inputs (e.g. seeds and agro-chemicals) and of food distributors (e.g. supermarkets) (Rakotoarisoa, 2011). Agricultural FDI has been growing steadily in recent years with farm land being the main focus of investors. The continually rising global interest in Agro-FDI has shown mainly in the form of land acquisitions with a strong focus on SSA Countries. In many cases, the land acquisitions in SSA Countries have involved long term leases of use rights through the public sector rather than outright purchases or ownership (Deininger et al., 2011).

Recent projection in future population and consequent growth in food demand, global food production will need to increase by more than 40% by 2030 and 70% by 2050 relative to years 2005–2007 average levels (OECD and FAO, 2009). Achieving such increases in food production will depend on the availability of arable land and water, increased agricultural investment and prospects for enhanced productivity. Although there is broad agreement that global agriculture has the capability to meet the growing food demand by 2050, there is little consensus on how this can be achieved by sustainable means (Tilman et al., 2002).

At present, cultivated global arable land area is estimated at 1.3 bha, relative to the total available land area of 4.3 bha. The expansion of arable land has been slow in the past, growing at an average annual rate of 0.2% since the 1960s. After allowing for competition by forestry, urbanisation and protected areas, it is estimated that around 1.5 bha of land is available for crop expansion. Most of this land is in Africa and South America (OECD and FAO, 2009). Limited investment in African agriculture is one of the key constraints to expansion in agricultural production in the region.

For most SSA Countries, domestic investment in agriculture is constrained by the limited availability of domestic savings and heavy reliance on bilateral and multilateral aid funding. The share of agriculture in total bilateral and multilateral aid declined from a peak of 22.5% in 1979–1981 to a low of 5.4% in 2003–2005, before increasing to 6% in 2009 (Cleaver, 2012). In SSA Countries, most governments still spend <10% of public budgets on agriculture (Cleaver, 2012). Hence additional agricultural investment financing through domestic sources alone is not only be difficult but also not strategic (Brzeska et al., 2012). In this context, it could be argued that Agro-FDI can play an important role in supplementing the investment requirements in SSA Countries' agriculture.

This article aims to survey the causal relationship between Agro-FDI and economic growth for panel of SSA countries by using panel vector error-correction model (VECM) causality. The rest of the article is organised as follows: Section 2 review literature, Section 3 discusses the data and modelling framework, Section 4 presents the methodology and results and finally in Section 5 we will conclude and propose policy implications.

2. LITERATURE REVIEW

Borensztein et al. (1998) show that FDI contributes to growth as it is an important vehicle for the transfer of technology, and this contribution is enhanced by interacting with the level of human capital in the host country so that FDI is more productive than domestic investment only when the host country has a minimum threshold stock of human capital. The authors also and some evidence of a "crowding-in effect," that FDI is complementary to domestic investment. "The Beneficial effects on growth of FDI come through higher efficiency rather than simply from higher capital accumulation."

Lim (2001) summarised his arguments and finding on the relationship between FDI and economic growth. The work of Lim indicated that while substantial support exists for positive spil overs from FDI, there is no consensus on causality. Also, he found that market size, infrastructure quality, political/economic stability and free trade zones are important for FDI.

Zhang (2001) investigated this issue in 11 countries of East Asia and Latin America. He expressed that FDI tends to be more likely to promote economic growth when host countries exert a liberalised trade regime, improved education and thereby human capital conditions, encouraged export-oriented FDI, and maintained macroeconomic stability. However, this article examines the causality relationships between FDI, exports and economic growth in European developing countries and Asian developing countries.

Torvik (2002) argues that a greater amount of natural resources can hurt the economy as "more natural resources are likely to stimulate rent seeking that results in fewer manufacturing rms and lower average productivity, rather than harming the productivity in traded sector agriculture as an application of standard Dutch disease theories would suggest, or increasing productivity in domestic manufacturing." Based on the Chilean experience De Gregorio (2003) disagrees that natural resource exploration negatively impacts growth. The author argues that most relevant from an economy's welfare perspective is not its rate of growth of output but the level of output and empirical evidence shows that the richer a country is in natural resources, the greater its income.

Makki and Somwaru (2004) examined the role of FDI and trade in promoting economic growth for 66 developing countries. They found that FDI, trade, human capital and domestic investment are important sources of economic growth. Furthermore, they found a strong interaction between FDI and trade in achieving to economic growth.

Hansen and Rand (2006) studied the Granger causal relationship between FDI and GDP in 31 developing countries and found bidirectional causality between FDI and GDP. This finding may be interpreted as evidence in favour of the hypothesis that FDI has an impact on GDP via knowledge transfers and adoption of new technology.

Hsiao and Hsiao (2006) examined Granger causality relations between GDP, exports, and FDI in East and Southeast Asia by

using time-series and panel data for the period of 1986–2004. Empirical analysis of time-series indicated that each country has a different causality relation, and results of panel- vector auto regression (VAR) causality indicated that FDI has unidirectional effects on GDP directly and also indirectly through exports, and there also exists bidirectional causality between exports and GDP. Finally, with respect to the panel data causality analysis, Hsiao suggested that export may be a good substitute for, if not complementary to, human capital or financial development through its relations with FDI and GDP.

Chowdhury and Mavrotas (2006) examined the causality between FDI and economic growth by employing the Toda-Yamamoto test for three developing countries (Chile, Malaysia and Thailand). They found a unidirectional causality from GDP to FDI in Chile and strong evidence of bidirectional causality in Malaysia and Thailand.

Dupasquier and Osakwe (2006) identified poor corporate governance, unstable political and economic policies, weak infrastructure, unwelcoming regulatory environments and global competition for FDI flows as impediments standing in the way of attracting significant FDI flows. They summarize the reasons for SSA Countries' poor FDI record, based on an overview of the empirical determinants of FDI to SSA. Their main aim is to identify concrete actions or strategies that need to be adopted at the national, regional and international level to enhance FDI flows to SSSA Countries.

Asiedu (2006) utilises panel data for 22 SSA Countries over the period 1984–2000 to investigate the influence of natural resources and market size vis□à□vis government policy, host country's institutions and political instability in directing FDI flows to the region. The results suggest that countries in SSA that are endowed with natural resources or have large markets will attract more FDI. However, small countries and/or countries that lack natural resources in the region can also obtain FDI by improving their institutions and policy environment, because good infrastructure, an educated labour force, macroeconomic stability, openness to FDI, an efficient legal system, less corruption and political stability also promote FDI.

Yao and Wei (2007) presented and tested two propositions on the role of FDI in economic growth for newly industrialised economies. Firstly, FDI is an improving factor for production efficiency, because it helps reduce the gap between the actual level of production and a steady state production frontier. Secondly, FDI, being embedded with advanced technologies and knowledge, helps shift the host country's production frontier. Due to its dual role as a mover of production efficiency and a shifter of production frontier, FDI is a powerful driver of economic growth to help a newly industrialising economy catch up with world's most advanced countries.

Alexiou and Tsaliki (2007) examined the FDI-led growth hypothesis for Greece during the 1945–2003 years. Empirical findings showed a long-run relationship between FDI and GDP. But with respect to the Granger causality test, no evidence suggesting the existence of causality between FDI and economic growth had been found. In other words, the FDI-led growth hypothesis had been rejected.

Ozturk and Kalyoncu (2007) investigate the impact of FDI on economic growth of Turkey and Pakistan over the period of 1975–2004. To analyse the causal relationship between FDI and economic growth, the Engle-Granger cointegration and Granger causality tests are used. It is found that these two variables are cointegrated for both countries studied. The empirical findings suggest that it is GDP that causes FDI in the case of Pakistan, while there is strong evidence of a bi-directional causality between the two variables for Turkey.

Cleeve (2008) observes that countries with a stable macroeconomic and political environment tend to attract FDI in areas other than natural resources, in spite of the size of their domestic markets; Mali and Mozambique are two examples.

Kersan-Skabic and Zubin (2009) determined the impact of FDI on macroeconomic indicators (GDP, Employment, and Export) of the Croatian economy. The results indicate that FDI has a negative effect on employment while it does not have an effect on GDP growth and export. So, the positive expected effect had failed because of the low share of Greenfield investments.

Nath (2009) analysed a fixed effect panel data approach to observe the effects of trade and FDI on the growth of per capita real GDP in 13 transition economies of Central and Eastern Europe and the Baltic region from 1991 to 2005. He found a significant positive effect of trade on growth, but FDI has had no significant impact on growth in these transition economies. However, when controlling the effects of domestic investment and trade on FDI, Nath expressed that it appears to be a significant determinant of growth for the period after 1995.

Miankhel et al. (2009) employed a VECM framework for examining the causality between export, FDI and GDP for six emerging countries (Chile, India, Mexico, Malaysia, Pakistan and Thailand). The results support the export-led growth hypothesis. The results of long-run investigations indicate the existence of causality from GDP to other variables such as export in Pakistan and FDI in the case of India. The results indicate bidirectional causality between GDP and FDI in Malaysia. The findings also show causality from export to FDI and GDP in Latin American countries.

Anyanwu (2011) examines the factors that determine FDI to African countries. The author shows that market size, proxied by the share of urban population, has significant positive relationship with FDI: African countries with large markets attract more FDI. The author interprets the negative elasticity of credit-to-GDP to growth as a sign that foreign capital would not be necessary. These conflicts with Alfaro et al. (2004), the authors believe that local nancial markets play a significant role in allowing spillovers and linkages associated with FDI to materialize: In this sense these local players complement foreign capital instead of competing with them.

Cecchetti and Kharroubi (2012) analyse that the level of financial development has positive impact on economic growth only up to the point that it starts taking skilled human capital out of the real economy: At this point a fast-growing financial sector is unfavourable to aggregate productivity growth. The mechanism is not simply based on the competition for skilled workforce.

Gursoy et al. (2013) investigate empirically the impact of FDI on economic growth for Azerbaijan, Kyrgyz Republic, Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan over the period 1997–2010. The Johansen cointegration and Granger causality tests are used in order to analyze the causal relationship between FDI and economic growth. The cointegration test results indicated that FDI and Economic Growth variables are cointegrated for Azerbaijan and Turkmenistan. By using Granger Causality test we found that FDI causes GDP for Azerbaijan and bidirectional causality is observed for Turkmenistan.

Cecchetti and Kharroubi (2015) is also argue that an plenty of skilled labor in business produces a negative externality on the supplementary sectors: Banks run by skilled labor can provide more to industrialists and with more plentiful and cheaper funding, industrialists have an incentive to invest in projects with advanced initiate ability but inferior productivity, plummeting overall factor productivity growth. Should human capital be assigned to industrialists who could invest in high return but low initiated ability projects that would make aggregate productivity higher. Although this seems impulsive for SSA markets, it is possible to maintain that as skilled labor are attracted to government and natural resource sector jobs, these two sectors' growth could be the reason why SSA economies lack dynamism in the manufacturing sector.

Bolwijn et al. (2015) is also analysed the SSA region possesses large reserves of oil, gold, diamonds and metals that attract investors: "FDI in the primary sector is driven mostly by the extractive industry in developing economies. In 2014, the value of green field FDI projects in mining, quarrying and petroleum in developing economies increased 60%, from US$25 billion to US$40 billion. The bulk of the growth took place in Africa, where the total value of green field projects increased almost six-fold (from US$4 billion to US$22 billion)."

Tan and Tang (2016) empirically analyse the linkages among domestic investment, FDI, trade, interest rate and economic growth in the ASEAN-5 regions in the period 1970–2012. The results confirm the existence of long-term causal links between domestic investment and FDI for the ASEAN-5. This means that collaboration of domestic and foreign investors is essential as the development of domestic firms contributes to further participation by multinational investors. We also reveal that domestic investment and FDI are growth enhancing and their impact is felt in both short- and long-run in the majority of the ASEAN-5 markets, indicating that these three variables are interrelated since they could be attracted to the growing economies.

Hodrob (2017) aims to measure and analyze the impact of these factors on Palestinian's economic growth, based on the time series during the period 1995–2014. This has been done through the analysis of the existing causality between FDI, imports and domestic investment on one hand and economic growth on the other hand. Least square method has been adopted to assess these factors on total domestic production of Palestine. The results indicated that FDI has negative impact on Palestinian's economic growth, in contrast to the impact of domestic investment and imports which was investigated to be positive.

There is an extensive literature above on the role of FDI for developing economies. FDI increases the stock of capital of a country and generates public revenue through taxation, but the main channels for FDI to improve economic growth. The evaluation of the SSA countries has shown that agriculture has a big share in the GDP (with the majority of the population working in the primary sector), however agricultural FDI remain extremely low. It only accounts for 2–3% of the total FDI volume.

3. DATA AND MODELLING FRAMEWORK

According to Hsiao and Hsiao (2006), for illustrating the relationship between FDI, exports and GDP, we assume the equilibrium in the money sector and the government sector. Therefore, the equilibrium conditions of the Keynesian model of aggregate demand and aggregate supply can be given as:

$$Y = C(Y)+I(Y, r)+F+X-M(Y, e) \quad (1)$$

Where Y, C, I, F, X, M, r, and e are real GDP, real consumption, real domestic investment, real FDI inflows, real exports, real imports, interest rate, and exchange rate of foreign currency in terms of the domestic currency, respectively. A more general implicit function form can be considered by ignoring the financial variables.

$$H (Y, X, F) = 0 \quad (2)$$

This function can be expanded to logarithm form, and then investigation of the causality relationship between the real variable's Y, X, and F can be performed by a Granger causality test. The panel VECM representation of this model is presented in Section 4.

Baltagi (2005) points out several benefits of employing panel data: Controlling for individual heterogeneity and giving more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency. Because of these benefits, this paper applied balanced panel data of real inward FDI, real exports and real GDP from SSA counties for 1995–2016 years. Empirical analyses of investments in agriculture are difficult to conduct due to the limited data availability on the Global South. Data of the agriculture capital stock, government expenditure, research and development and especially data on agricultural FDI is weak, as it is very limited, inconsistent and incomprehensive (Lowder and Carisma, 2011). It was therefore not possible to get consistent data for SSA. Thus we focused on five SSA Countries such as Ghana, Nigeria, South Africa, Sudan and Tanzania, where a good amount of information was found.

The selection of countries and time periods is limited by data availability. In addition, some countries are excluded due to

negative values in FDI data. Data of GDP, exports of goods and services and FDI were obtained from World Development Indicator. Variables are measured in constant 2000 US dollars, deflating by the GDP deflator. Natural logarithm has been applied to all the data; the natural logarithms of FDI, export and GDP are denoted as LFDI, LEX and LGDP respectively. We used Eviews' and Gauss software for investigation and data analysis.

The econometric methodology of this article follows three steps. First, we test for a panel unit root. Prompted by the existence of unit roots in the series, long-run co-integration relationship between variables was tested by using the panel co-integeration test. Conditional on finding co-integeration, the causal link between variables has been explored by employing the Granger causality test.

4. METHODOLOGY AND RESULTS

Several panel unit root tests have been presented for understanding stationary properties of panel data. We have employed the tests proposed by Levin et al. (2002), Im et al. (2003), Breitung (2000) and a Fisher-type test proposed by Maddala and Wu (1999) and Choi (2001) to test the null hypothesis of the existence of a unit root. Following Dickey and Fuller (1979; 1981), Levin and Lin (1993), and Levin et al. (2002), consider a panel extension and the null hypothesis that each individual time series in the panel contains a unit root against the alternative hypothesis that all individual series are stationary, Hsiao (2003). The adjusted t-statistic of the LLC is:

$$t_{\rho}^{*}=\frac{t\rho-N\tilde{T}\hat{S}_{N}\hat{\sigma}_{\epsilon}^{-2}(\hat{\rho})\mu_{m\tilde{T}}^{*}}{\sigma_{m\tilde{T}}^{*}} \quad (3)$$

Where $\mu_{m\tilde{T}}^{*}$ and $\sigma_{m\tilde{T}}^{*}$ are the mean and standard deviation adjustments provided by Table 1 of the LLC. The LLC shows that t_{ρ}^{*} is asymptotically distributed as N (0, 1).

The IPS test (Im et al., 2003) allows for a heterogeneous coefficient of y_{it-1} and propose an alternative testing procedure based on averaging individual unit root test statistics. The IPS test suggests an average of the augmented Dickey–Fuller (ADF) tests when u_{it} is serially correlated with different serial correlation properties across cross-sectional units. The t-statistic of IPS given as follows:

$$t_{IPS}=\frac{\sqrt{N}(\bar{t}-\frac{1}{N}\sum_{i=1}^{N}E[t_{iT}|\rho_{i}=0])}{\sqrt{\frac{1}{N}\sum_{i=1}^{N}var[t_{iT}\}\rho_{i}=0]}} \quad (4)$$

Values of $E[t_{iT}|\rho_{i}=0]$ and $var[t_{iT}|\rho_{i}=0]$ are obtained from the results of Monte Carlo simulations carried out by IPS. Maddala and Wu (1999) and Choi (2001) proposed a Fisher-type test of unit root, which combines the P-values from unit root tests for each cross-section i to test for unit root in panel data. The Fisher test is nonparametric and distributed as Chi-square with two degrees of freedom:

$$\rho\lambda=-2\sum\log_{e}\pi_{i} \quad (5)$$

As mentioned in Baltagi and Li (2002), Breitung (2002) found that the LLC and IPS tests suffer from a dramatic loss of power if individual-specific trends are included. Breitung suggests a test statistic that does not employ a biased adjustment whose power is substantially higher than LLC or the IPS tests using Monte Carlo experiments.

The statistic of Breitung is:

$$\lambda_{B}=\frac{\sum_{i=1}^{N}\sigma_{1}^{-2}y_{i}^{*'}x_{i}^{*'}}{\sqrt{\sum_{i=1}^{N}\sigma_{1}^{-2}x_{i}^{*'}A'AX_{i}^{*}}} \quad (6)$$

Which has a standard normal distribution.

The results of Levin et al. (2002), Im et al. (2003), Breitung (2002) and Fisher-type panel unit root tests suggest, most of these tests are unable to reject the null hypothesis of unit root in levels, which means that LFDI, LEX and LGDP are non-stationary in levels, but results of panel unit root tests in the first difference indicate that all variables are stationary after the first difference. In other words, data series are integrated of order one I (1). The results of SSA countries by following the same test as applied in Levin et al. (2002), Im et al. (2003), Breitung (2002) mentioned in Table 1.

On the basis of the panel unit root test results, which imply that the data series are non-stationary in level, at the second step, we proceed to test for the existence of a long-run relationship between variables by using panel co-integration test. Granger (1981) showed that when some series are integrated in order one they become stationary after the first differencing, but a linear combination of them is already stationary without differencing, they are said to be cointegrated which implies the existence of cointegration in panel data (Table 2).

Table 3 indicates the results of panel co-integration tests for SSA Countries. All statistics except group parametric t-statistic rejects the null hypothesis of no co-integration. Test supports the existence of co-integration between LGDP, LEX and LFDI (Agro) in SSA countries.

The finding of co-integration implies that there exists a causal relationship between the series, but it does not indicate the

Table 1: Panel unit root tests – SSA countries

Variable	LGDP		LEX		LFDI (Agro)	
Test	Levels	(I)	Levels	(I)	Levels	(I)
ADF-Fisher	15.15	174.17***	20.09	78.41***	19.12	41.66***
PP-Fisher	116.62**	425.42***	105.24**	779.60***	17.52	160.01***

***And ** denote statistical significance at the 1% and 5% levels. Source: Authors calculations, SSA: Sub-Saharan Africa

Table 2: Panel co-integration test– SSA countries

Panel group statistics	Panel non-parametric (PP) t-statistic	Panel ρ-statistic	Panel v-statistic	Panel parametric (ADF) t-statistic	Group ρ-statistic	Group non-parametric t-statistic	Group parametric t-statistic
Results	−4.20***	−10.30***	8.08***	−55.92***	−17.61***	−5.61**	−624

***, **And * denote statistical significance at the 1%, 5% and 10% levels, respectively. Source: Authors calculations, SSA: Sub-Saharan Africa

Table 3: Panel-VECM causality - SSA Countries

Dependent variable	Source of causation (independent variables)			
	Short-run		Long-run	
	ΔLGDP	ΔLEX	ΔLFDI (Agro)	ECT
ΔLGDP	-	2.48	2.45*	4.28***
ΔLEX	21.89***	-	7.95***	0.18
ΔLFDI (Agro)	4.52*	1.37	-	22.96***

The table reports F statistics. ***, ** And * denote significance at the 1%, 5% and 10% levels, respectively. Source: Authors calculations, VECM: Vector error-correction model, SSA: Sub-Saharan Africa

direction of causality. Engle and Granger (1987) show that if non-stationary variables are co-integrated, a VAR in the first differences will be misspecified, because of the removed long-run information in the first differencing, but a VECM can avoid this shortcoming. In addition, unlike the usual Granger causality test, the VECM can identify sources of causation and can distinguish between a long-run and a short-run relationship in the series.

We specify a model with a dynamic error-correction representation. This means that the VAR model is augmented with one period lagged error correction term (ECT), which is obtained from the estimated residuals of the co-integrated model.

Where Δ is the first difference operator; ECT_{t-1} is the lagged ECT; k is the lag length; and ε_{it}, υ_{it} and are the serially uncorrelated error terms. We test to determine short-run Granger causality from export and Agro-FDI to GDP, respectively; and to determine short-run Granger causality from GDP and Agro-FDI to export; and to indicate short-run Granger causality from GDP and export to Agro-FDI. Finally, for long-run causality, we test several equations. Lag-length selection using Akaike's information criterion and Schwarz criterion indicated two lags for the SSA panel. The results of panel causality are displayed in Table 3. The results of panel causality in SSA indicate bidirectional causality between GDP and Agro-FDI, and unidirectional causality from GDP and Agro-FDI to exports in short-run. The significance of the ECT is useful for interpreting long-run causality. There is evidence of long-run causality from export and Agro-FDI to economic growth and long-run causality from economic growth and export to Agro-FDI for SSA panels.

5. CONCLUSION AND POLICY IMPLICATIONS

There are many theoretical and empirical studies on the tri-variate causality between FDI, exports and GDP, but there are no common consequences regarding these relationships, so working on this issue is still required. Therefore, this article examined the causality relationship between Agro-FDI, exports and economic growth in five SSA for 1995 through 2016. Firstly, panel unit root test was performed and indicated that all variables are integrated of order one. Furthermore, panel co-integration test supports the existence of co-integration in panel. Finally, the panel-VECM causality was performed for panel, which indicated bidirectional causality between GDP and Agro-FDI and unidirectional causality from GDP and Agro-FDI to exports in short run for the SSA countries. Furthermore, there is evidence of long-run causality from export and Agro-FDI to economic growth and long-run causality from economic growth and export to Agro-FDI for the SSA countries.

Some policy implications can be proposed with respect to the short and long run causality results. Countries in the SSA can stimulate and promote economic growth via attracting Agro-FDI inflows, which can be made possible by expanding free trade zones, increasing security in economic, political and other dimensions. To do so, they can decrease the export taxes and trade barriers, encourage the industrial based export and improve quality control and training programs.

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