Agris on-line Papers in Economics and Informatics

Volume XIV Number 2, 2022

Agricultural Aid and Growth in Sub Saharan Africa: a Review of Empirical Evidence

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Abstract

There are interesting debates on the influence of foreign aid to agriculture on economic growth in Africa. Some scholars have argued that, despite the inflows, majority of rural smallholder farmers in the continent are extremely poor. The precise channels through which foreign aid is to promote sectoral growth has been inadequately understood from the literature. This paper is a systematic literature review on the empirical evidence of the relationship between agricultural aid and growth in Sub Saharan African countries. The Generalized Methods of Moments and the Granger causality test are the main methodological approaches of papers reviewed and the relationship between agricultural aid and productivity growth is positive and quite significant. However, the results demonstrate a weak synergy between the various forms of agricultural aid and growth. The main recommendation is to have a broader conceptual, theoretical or analytical frameworks that clearly define how agricultural aid influences productivity when measured against other influencing factors. Aid is only a catalyst to growth so, governments must invest and provide the necessary infrastructure and a conducive policy environment for increased productivity and growth.

Keywords

Agricultural aid, productivity, growth, Generalised Methods of Methods.

Shaibu, A.-F. and Shaibu, M. H. (2022) "Agricultural Aid and Growth in Sub Saharan Africa: a Review of Empirical Evidence", *AGRIS on-line Papers in Economics and Informatics*, Vol. 14, No. 2, pp. 97-109. ISSN 1804-1930. DOI 10.7160/aol.2022.140208.

Introduction

The causes of low agricultural production and its consequences in Sub-Saharan Africa (SSA) has attracted a lot of discussions in recent times. The populations of Africa are mostly farmers who are unable to feed themselves. This coupled with increased number of under-nourished people and persistent food imports, has exacerbated the phenomenon of low agricultural productivity and growth in the region (African Union, 2006). Although many factors have been attributed to this, the decline in agricultural investment is thought to be a major contributing factor (Shafiail and Moi, 2015). Foreign agricultural aid and public domestic investment are two critical agricultural investment sources that can provide the necessary support to farmers to increase productivity. foreign aids or grants come in different forms; improved inputs, innovation technology, capacity building, rehabilitation and construction of roads that will connect farming communities to markets, credit to agribusinesses and private sector investments. All of these are necessary to spur growth in the agricultural sector. However agricultural growth in Africa largely depends on a combination of several factors including homegrown policies and reliable donor support and none of these factors is sufficient on their own to generate the desired growth in the sector (Kosta and Zezza, 2003 and Binswanger-Mkhize, 2009).

In an effort to use home grown policies to deal with the challenges of growth in the agricultural sector, African governments have begun to mobilize local resources to increase public spending on agriculture. A classical example is the Comprehensive Africa Agriculture Development Programme (CAADP) which is a strong initiative to support smallholder farmers. One of the strong pillars of the CAADP framework is ‘improving rural infrastructure and trade related capacities for market access where African nations have pledged to devote 10% of their national budgets

to agriculture (African Union and NEPAD, 2003) with some countries surpassing this threshold (Shenggen et al., 2009). This agreement is critical to encourage governments to respond to important opportunities for African agriculture such as increasing domestic demand and rising world food prices among others.

Despite huge foreign agricultural inflows, majority of people in Africa who are extremely poor still live in rural areas and as smallholder subsistence farmers. These farmers are characterised by low average agricultural value added output and yield, soil nutrient deficiency, and low levels of modern input use and irrigation systems (Gollin et al., 2014 and McArthur, 2019). In the same vain, there is considerable evidence to show that agricultural growth has important aggregate effects in reducing global extreme poverty. The sector has been particularly fundamental in promoting growth in non-agricultural sectors, through channels of structural transformation from low level rural sector productivity to higher productivity in urban sectors (McArthur and McCord, 2017).

The interesting point is that, the precise channels through which foreign aid is to promote sectoral growth has been inadequately understood from the literature. Empirical studies have grappled with how to specify the conditions and pathways through which aid, as a source of public finance, might support agricultural growth (Werker et al, 2009; Arndt et al., 2016 and Galiani et al., 2016). Though these debates remain important, their common emphasis on cross-country empirical relationships only provide limited insight regarding the actual channels through which aid might support productivity and growth in the agricultural sector.

The main purpose of this paper therefore, is to review relevant literature on foreign agricultural aid and agricultural growth from the perspective of Development Assistance (DA). It seeks to identify and synthesize methodological approaches and the relationships between foreign agricultural aid and growth in Sub-Saharan Africa. The first objective provides an overview of the conceptual, theoretical or analytical frameworks guiding the discourse in foreign aid and growth. The second objective examines the empirical evidence of the relation between agricultural aid and growth. The third objective assesses the methodological approaches used to measure these relationships.

Development aid

All the funding or financing provided by public actors from the most well-off countries to improve living conditions in the least well-off countries is often regarded as Development aid. They are usually in the form of grants or loans at favourable rates, whose purpose is to finance programmes to improve living conditions in recipient countries. Official Development Assistance ODA in particular plays an essential role. It helps start up projects in sectors or areas that have been left behind. It initiates processes of "virtuous development" and creates dynamics that can help bring all the other stakeholders, especially businesses, into the picture. It creates a leverage effect that multiplies impacts. Development aid since 1960 has proven to be effective. It is a powerful factor of change for the most vulnerable populations as it been premised on an agenda to help poor developing nations grow out of poverty.

Nevertheless, aid has come with its own challenges for developing countries. Two prominent areas of concern in recent economic development literature are the effectiveness of foreign aid and the impact of different types of aid on poverty in developing countries. From the literature, there is a very limited number of studies which attempt to address the relationship between foreign agricultural aid and agricultural growth even though there is a vast literature on the effect of foreign aid in general on economic growth (Debre et al., 2007 and Ssozi et al., 2018). Although some studies have established positive correlation between development assistance and agricultural productivity but when analyzing its impact on major agricultural recipient sectors, there is a substitution effect between food crop production and industrial crop production (Ssozi et al., 2018; Norton et al., 1992)

Agricultural productivity and growth in sub-Saharan Africa

Agricultural growth is thought of as a measure of output, input utilization and total factor productivity. The Agriculture sector plays a critical role in the development of the Sub-Saharan Africa (SSA), serving as the major source of livelihood of about 53 percent of the region's workforce (OECD and FAO, 2016). It is a key strategy to poverty reduction in developing countries. Available data show that over 60 percent of rural population of Africa rely on agriculture for their livelihoods (African Development Bank, 2016) and women make up almost half of the agricultural labour force (Dao, 2009). It has also been reported that growth in agriculture has a larger spillover effect in reducing poverty than

growth in non-agricultural sectors, especially on extreme poverty (Christiaensen et al., 2010). Some papers even suggest that GDP growth have had less impact on poverty reduction than growth in the agricultural sector due to the high level of poverty in rural areas of developing countries although the sectors contributions to total GDP in SSA on average, is about 15 percent (OECD and FAO, 2016).

Using agriculture as a poverty reduction strategy is therefore critical. The African model of agricultural growth differs significantly from the rest of the continents in the world especially Asia and South America. In the two continents, growth is largely driven by intensification and labour productivity whereas in Africa, farm area expansion and intensification of cropping systems are significant drivers of agricultural growth (Badiane and Collins, 2016). Experts have projected an annual growth rate of 2.5 percent to eradicate hunger by the end of 2025 (African Union, 2014; OECD and FAO, 2016) and such productivity gains could be attributed to multiple influencing factors including faster technology adoption and improved smallholder integration into the value chain. However, despite this positive outlook, yields gabs and the importation of primary food products are among the greatest challenges of agricultural growth in SSA. Other key challenges are uncertain policy environment and poor infrastructural development that limit market access, increase post-harvest losses and raise the cost of trade (OECD and FAO 2016). How then does foreign development aid to agricultural addresses these challenges? Does it play a critical role in agricultural productivity and growth?

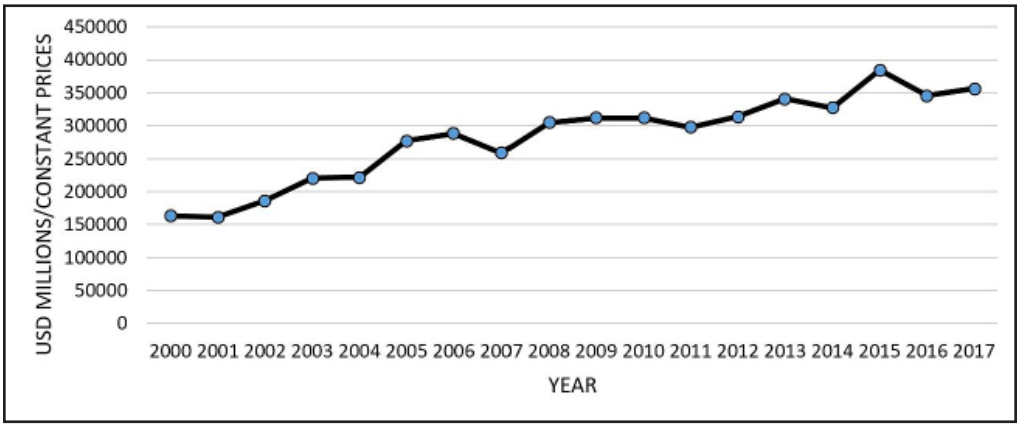
Investment in agriculture

All though agriculture is diversified in Africa, its investment remains weak despite efforts made by public authorities, the private sector and international development partners. As a result of this and other factors such as climate change, market crises and food security issues, heads of states and international organisations have regained interest in the global discussions of agriculture. Following this move is the commitment by African governments of 10 percent of their annual budgetary allocations to the agricultural sector over a period of 5 years with a 6 percent annual sector growth rate at the national level (NEPAD, 2015). This noble agreement which has been supported by Multi-Donor Trust Fund (MDTF) goes beyond the objective of increasing agricultural productivity to include, the creation of wealth and economic opportunities, food and nutrition security, and resilience and sustainability of households in the African region. The importance of agricultural finance in Africa is also highlighted in the Kampala "principle" where African leaders have not only recognised agricultural finance as a part of the overall financial system of a country, but also the need to give special attention to financial services required by agriculture sectors Gerrard et al., 2016).

As a result of the problem of low income and access to credit, Foreign Direct Investments are also critical in offsetting the investment and technological gaps in Africa (Awunyo-Vitor and Sackey, 2018). In 2017, the share of FDI inflows to agriculture in the continent was 22 percent compared with other regions of North America (43 percent), Asia (29 percent) and Europe (4 percent) (World Bank, 2020). Analysis of AID-Monitor from FAO[1] presented in Figure 1 indicate that Foreign Direct Investments inflows to agriculture, forestry and fishery in Africa, have increased from $1.2 billion to $1.7 billion between 1997 to 2011. There is also a significant increase in Official Development Assistance for Agriculture development in the region between 2000 and 2017 from 157,697.4 USD Million to 342,801.97 USD Million representing over 100 percent increase inflows within the period.

Despite these substantial foreign inflows to the agricultural sector, sustainable productivity and growth continue to be a major challenge in most countries. In Ghana for example, the rapid economic growth experienced between 2007 and 2010 (7.3 percent) was largely driven by the service sector. Its acceleration to 10.3 percent by end of 2013 was also on the back of oil exploration (Ghana Statistical Service, 2019). Although agricultural growth has increased from 0.9 percent in 2014 to 4.8 percent in 2018, it contribution to GDP continue to decline (Ghana Statistical Service, 2019). Other countries in the continent of Africa such as Nigeria, Senegal, Mali and Sudan experienced similar trend in growth between 2002 and 2019. In Nigeria for example the agricultural share of GDP dropped from 36.9 percent in 2002 to 21.9 percent in 2019 (World Bank 2020). In fact, in Sub Saharan African countries in general, agricultural GDP had significantly dropped from 21.1 percent in 1994 to about 15.3 percent by the year 2019 (World Bank, 2020). The distribution of agricultural GDP on sub

[1] See: http://www.fao.org/aid-monitor/analyse/sector/en/



Source: Extract from FAO AID monitor (2020)

Figure 1: Total ODA Commitment to agricultural development in Africa (2000-2017).

regional basis is even skewed. Whereas West and East Africa have 30 and 29 percent respectively, Central and South African sub regions have 19 and 7 percent respectively (Alabi, 2014).

Bilateral and Multilateral aid

Bilateral aid has been described as transactions undertaken by a donor country directly with a developing country including those with NGOs active in development and other, internal development related transactions on development awareness. A multilateral aid on the other hand, are transactions delivered only by an international institution conducting all or part of its activities in favour of development (Biscaye, Reynolds and Anderson, 2017).

There have been debates on the choice between multilateral and bilateral aid channels. Some have argued that aid disbursements by multilateral agencies looks quite similar to the disbursements of bilateral donors, with similar terms and conditions while others, have contended that there is quite a number of different considerations between the two (Annen and Knack, 2018). The stimulus to understand the benefits of the two channels is the need to justify and account for aid spending in donor countries. Overall, multilateral aid channel has been favoured in most aspects. There are evidences to suggest that bilateral channels are more politicized (Verdier, 2008 and Girod, 2012), aid recipient countries prefer multilateral channels because they deal with more legitimate and trustworthy partners (Andreopoulos et al., 2011 and OECD, 2007). Multilateral aid is more selective in targeting countries with democracy and good governance and the rule of law (Dollar and Levin, 2006). The most striking characteristics are that multilateral channels of aid are better suppliers of global public goods and plays a vital role in responding to food security, climate change, and conflict challenges (Deaton, 2013 and Wickstead, 2015).

How do these channels respond to the challenges of agricultural growth in SSAs? From the literature review, there seem to be a little bit of disconnection between foreign aid and agricultural growth and productivity in Sub Saharan Africa despite the enormous global attention to use foreign aid as a catalyst to spur growth and poverty reduction in developing countries. There is also continuous and polarising debates on its effectiveness in delivering on the Sustainable Development Goals (SDGs) especially on sustained economic growth and poverty reduction (Gu et al., 2019; Meijaard and Sheil, 2019). Concerns are also raised about the fact that, donor agencies may not necessarily allocate aid flow to regions or countries that need them most but, are influenced in part by their political and strategic considerations including good governance, fiscal sustainability and accountability (Carothers and De Gramont, 2013 and Kosack, 2003).

Materials and methods

Conceptual framework

From the Development aid literature, the common hypotheses are that aid will lead to growth only in countries with sound macroeconomic environment. It is detriment to nations where there is political instability and high level corruption (Alabi, 2014 and Nahanga, 2017). However, foreign agricultural aid or Official Development Assistance influences productivity and growth in the sector, there are equally other significant influencing

factors Chenery and Strout (1996) s two-gap model has been influential in explaining the effectiveness of foreign aid. In this model, savings and export revenue constrains in developing countries hamper investment and growth and foreign aid flows are necessary to fill this gab. On the other hand, public investment in productivity and growth generally in most developing countries, is low due to low revenue mobilisation.

Following the hypothesis that economic growth in developing countries especially in Africa is largely driven by the agricultural sector (Shimeles et al., 2018), the relationship between agricultural aid or official development assistance to agricultural is therefore critical to expand the literature on aid and economic growth. Agricultural aid in developing countries are generally in the form of research, input support programmes, technology transfers, climate change adaptation and capacity building among others. By categories some are bilateral while others are multilateral (Alabi, 2014). The phrase "agricultural aid" is used in this study to reflect bilateral and multilateral Official Development Assistance to agriculture excluding private flows such as contributions by NGOs to agricultural development. This has been excluded in the assessment because mapping of private sector financing flow for agricultural development has proven difficult (McNellis, 2009)

How do these influence productivity and growth in the agricultural sector? Although productivity have been interpreted differently in the literature, agricultural productivity is thought of as a measure of efficiency in an agricultural production system which employs land, labour, capital and other related resources. Precisely, it is the measurement of the quantity of agricultural output produced for a given quantity of input or a set of inputs (Mozumdar, 2012). Sources of productivity may include mechanization, high yielding seed variety, fertilizer, irrigation, pesticides, genetic engineering and education among others (Nin et al., 2003 and Fischer et al., 2009). On the other hand, agricultural growth may be measured by the increase in agricultural production or productivity over time which could be influenced essentially by institutional, infrastructural and technological factors. For cross-country analysis the most common measure of growth is agricultural GDP (van Arendonk, 2015), but other measures are levels of crop and animal production over time. Some literature also suggest that agricultural productivity will automatically lead to growth. For analytical purposes therefore, productivity and growth have been conceptualized to mean to same thing in this paper.

Data collection procedure

Following the work of Ansah et al. (2019) and Gough et al. (2012), a systematic literature search was conducted using CAB Abstracts, Web of Science, Scopus, and PubMed as data bases. These were supplemented with in-document reference selection using a 'snowball' algorithm to identify relevant articles cited in published papers. Three main key words were created and used to find relevant papers. Among these are agricultural productivity or growth as dependent variables, Development Assistance for Agriculture or Official Development Assistance for Agriculture as the intervention variable, and agricultural output or share of GDP as the unit of analysis. The retrievals were centered on disciplines such as economics, agricultural economics and policy, and development economics, and the literature search was based on title, abstract, and key terms. The study relied on databases that allowed connections to export retrieved documents to the Endnote program to separate databases that did not correspond to the topic area or did not focus on basic scientific studies in order to remove databases that did not correspond to the subject of interest.

The papers acquired from the databases were first vetted by reviewing the titles, abstracts, and key words to see if they were appropriate for the study's objectives. The paper's major goal is to look at the empirical evidence on the link between agricultural aid and agricultural productivity and growth. Papers that met the selection criteria were kept for additional examination, while those that did not were discarded. Table 1 shows a summary of the literature searches and screening criteria.

Scope	Database				
	Web of Science	Scopus	Cab Abstract	PubMed	Total
Keyword 1 Development aid	1 072	2 516	3 868	1792	
Synonyms: Development assistance, Official Development, Assistance, Economic assistance, International aid, Overseas aid, Foreign aid					
Keyword 2: Agricultural aid	30 328	33 061	50 231	4230	
Synonyms: agricultural support, agricultural subsidies, agricultural subsidy, aid to agriculture, support for agricultural, agricultural assistance					
Keyword 3: Agricultural productivity/growth	61 239	105 986	167 018	87 432	
Synonyms: Agricultural output, agricultural production, Agricultural GDP, Agricultural yield, Average agricultural output					
Combined search for all key words (1,2 & 3)	45	32	145	69	291
Further screening by titles, abstract, keywords	10	14	28	12	64
Retained after removing duplicates					50
Further screening with inclusion / exclusion criteria					22
Snowball "in-document" referrals					4
Retained for final review					18

Source: author's compilation from search results September 2020

Table 1: Literature search results and articles screened and selected.

Results and discussion

The paper is mainly a methodological review of literature on the relationship between agricultural aid and growth in sub Saharan African countries. Specifically, it focuses on the conceptual and analytical framework in the discourse of foreign aid and economic growth, the relationship between foreign agricultural aid and growth and the methodologies used by scientific papers and journal articles. A systematic review was conducted to achieve the stated objectives.

Characteristics of reviewed papers

Out of the 18 reviewed papers, 10 are mainly analytical and empirical, 3 are both conceptual and analytical, while 2 are conceptual, analytical and empirical in scope. Of the empirical papers, only a few examine the conceptual, analytical or theoretical framework of agricultural and growth. All the empirical studies used panel or time series data. None of the studies used cross sectional data and a few were gray literature. A summary of the characteristics of the studies reviewed are presented in Table 2 Overall time series data were used for analysis involving up to 98 Developing countries which 47 are Sub Saharan African countries. The Generalized Methods of Moments (GMM), OLS, the Correlations Coefficients (Pearson (r) and Spearman) were the main methods of analysis.

The historical overview of defining and conceptualising foreign aid and growth is not straight forward. Some writers believe that development aid will lead to growth only in countries with sound macroeconomic environment and that aid is detriment to nations where there is political instability and high level corruption (Alabi, 2014 and Andreopoulos et al., 2011). Foreign aid enhances economic growth as long as fiscal policies are effective (Durbarry et al., 1998). The evidence adduced by Boone (1995), suggest that aid-intensive African Greenaway countries had experienced no growth in per capita income for over a decade between 1970 and 1980 despite the fact that GDP share of foreign aid had increased over the period. This analysis is supported by Omoruyi et al. (2016) and raises important questions as to the actual effectiveness of monetary assistance to developing countries by developed nations and multinational institutions. Quite a sizeable number of papers have underscored the relevance of foreign agricultural aid in particular as a poverty reduction strategy in developing countries. The framework of Nahanga (2017) suggest that underdeveloped economies, substantially rely on foreign resources to boost their per capita income. Other scholars have identified multilateral aid, input support programmes, sectoral growth time lag, aid volatility and country specific fixed effects as the main drivers of the relationship between foreign agricultural

SN	Author (s)	Type of study	Methodology	Data Used/Sample
1	Alabi (2014)	Empirical, Conceptual & Analytical	Generalised Methods of Moments (GMM) Granger Causality Test	Time series (2002-2010), 46 SSA Countries
2	Arndt et al (2015)	Empirical, analytical	Structural Causal Model (SCM); OLS, LIMH and IPWLS	Time Series (1970–2007) 78 Developing Countries
3	Awunyo-Vitor and Sackey (2018)	Empirical, analytical	Descriptive statistic, unit root test, Granger causality test and error correction model	Time Series (1975-2017) Ghana
4	Barkat and Alsamara (2019)	Empirical	Augmented Mean Group Common Correlated Effects-2SLS Dumitrescu-Hurlin Panel Causality test	Panel Data (1975 - 2013) 29 African countries
5	Blížkovský and Emelin (2020)	Empirical	Pearson correlation coefficient (r), Spearman correlation coefficient	Times series (2002- 2016), 3 SSA Countries (Ghana, Cameroon & Mali
6	Chenery and Strout (1966)	Theoretical	The two-gab Growth Model	Time series (1960-1970) 50 Developing Countries
7	Durbarry et al. (1998)	Empirical	Augmented Fischer-Easterly type model	cross-section and panel data techniques (1970-93)
8	Galiani et al. (2014)	Experimental	Quasi-Experiment Two-Stage least squares (2SLS)	panel data (1987 and 2010) 35 Developinig countries
9	Gunasekera et al. (2015).	Global economy-wide modelling framework	The General-Equilibrium Model (GEM)- Global Trade Analysis Project model (Gdyn)	African countries
10	Kumi et al. (2017)	Empirical, Analytical	System GMM	Panel dataset (1983–2014) 37 SSA Countries
11	Mahembe and Odhiambo (2019)	Empirical, theoretical	Vector Error-Correction model (VECM), Granger causality test	Time series (1981–2013) 82 developing countries
12	McArthur and Sachs (2019)	Stimulation/ Modelling	Simulation, Modelling (Production Function)	Time series (10 year period) Uganda
13	Nahanga Verter (2017)	Empirical, theoretical	OLS, Granger Causality Test and VDA	Time series (1981 - 2014) Nigeria
14	Norton Ortiz and Pardey (1992)		Aggregate Production-OLS (log-linear)	Times series (1970-85) 98 Developing countries
15	Shenggen et al. (2009)	Policy Brief	Case study approach	Time series 16 African Countries
16	Ssozi et al. (2018)	Empiral, Conptual Analytical	System two-step GMM;	Panel dataset (1983–2014) 36 SSA Countries
17	Werker et al.(2009)	Empirical, Experimental	Instrumental Variable Approach, two stage least squares (2SLS)	Time series 54 Developing countries
18	Wickstead, M. (2015)	Analytical	Trend Analysis	Time series (1980 -2007)

Source authors' elaboration from reviewed papers 2020

Table 2: Characteristics of reviewed papers.

aid and growth in African countries (Kumi et al., 2017; Duflo et al., 2011). In fact, low agricultural productivity experienced by the African continent largely is the result of poor institutions, inadequate human capital development, inappropriate or poor agricultural policies and natural factors (Ajao and Salami, 2012).

Relation between development aid and agricultural productivity and growth

A significant number of papers reviewed, have established quite positive relationship between agriculture aid and agricultural sector growth but with a substitution effect between food and industrial crop production. Average output for cash or industrial crops for countries receiving Agricultural ODA have increased relative to food crops (Ssozi et al., 2018) though some studies have observed a positive correlation between cereal crop production and multilateral aid especially in Ghana and Mali (Blížkovský and Emelin, 2020). In general, the empirical review revealed an important link between foreign agricultural aid, growth and poverty reduction in sub Saharan African countries. What is actually missing is the causality of the relationships even though very

few of the papers run the Granger Causality Test to find out whether lagged information provides any statistical information about agricultural productivity. Overall, these papers were not inherently controlled studies to have focused so much on establishing causality between the variables. Nonetheless, the strong drivers of agricultural productivity and growth in African countries are soil productivity, public investment policies, climate change, the availability and nature of arable land which are mostly country-specific factors (Nahanga, 2017; McArthur and Sachs, 2019 and Kumi et al., 2017). In general, there are still many different statistical studies with widely differing results regarding the correlation between aid and economic growth.

Methodological approaches

In the publications evaluated, the Generalized Methods of Moments, OLS, the Correlations Coefficients (Pearson and Spearman), and the Granger Causality Test were all employed to evaluate the link between agricultural aid and growth. This is to be expected, because the system GMM, as a widely used estimate method, outperforms other methods in estimating the parameters in a dynamic panel data model (Bun and Windmeijer, 2009). The superiority of OLS over other models was not well justified in the papers that employed it. Agricultural growth, as defined by production or output, and productivity, as measured by cereal yield (kg/ha), agricultural share of GDP, Average agricultural value added per worker are the dependent variables in the majority of the publications. while the independent variables are total Official Development Assistance (ODA) for agriculture, ODA for rural development, arable land, agricultural imports and exports and country-specific effects such as governance index, and corruption. Papers that used correlation methods added a dimension to the investigations by looking at how bilateral and multilateral agricultural aid correlates with productivity and growth. All the 18 papers reviewed used panel data mostly covering between 16 and 47 Sub Saharan African countries within the period 1985 to 2017.

Strengths, weaknesses and biases of reviewed papers

One of the key strengths of the papers is the use of multiple methodological approaches and time series data. For example, about 10 out of the 18 papers each used a combination of Granger Causality test, the GMM and Variance Decomposition methods. This is good because when numerous approaches are used to investigate a phenomenon, the results are more robust and persuasive than when only one approach is used (Davis et al, 2011). Another critical component is the emphasis on cereal productivity growth, as it is a critical crop for many smallholder farmers in SSA. (Nyiawung et al., 2019). In Analyzing Food Security in Africa, Dzanku and Sarpong (2010) emphasized the importance of cereal food staples.

However, each study on average used about 12 countries as case studies which represents just about 4.4% of the population of countries in the SSA and the inclusion and exclusion criteria was not also explained. The political economy of foreign aid is largely missing in the empirical studies. In development literature, some papers suggest that the impact of foreign aid on economic growth is conditional on good institutions and policy environment (Akramov, 2012; Bräutigam and Knack, 2004).

Conclusions

The paper reviewed relevant literature on foreign agricultural aid and growth in SSA from the perspective of Development Assistance (DA) by identifying and synthesising, methodological approaches and relationships. Using a systematic approach, it provides an overview of the conceptual and analytical frameworks of foreign aid and growth. It also examines the empirical evidence of the relation between Agricultural aid and productivity growth and assesses the methodological approaches of relevant studies reviewed.

The conceptual, theoretical or analytical framework reviewed presents some important scenarios which support a growing interest in understanding the interactions of foreign assistance with agricultural productivity and growth in Sub Saharan African countries. First, a larger share of government expenditures in many developing countries are from foreign aid. Secondly, agricultural sector development plays a critical role in the overall economic development of these countries especially in the early stages of development where government plays a critical role by investing in agricultural research and physical infrasture. Finally, foreign agricultural aid does not only consist of cash or material transfers but also involves transfer of ideas through policy advice and skills in the form of technical assistance.

Empirically, there is a significant relationship between foreign agricultural aid and agricultural

productivity and growth in Suh Saharan African counties but when compared with other independent factors such soil productivity, public investment policies, climate change, the availability of arable land and other country specific factors the relationship is weak. However, multilateral agricultural aid is reported to have been stronger than other forms of aid. The results suggest that aid is only acting as a catalyst in agriculture-led growth in Africa. So much responsibility and commitment is required of governments. They have huge responsibilities to create and main rural infrastructure, invest in agricultural research and facilitate small holder farmers access to credit. In general, there are still many different statistical studies with varying results regarding the correlation between aid and economic growth

The Generalised Method of Moments (GMM) is a widely used approach to examine the relationship between aid and growth in Developing countries. This is quite expected given the nature of data sets and sample size of the investigations; (time series and between 29 - 47 SSAs involving several indicators). The GMM allows for most flexible identification of estimates. Alternatively, the MLE could provide a better statistical significance for parameter estimates, but it requires strong distributional assumptions. The Data Generation Process must be completely specified. However, some studies have shown that GMM estimators of dynamic panel models are unstable and potentially biased in finite samples (Roodman, 2009a and 2009b in Galiani et al., 2017).

For future research on foreign aid and economic growth in Africa, there should a broader conceptual, theoretical and analytical framework that clearly define how agricultural aid influences productivity when measured against other influencing factors. This is particularly important when issues of political or ideological underpinnings in foreign aid flows have not been adequately captured.

The problem of a weak relationship between agricultural productivity growth and aid in Africa

can be reversed if governments are able to provide sound political environment and physical infrastructure to promote investment in agricultural. It will therefore be interesting if further studies incorporate Foreign Direct Investment in the models of analysis even though these are largely not aid related

For proper analysis, foreign aid must be segmented in the equation model to determine its strength more appropriately. We could have bilateral aid, multilateral aid, financial and non-financial aid variables in the equation as separate independent variables.

To establish causality and capture key concepts, future investigations should consider the Structural Equation Models (SEMs). This can be used to test and evaluate multivariate causal relationships, the direct and indirect effects on pre-assumed causal relationships and to accurately measure key concepts such as governance index, political and ideological pathways of foreign aid.

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