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## **Emerging Evidence on the Relative Importance of Sectoral Sources of Growth in Sub-Saharan Africa**

Eric Kehinde Ogunleye\*

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### **Abstract**

Purposeful, well-targeted and successful transformation policies will be elusive for a country or region that does not understand the relative importance of its sectoral sources of growth. This study aims at eliciting our understanding in this respect by providing an assessment of the relative importance of the major sectors as sources of growth in sub-Saharan African (SSA) countries. Our findings reveal that, contrary to the general belief that agriculture is the most important contributor to economic growth in SSA countries, rather it is the service sector that leads, followed by agriculture and manufacturing. While not discounting policies aimed at strengthening all sectors, the service sector particularly needs to be better positioned to foster sustainable economic growth in SSA countries.

**Keywords:** Economic growth, sectoral drivers, Arellano-Bond

**JEL classification:** O40, O47, O55

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\*Special Assistant to the President (international trade and finance), Office of the Chief Economic Adviser to the President, Federal Secretariat Phase III, Business District, Abuja, Nigeria.

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UNU World Institute for Development Economics Research (UNU-WIDER)  
Katajanokanlaituri 6 B, 00160 Helsinki, Finland

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## 1. Introduction

Sub-Saharan Africa (SSA) is one of the most widely investigated regions of the world with respect to determinants and constraints of economic growth and development. These interests are sparked by the fact that despite different policy prescriptions and implementation, economic growth and development remains slow in the region, falling almost consistently behind other developing regions. This plethora of studies sometimes yields varied, diverse and inconsistent results. While some believe that Africa's colonial history is responsible for its slow growth, others heap the blame on physical geography and climate. Yet others conclude that tribal divisions, poor quality of governance and institutions and conflicts resulting from resource abundance are the important factors. Thus, these findings yield several policy prescriptions that are as diverse, contradictory and inconsistent as the findings. Implementing them has led to mixed results, generating several myths and realities on economic growth and development in the region.

Within the diverse theoretical and empirical literature on economic growth and development in SSA, there are also diverse views on *the* relative importance of sectoral drivers of growth. While some believe that agriculture is the most important driver, others advocate industrialization, especially manufacturing. The emerging view is giving prominence to the role of services. The Industrial Revolution that laid the foundation for sustainable economic growth and development in Europe naturally induced the policy thinking that industrialization was the most important driver of growth. Thus, beginning from the 1950s, SSA countries were encouraged to pursue industrialization originally aimed at satisfying the markets of the advanced economies. Most of these countries vigorously pursued the Import Substitution Industrialization (ISI) strategy and later the Export Promotion strategy. Inappropriate policies and economic realities in SSA countries vis-à-vis the industrialized countries being copied, led to structural economic problems that resulted in stagnation and even retrogression. Adjustment was imperative, and came at the heels of the Bretton Woods institutions that recommended agriculture as the important driver of growth. Again, appropriate, effective and successful policies aimed at improving productivity in this sector remains the daunting challenge. Discussions on the role of services as a potential driver of growth are relatively new. However, the new, robust and consistent reality emanating from our findings reveals that this sector is the most important driver of growth in SSA between 1980 and 2007.

Understanding the relative importance of sectoral drivers of growth in SSA countries has serious policy implications. Without this understanding, policies will be misdirected. The goal of this study is to determine the relative importance of agriculture, manufacturing and services as drivers of economic growth in selected SSA countries. This study contributes to the growth literature in SSA by providing a deeper understanding of the relative importance of sectoral drivers of growth in the region. Attempts are also made to identify the channels through which these effects occur for services, the most important sectoral driver of growth identified in this study. In order of importance, services, agriculture and manufacturing are the sources of growth in SSA countries, while openness and the labour force are the greatest constraints on services in influencing economic growth. Anecdotal evidence suggests that employment is the possible channel through which services impact on growth.

The paper is organized as follows. In Section 2, myths and realities on economic growth in SSA countries are provided, with emphasis on the determinants of growth and the shifting focus on sectoral drivers of growth. The nature and structure of economic growth in SSA countries is our concern in Section 3. In Section 4, issues involving the theoretical and empirical methodologies and data are discussed. Presentation of our empirical findings and their discussion are our focus in Section 5. Policy issues and recommendations are the focus of Section 6 while Section 7 concludes.

## **2 Myths and realities on economic growth in Africa**

Several myths exist about economic growth in SSA countries. Some of these myths originate from mere hearsay; others are based on personal beliefs, opinions and convictions. While these myths exist, the realities of economic growth in Africa also exist. The aim of this section is to provide realities confirming or debunking some of the myths about economic growth in SSA countries, with focus on the determinants of economic growth and illusions about the sectoral drivers of growth.

### **2.1 Determinants of economic growth**

#### *Initial conditions*

Initial conditions in African countries are believed to play an important role in explaining the region's economic performance. For instance, the colonial legacy and ethnic divisions of African countries are assumed to influence growth through poor choices of economic policy (Sachs and Warner 1997). Long years of colonialism created the conditions that induced the slow growth being experienced by most African countries today. The nature of colonial rule and the policies they adopted created artificial and polarized countries, forcing together people that are culturally, socially and ideally different and divided. A classic example is Nigeria. In fact, an opposition leader in the 1970s and 1980s once referred to the country as a mere geographic expression. The inherited initial conditions continue to haunt the country to the present day as demonstrated by the incessant ethnic and religious clashes. Colonial policies also created a dichotomous society based on a sentimental construct of ethnicity that engendered the spirit of superiority of one ethnic group over the other. To cite such an example, the concept of Hutus and Tutsis rhetoric in Rwanda was invented by the colonial leaders. This concept created a porous and volatile society resulting from deep-seated animosity between the groups with a penchant for power and dominance. The genocides were manifestation of this. SSA countries also inherited a dependent economy structured to satisfy the market needs of the industrialized countries, especially raw materials. Thus, infrastructure development, education and human resource development were structured to achieve this aim.

The realities, some of which are already mentioned above, demonstrate the truthfulness that initial conditions are an important factor of economic growth and development in SSA countries. This is an important factor in explaining the rapid progress made by Botswana, and economic stagnation in countries like Nigeria. Botswana was never

polarized nor did the country lose its traditional ways of doing things. These remain the basis for institutional, economic, social and political decision making. However, where doubts about the importance of initial conditions are admissible is when we look at a country like Ethiopia that was never colonized. Despite this status, economic performance in this country is not significantly different from other SSA countries with the initial conditions constraint. Somalia is a similar example of a country that was never formally colonized. In contrast, there are countries that were enmeshed in this initial condition constraint but have succeeded in overcoming this obstacle to growth. Examples of these countries include Rwanda and Mauritius, and to some extent Ghana. Mauritius, for instance, despite its initial conditions has grown from a poor agriculture-based economy to a diversified middle-income economy with rapidly growing industrial, financial, and tourist sectors.

### *Governance and institutions*

It has been established that poor governance, weak institutions and poor policies explain a large part of the slow growth in SSA countries with the strong belief that better policies would contribute to stronger economic performance (Sachs and Warner 1997). These variables exert both a direct and an indirect influence on economic performance. Indirectly, they spur growth through increasing both domestic and foreign investment, improving the performance of public and private institutions and increasing the size and efficiency of the domestic economic base. Demonstrating the importance of institutions in growth studies, Levine and Renelt (1992) noted that a set of these policy variables are rarely jointly insignificant in a growth regression. It is noteworthy that the current debate on the role of governance, leadership and institutions on economic performance now tilts heavily towards quality, where capability, commitment and credibility are the main issues.

To a large extent, the failure of SSA countries in significantly attaining high economic growth and development is almost synonymous with the failure of governance. Barro and Lee (1993) argue that there exists a feedback relationship between economic stability and political stability. Illustrating with the case of Ghana, Aryeetey and Tarp (2000) demonstrate that political instability contributes significantly to macroeconomic instability. Several issues are identifiable here. First is the legitimacy of governance. Governance in most SSA countries has been through coups, counter-coups and military 'revolutions' and these bring into power the most incompetent persons who know almost nothing about governance. They have used both the power of the gun and rents from natural resource exploitation to perpetuate themselves in power for decades. Thus, the process that generated these leaders is not representative and as such is illegitimate. Second is the objective functions of political leaders which are often at variance with those they represent. While the objective function of the people is social welfare maximization and optimal allocation of public goods, the leaders have a diametrically different objective, namely, enriching and amassing wealth for themselves through whatever means. Third, given the first two issues raised above, political leaders in SSA countries are often corrupt, lack political will, dedication and the capability for effective governance. Thus, they lack the required thought processes and strategies for economic growth and transformation.

In addition to governance, quality of institutions is also often used in explaining economic growth in SSA countries. North (1981: 201-2) defines institutions as 'a set of rules, compliance procedures, and moral and ethical behavioural norms designed to

*constrain* the behaviour of individuals in the interests of maximizing the wealth or utility of principals'. This definition provides a clearer picture of the concept of institutions. Institutions in SSA countries, both private and public, are evidently and generally weak. This notion can be traced to Lewis (1955) where problem of economic growth and its proximate causes were explored. These proximate causes of economic growth were linked to several issues including social, institutional, historical, psychological and biological issues. The realities show that countries with stronger and less distorted social, political and economic institutions tend to perform better than those whose institutions are weak and disturbed through external intervention. For instance, the strong institutions in Botswana which are enshrined in its traditional, pre-colonial period are believed to be a major factor behind the country's high economic performance. The Tswana tribes, for instance have strong traditional institutions that allowed for implicit bargain between their leaders and the people. There were established forums for consultation between the chief and his people through a public forum known as the *kgotla* (Du Toit 1995: 21) where all affairs of interest to all parties are openly discussed. This has provided the basis for the transparent, accountable and responsive governance practiced in this country with its very positive effects on economic performance. Other SSA countries had similar institutional arrangements. However, external intervention through colonialism destroyed these institutions and bequeathed these countries with a foreign, strange and incomprehensible system which they find difficult to understand.

### *Geography*

Two geographical factors that are often cited as the sources of slow growth in SSA countries are the landlocked and tropical climatic natures of most of these countries. This is based on the fact that about a third of all SSA countries are landlocked while almost all of them are tropical. The landlocked nature of SSA countries is believed to be even more important given that none of the fast growing Asian economies possess this feature. The channel through which landlockedness influences growth is the constraints it imposes on openness to trade due to the higher costs and inconvenience of international activities, especially shipping. The tropical climatic nature of SSA countries is associated with higher prevalence of diseases that affect both humans and crops in temperate regions. This suggests that workers will fall sick more often, thus significantly reducing their real and potential productivity. Similarly, agricultural crops in this region are prone to attacks from tropical pests and insects which could drastically reduce output. Tropical countries are also characterized by low soil quality and less reliable rain. It is worth mentioning that it was Lewis (1955, 1977) who first used the terms tropical economies, countries of temperate settlement, the wet tropics and the dry tropics as variables explaining economic growth.

The reality, however, is that Africa is not different as landlockedness is not peculiar to the region. To begin with, 15 out of the 53 countries in Africa<sup>1</sup> are landlocked, representing less than 30 per cent. Although this is the highest in any continent, the fact remains that other continents of the world also have some landlocked countries, and this has not resulted in stagnation of the continent. In Europe, Austria, Luxembourg and Switzerland are landlocked countries. Yet, they are not in any way falling behind other non-landlocked countries in terms of growth and general economic performance. In

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<sup>1</sup> These countries are Botswana, Burkina Faso, Burundi, Central African Republic, Chad, Ethiopia, Lesotho, Malawi, Mali, Niger, Rwanda, Swaziland, Uganda, Zambia and Zimbabwe.

fact, Luxembourg has been consistently ranked number one economy in the world on the basis of per capita income. While the small size of the economy and low population could be advantageous, the consistency suggests that the landlocked nature of the country is not a constraint to economic performance and should not be to SSA countries.

To further counter the argument of the role of this geographic factor in economic performance, there are no less than four landlocked African countries that are serving as role models of economic performance, suggesting that landlockedness is not a constraint to growth as purported. These countries are Botswana, Ethiopia, Rwanda and Uganda. Since 1993 up to 2007, these four countries have recorded GDP growth that is consistently above five per cent, with the exception of 2003 for Rwanda and a few years for Ethiopia. On the other hand, several coastal countries are rather reporting consistently poor economic performance compared to the landlocked countries. For instance, despite its long coastal line, Nigeria's real per capita income has been hovering in the neighbourhood of US\$300-US\$400 annually between 1960 and 2007, with the highest peak of US\$472 in 2007. The picture is even gloomier when we consider DRC. With a peak real per capita income that stood at about US\$343 in 1974, the country's economic performance has been declining steadily with its real per capita income plummeting to US\$93 in 2007. The picture is not any better in Cote d'Ivoire. With a peak of over US\$1,100 real GDP in 1978, the figure has witnessed a systematic decline by more than half to reach an all-time low of less than US\$550 in 2007. This demonstrates that the notion of landlockedness as a cause of slow growth needs to be re-examined.

### *External factors*

External factors that have been advanced as impinging on economic growth in SSA countries are the international commodity market and the international financial system. International commodity market conditions influence growth negatively through openness of SSA economies. The extent of negative impact is demonstrated in Fosu (1998: 31) who writes,

... the 'contagion' effect can be substantial and the 'speculative attacks' may lead to overshooting of the long-run equilibrium exchange rates. Such short-run equilibria can be destabilizing and highly deleterious to both economic and political institutions. It is thus conceivable that these 'short-run' disturbances would have medium or even long-term adverse impacts on affected economies'.

However, the empirical evidence on the effect of export instability originating from fluctuations in foreign demands or in world prices in SSA is inconclusive. While Gyimah-Brempong (1991) found a statistically significant negative impact during 1960-86, Fosu (1992) established a statistically insignificant negative impact for 1970-86, with earlier studies establishing similar results and a concluding argument that the effects of exports instability on growth is substantial only when it is transmitted into capital (investment) instability (Fosu 1991). On the other hand, there appears to be an unambiguous negative effect of import instability on growth (see Helleiner 1986; Fosu 1998). Nor are prices of exports the source of the poor economic growth in Africa (Fosu 1991, 1992, 1997). My position here is that the reality about the negative effect of export instability on growth in SSA countries is that it is self-induced through

concentration in primary commodities that are subject to the vagaries of international market prices. With the exception of very few, most SSA countries are engaged in production and exports of the same kind of commodities. Diversification is the key to breaking out of this constraint. However, apart from a few SSA countries like Mauritius, not many African countries have made a conscious effort to pull themselves out of this quagmire.

Another external factor is external aid and debt. While some authors have claimed that aid has a harmful effect on growth (Griffin and Enos 1970; Mosley et al. 1987; Krueger et al. 1989), others have established a positive effect (Grinols and Bhagwati 1976; Levy 1987; Pack and Pack 1990). These opposing submissions have been harmonized by Burnside and Dollar (1997) who argued that the effectiveness of aid on growth works through the policy environment with the finding that aid is effective in good policy environment. On a general note, negative effect of external debt on economic growth has been established (see Ojo and Oshikoya 1995; Elbadawi et al. 1996: 49-76; Fosu 1996, 1999; Iyoha 1999). Again, the reality is that the external debt burden was self-inflicted. It is a price to pay for the poor economic policy management and choices that characterized most of these economies in the 1960s and 1970s. These wrong economic policy choices resulted in structural imbalances that necessitated the adjustment which ultimately resulted in large external debt accumulation. This growth constraint would have been avoided by most of these countries if they had carefully considered the long-term impact of their policy choices.

### *Policies*

Blame for the poor economic growth of SSA countries has been heaped on the direct policy intervention of the Bretton Woods institutions and the Donor countries through the structural adjustment program (SAP) designed to help Africans overcome their structural economic crises and imbalance of the 1970s and 1980s. It is imperative to point out at this juncture the complicity of African leaders and elites in the bad shape that the African economies found themselves during this period which necessitated this foreign intervention. The import substitution industrialization (ISI) policy adopted in the 1960s and 1970s was questionable. The ISI was a development paradigm developed originally for the Latin American and Caribbean countries. This policy was adopted by SSA countries without questioning its veracity and appropriateness to the social, economic, cultural and political realities in the continent. Moreover, systematic application of this policy to African countries was missing. For ISI to succeed and generate the intended impact, several multi-level policies, coordination, targets and human capital are required. However, all of these were ignored. This is not surprising given that adoption of this policy seemed to have been motivated by an anti-colonial and socialist struggle and a strong desire to quickly overcome the colonial inheritance and legacies as demonstrated in the case of Ghana in the Seven-Year Development Plan (1957–66). There was thus no objectivity in assessing the realities of the economies before adopting the policy. Granted, the concept of ISI was not bad in itself but fault lay with the nature of its implementation in SSA countries which favoured massive state support, exchange controls, overvalued exchange rate, quotas, state subsidies and highly penalized exports. Corruption, tribalism and nepotism on the part of elites who were saddled with the responsibility of running the state-owned enterprises led to complete run down of these institutions.



## **2.2 Shifting focus on sectoral driver of growth and development in Africa**

In the 1950s, when most African countries were colonies of Great Britain, Arthur Lewis's two-sector growth model designed for British colonies was the economic development paradigm that informed policies. The policy was developed originally for Latin America and Caribbean countries, and later for African countries and was based on the belief that developing countries should naturally follow the path taken by the industrialized economies at the end of the Second World War. More importantly, these colonies were believed to have very small domestic markets, insufficient capital and a shortage of skilled human capital. Therefore, it was thought that the best model of development was the infusion of physical capital, human capital and technology from the capital-rich industrialized countries into African countries for the purpose of producing exports to satisfy the demand in the industrialized countries. Based on this understanding, the logic was simple: industrialization was the driver of economic growth and development in SSA. African countries faced daunting challenges to industrialization resulting from the shortage or absence of physical and human capital, entrepreneurial skills and technological know-how, but these challenges were to be surmounted through foreign outsourcing, from industrialized countries; SSA would then experience growth and development.

As African countries began emerging from colonial rule, they guided themselves with the thinking that industrialization was the key to economic development. This explains why Ghana, under Dr. Kwame Nkrumah, recruited Arthur Lewis to fashion an industrial policy for the country at independence. Lewis's (1955) solution was simple: structurally transform the subsistence-based agricultural economy into a modern industrial economy. This development paradigm was given an impetus by Prebisch (1950) and Singer (1950). Thus, several African countries vigorously pursued an import substitution industrialization (ISI) policy as a means to attain economic growth. This policy option made sense in that it was irrational to import at very high costs manufactured goods that were produced with primary products that had been originally exported from these countries at very low prices.

A discernible weakness inherent in this policy though was the incorrect assumption that economies of SSA countries are similar to those of the industrialized countries and should, therefore, follow their growth path. Second, the model favoured foreign capital and foreign investors, thus inducing over-reliance on foreign capital and capital flight. Finally, this development thinking did not take cognizance of the natural resource endowments and comparative advantage of SSA countries.

The outcomes of the implementation of the ISI confirmed the veracity of our position above. The emphasis on industrialization led to a major neglect of agriculture and food production. Food imports rose and so too did the bills. The industries created were over-protected through unrealistic exchange rates and trade policies, and through substantial subsidies granted by the government as incentives to produce. Domestic innovation and invention was absent, implying a high cost of imported machinery. All these factors reinforced themselves to make these firms highly uncompetitive. It is worth stressing at this juncture that the ISI policy was not bad in itself but rather the fault lay with the mode of its implementation.

Beginning in the mid-1970s, most economies of SSA countries began to manifest structural problems emanating from both internal and external sources. Some of these structural problems include: a low economic and export base; excessive focus on the industrial sector to the neglect of agriculture and services; a declining balance of payments, stemming from a consistent fall in the prices of agriculture and raw material exports relative to the rising prices of imported manufactured goods; existence of over-intrusive, bloated, inefficient and corrupt state-owned enterprises that enjoyed state protection as large monopolies and oligopolies; and a serious drain on fiscal revenues through large state subsidies, foreign credits and a reduced drive for tax collection.

The World Bank/IMF intervened in helping African countries solve the perceived structural rigidities in their economies through the adoption of the Structural Adjustment Programme (SAP). One of the pillars of this policy prescription was that African countries should focus on agriculture as the driver of growth and development. One important factor behind the belief that agriculture was or could be the sectoral driver of economic growth in SSA is the fact that apart from Southern Africa approximately over 60 per cent of the economically active population in the continent was engaged in agriculture with an even higher percentage of the population living in rural areas. There were two possible channels through which agriculture could drive growth in SSA. Employing the analysis of Arthur Lewis, modernizing agriculture would provide a means of employing less of this army of unemployed and underemployed workforce engaged in the sector, while releasing the majority of the workforce for more productive use in non-agricultural sectors such as industry. For earlier views on the role of agriculture in economic growth see Rosenstein-Rodan (1943), Rostow (1960), Lewis (1955), Fei and Ranis (1964), and Harris and Todaro (1970).

Another factor behind the thinking that agriculture holds the key to economic growth in SSA is its role as a productive sector and high contribution to economic activity, measured in terms of GDP. On average, between 15 and 20 per cent of GDP was derived from agriculture. This has remained so since these countries got political independence, demonstrating little structural transformation of the economy. This naturally led to the worrying fact that the sector contributes more to employment than it does to output, implying that productivity per worker is very low relative to other sectors. In fact Gollin (2009) finds a striking difference in output and income per worker between agriculture and non-agriculture activities. Specifically, 13 countries have *average* agricultural output per worker that is less than US\$1 per day, 17 countries recorded US\$2 per day for the same variable. Removing perceived obstacles to productivity and modernizing the sector, therefore, holds the key to improving productivity in the sector for improved contribution to economic growth.

Agriculture is also thought to be of high importance to economic growth in SSA given its potential for feeding the teeming population in the region. Schultz (1953) argued that many poor countries, most of which are found in Africa are in a situation of high food drain, that is, 'a level of income so low that a critically large proportion of the income is required for food'. For instance, undernourishment and complete lack of food is closely linked to the poverty and underdevelopment that is prevalent in Africa today. And this can become a vicious cycle where undernourishment and malnutrition leads to low cognitive functioning, poor education and physical stamina. This implies subsequent low supply of labour and poor quality of the labour supplied. This, in turn, leads to poor productivity, poverty and economic growth. It is also noteworthy that low productivity

in agriculture induces higher prices of food and other basic needs and increases food imports bills that ultimately hinder economic growth.

Another important argument that is pertinent to economic growth in Africa is whether agricultural productivity improvements precede economic growth or is preceded by it. Industrial revolution is often cited as an instance in establishing the nature of causation between agricultural productivity improvements and economic growth. The conclusions on this issue remain inconclusive (see Kuznets 1966; Chenery and Syrquin 1975; Syrquin 1988).

Thoughts about services as a possible driver of growth in African countries is informed by the increasing role of services in the global economy and the fact that economies dominated by high service industries typically tend to be knowledge intensive. Tomlinson and Ndhlovu (2003) demonstrate that there has been a steady rise in the share of service sector in GDP in all regions, developed and developing. Financial services, trading and recently tourism are the major activities in this sector. An important factor that has given impetus to the emergence of this sector as a possible growth-inducing activity in Africa is the recent reforms especially in the financial sector. Pioneering works on the possible contribution of financial services to economic growth was carried out by Gurley and Shaw (1967), McKinnon (1973) and Shaw (1973). These studies emphasized financial intermediation, monetization and capital formation as the important channels through which financial services could impact on growth. The thinking here is that as economy develops, demand for financial services both in terms of quantity and quality increases. This sends signals to players in the sector to be innovative in their efforts to develop better financial products. It was also conceived that a developing financial sector could help induce higher economic growth by providing financial services for more productive and higher economic activities, suggesting a possible feedback relationship between financial services development and economic growth.

Another factor that has led to the emergence of the service sector as a possible sectoral driver of growth is the technological and communication revolution that began in the 1980s. This has led to significant productivity of labour engaged in the sector. In countries like Singapore, services based on improved technology have gained so much prominence that they contributed up to US\$27.5 billion to the economy in 2000. Thus, in 2002 the country's Economic Review Committee recommended a focus on developing this sector, especially finance, logistics and tourism with the projection that these activities would add 0.4 per cent to the country's annual GDP growth and create additional 200,000 jobs by 2012.<sup>2</sup>

Several studies have confirmed the long-term positive effects of tourism services on economic growth (see Tosun 1999; Balaguer and Cantavella-Jorda 2002; Dritsakis 2004; Gunduz and Hatemi 2005; Oh 2005; Proenca and Soukiazis 2005). In fact, a study has established that countries with tourism services grow faster than OECD, oil-exporting and LDC countries (Brau et al. 2003). It is important to point out that most of these studies are based on the experiences of countries outside the SSA. There remains a dearth of studies examining this relationship for SSA countries.

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<sup>2</sup> [http://findarticles.com/p/articles/mi\\_hb4692/is\\_200210/ai\\_n17601912/](http://findarticles.com/p/articles/mi_hb4692/is_200210/ai_n17601912/)

### 3. Nature and structure of economic growth in SSA

Economic growth across African countries has been relatively strong in recent times (see Table 1). On average, GDP in SSA averaged about 5 per cent between 2000 and 2007, with a peak of over 6 per cent in 2007. Similarly, per capita GDP averaged less than 3 per cent with a peak of about 4 per cent during the same period. Overall most countries recorded positive GDP growth rates as opposed to the pervasive negative growth rates in previous decades. We can classify economic performance of SSA countries during this period as strong performers<sup>3</sup> (those with 5 per cent average and above), good performers<sup>4</sup> (those with growth rate between 3 per cent and 4.99 per cent), low performers<sup>5</sup> (those with growth between 1 per cent and 2.99 per cent) and poor performance<sup>6</sup> (less than 1 per cent and negative growth). From this simple exercise, it is possible to identify countries that are driving the growth in Africa. Prominent among these are Angola, Equatorial Guinea, Ethiopia, Mozambique, Sierra Leone and Sudan, all of which recorded an average of over 7 per cent growth rates during this period. It is clear from this list that most of these countries are driven by natural resources. This heart-warming development about strong economic performance in SSA countries has been attributed to several factors. These include a benign external economic environment, favourable and rising global market prices of resources, favourable policies, stronger institutions, improved governance and reduced civil and armed conflicts etc. Further improvement in these policy variables and exogenous factors are expected to help consolidate the gains made so far.

Table 1: Economic growth in SSA, 1961-2007

	1961- 69	1970- 79	1980- 89	1990- 99	2000- 07	2000	2001	2002	2003	2004	2005	2006	2007
GDP Growth (Annual)	4.63	4.07	2.18	2.05	4.83	3.51	3.70	3.39	4.23	6.16	5.65	5.78	6.25
GDP Per Capita Growth	2.03	1.23	-0.79	-0.70	2.25	0.79	1.06	0.85	1.67	3.58	3.08	3.22	3.79

Source: African Development Indicators, CD-ROM, 2008-09.

However, the downside to the sustainability of this brilliant performance is the current financial and economic crisis rocking the global economy with strong negative implications for African countries. The risk here is that the crisis is negatively impacting on all the sources of economic growth in SSA countries, namely, trade, falling commodity prices, FDI inflows, aid inflows, and remittances (IMF 2009). If not quickly

<sup>3</sup> Angola, Botswana, Burkina Faso, Cape Verde, Chad, Equatorial Guinea, Ethiopia, Ghana, Mali, Mozambique, Nigeria, Rwanda, Sierra Leone, Sudan, Tanzania and Uganda.

<sup>4</sup> Benin, Cameroon, Democratic Republic of Congo, Republic of Congo, Djibouti, The Gambia, Kenya, Lesotho, Liberia, Madagascar, Mauritania, Mauritius, Namibia, Niger, Senegal, South Africa, and Zambia.

<sup>5</sup> Burundi, Comoros, Gabon, Guinea, Guinea-Bissau, Malawi, Swaziland, and Togo.

<sup>6</sup> Central African Republic, Cote d'Ivoire, Eritrea, Seychelles, and Zimbabwe.

addressed, this could erode all the gains made over the last few years and return SSA countries to another decade of slump economic performance as economic growth is already projected to drop over the next few years.

In the previous decade, economic growth in African countries was less impressive. In fact, this decade and the previous one (1980-89) is believed to be the period of worst economic growth ever witnessed by SSA countries. Economic growth was so bad in the 1980s that the decade was labelled the lost decade for the region. Warnings about looming gloomy economic performance began in mid-1970s, pointing specifically at structural problems associated with the countries. These were all based on the conviction that earlier development strategies, based on unfulfilled promises of the European Community in the First and Second Yaoundé Conventions, had failed dismally, invoking untold negative shock on African development efforts. Several home-grown, self-designed and self-reliant growth and development initiatives were developed for the purpose of correcting, in an urgent manner, the perceived structural imbalance and averting the impending economic woes. Some of the prominent initiatives include the Monrovia Declaration of Commitments, the Lagos Plan of Action; and the Final Act of Lagos. To a large extent lean financial resources constrained the implementation of these programmes.

In the early 1980s the World Bank conducted an independent assessment of the economies of SSA countries and came up with the conclusion that the problem with these economies was structural (see World Bank 1981). Several policy prescriptions based on the neo-liberal philosophy were prescribed for implementation across all SSA countries. These policy prescriptions became the basis for the World Bank/IMF intervention popularly known as the Structural Adjustment Programme (SAP). There are diametric opinions held on the impact of this policy on the economic performance of SSA countries. While some believed the programme recorded some level of success, others opined that it was a complete failure. Despite these divergent views, one thing is clear: the policy did not succeed as anticipated nor did it have the intended impact. This view is borne out of a cursory look at macroeconomic data, especially growth of SSA countries during this period. If we apply our earlier classification, over 60 per cent of African countries fall under the low and poor performance categories. Moreover, most African countries still demonstrate clear features of structural problems today.

The 1960-75 period has been described as 'Africa's golden era' (Adedeji 2002). The reason for this conclusion is not far-fetched. As countries emerged from independence with strong determination and optimism, the region performed excellently well in almost all macroeconomic variables. There were visionary, dedicated and committed leaders building a developmental state for the growth of their economies. During this period, the GDP, exports, agricultural production and manufacturing grew at annual rates of 4.5 per cent, 2.8 per cent, 1.6 per cent and 6.0 per cent respectively (Adedeji 2002). Again, following our classification, about 70 per cent of the countries can be classified as strong and good performers. Agriculture was believed to be the dominant driver of the economies during this period, employing a greater percentage of the population and generating substantial foreign exchange. Suddenly, however, towards the end of the 1970s, the table turned and the region began experiencing symptoms of social, economic, political and governance crises that necessitated the external intervention described earlier.

In recent years there has been significant shift in the structure and composition of GDP in most African countries, with a noteworthy shift away from agriculture toward services in most countries, and toward industry in the case of few countries, notably Mauritius. In 2007, for instance, services (44.3 per cent) accounted for the largest share of GDP, followed by industry (41.7 per cent) and agriculture (14 per cent). Compared to 2000, the relative shares of agriculture, manufacturing and services declined in 2007. This shortfall was compensated for by increasing mineral and oil outputs in the resource-endowed countries. In terms of growth performance, all sectors showed improved growth over time (see Table 2). While agriculture recorded the highest average annual growth in the 1990s, the structure has since changed in favour of services with this sector now leading, followed by manufacturing and agriculture. The sectoral performance has also witnessed relatively impressive growth as all sectors recorded improved performance over time. Again, the strongest performance was recorded in services followed by industry, particularly mining, which includes petroleum.

Table 2: Sectoral growth rates in Africa, 1990-2007

Sector	1990-99	2000-05	2006	2007
Agriculture	2.9	3.7	4.9	4.5
Manufacturing	1.6	3.4	4.6	4.9
Services	2.5	5.1	6.6	5.6

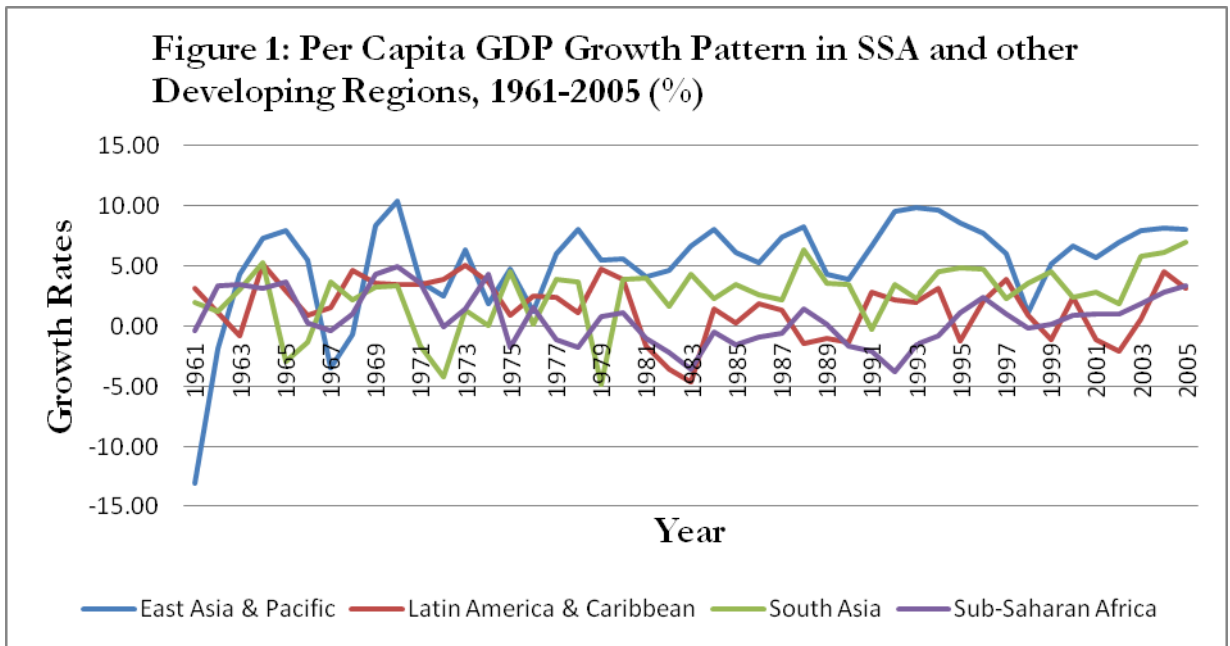
Source: AfDB (2008).

The overall picture of economic growth in SSA countries reveals a volatile and unsustainable growth pattern. In many countries, strong growth in a year is usually followed by very poor growth performance the following year, and negative growth in many cases. For most of the countries, it is very difficult to understand and identify a pattern for economic performance and growth. This is a cause for worry. It implies that policies aimed at influencing economic growth performance are still not having the desired result. It also suggests that SSA countries are still unable to mitigate and leverage the negative effects of exogenous shocks on their economies.

Juxtaposing economic growth in SSA with those of other developing regions of the world, it is evident that performance in SSA has not been consistently behind other developing regions as is generally believed. Per capita GDP growth was relatively good compared to other developing regions from 1960 until about 1974 (see Figure 1). The growth pattern was also relatively stable compared to other developing regions. Beginning from 1975, a steady downward pattern is discernible which became worse in the early 1980s, with growth rates staying almost permanently negative throughout. A rebound sets in from 1999 with a slow but steady rise. Though the global economic meltdown presents a major risk to the sustainability of this growth, it is hoped that pragmatic action being taken globally and by African countries will help mitigate this risk and re-launch the economies on the path of sustainable growth.

Several issues emerge from this brief exposé on growth and economic performance of African countries. One, while poor economic performance of African countries has been long recognized, these countries are yet to fully comprehend both the nature of factors constraining economic growth in their economies and the appropriate policy prescriptions to tackle them. Two, economic growth in SSA countries is characterized

by high volatility and has been greatly unsustainable. This is partly due to policy inconsistencies, policy reversals and exogenous shocks emanating from international politics and commodity prices.



Source: Based on World Development Indicators, CD-ROM, 2007.

#### 4 Theoretical and empirical methodology and data issues

The theoretical basis for this analysis is the conventional neoclassical growth model with the traditional determinants of economic growth but modified to accommodate per capita productivity growth in agriculture, manufacturing and services.

Following the standard Solow growth model (Solow 1956) of the Cobb-Douglas form, we have:

$$Y(t) = K(t)^\alpha \{A(t)L(t)\}^{1-\alpha} \quad (1)$$

$Y$  is output,  $K$  is physical capital stock,  $A$  is knowledge that enhances productivity, and  $L$  represents the number of workers. It is noteworthy that time affects output only through  $K$ ,  $L$  and  $A$ , while  $AL$  is effective labour. In this study,  $A$  represents productivity in the respective sectors and is the channel through which the relative effects and importance of productivity in the agriculture, manufacturing and service sectors on economic growth in SSA countries is being investigated.

We follow the empirical methodology often used in the growth literature, though rarely used for studies based on SSA countries. This model specification will be extended to account for interaction terms between agriculture, manufacturing and services growth and the level of income of SSA countries to allow the growth effect of productivity in these activities to vary with the income level. The standard growth regression usually estimated in the growth literature which we estimate for the selected SSA countries is as follows:

$$\ln Y_{i,t} = a_0 + \delta \ln Y_{i,t-1} + \beta' X_{i,t} + \lambda_i + \lambda_t + \varepsilon_{i,t} \quad (2)$$

The dependent variable ( $Y_{it}$ ) is per capita real GDP of SSA country  $i$  at time  $t$ . The explanatory variables are the initial per capita GDP ( $Y_{it-1}$ ) and a set of other explanatory variables ( $X_{it}$ ) that vary across both countries and time. The term  $\lambda_i$  represents the unobserved country-specific effects such as policies and institutions that may be important determinants of growth. On the other hand,  $\lambda_t$  is an unobserved time-specific effect while  $\varepsilon_{it}$  is the time-varying regression residual. The subscripts  $i$  and  $t$  denote SSA country and time period respectively, while  $\ln$  symbolize logarithm.

The presence of the lagged dependent variable ( $Y_{it-1}$ ) combined with that of the fixed effects ( $\lambda_i$ ) renders the OLS estimator inconsistent, given that  $\lambda_i$  is by construction correlated with the error term ( $\varepsilon_{it}$ ). There is also the high likelihood that other explanatory variables might be correlated with the fixed effects. Thus, every coefficient has the potential of being biased. The challenge, therefore, is to estimate a consistent and unbiased dynamic growth model for the selected countries. The first step in achieving this is to eliminate the fixed effects. But then, the Within OLS estimator which could do this is no better a technique since the equation is in differenced form, implying that the new error term ( $\varepsilon_{it} - \varepsilon_{it-1}$ ) is by construction correlated with the lagged dependent variable  $Y_{it-1} - Y_{it-2}$  (see equation 2). Thus, neither the OLS estimator nor the Within estimator are appropriate for estimating dynamic growth equations.

Another problem we have to grapple with is omitted variables, which could be variant or invariant. The inclusion of the fixed effects  $\lambda_i$  allows us to control for invariant omitted variables. There is also the probability of endogeneity of some of the explanatory variables. For instance, faster growing SSA countries might adopt technologies and innovations that would induce increased productivity growth in agriculture, manufacturing and services.

Many studies in the empirical growth literature address all these issues by relying on the Arellano-Bond Generalized Method of Moments (GMM) estimator proposed by Arellano and Bond (1991). This estimator technique controls for omitted invariant variables and corrects for the potential endogeneity of some explanatory variables by using internal instruments. In addition, the procedure controls and eliminates the unobserved individual-specific effects  $\lambda_i$  by first-differencing the growth equation. Despite this weaknesses in the use of OLS to estimate this type of model and the strength of the GMM methodology to correct for these weaknesses, very few studies employ this technique of analysis, prominent among which are O'Connell and Ndulu (2000) and Hoeffler (1999).

The estimated growth equation is of this form:

$$\ln y_{i,t} - \ln y_{i,t-1} = a_0 + \alpha(\ln y_{i,t-1} - \ln y_{i,t-2}) + \beta'(X_{i,t} - X_{i,t-1}) + (\lambda_i - \lambda_i) + (\lambda_t - \lambda_{t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1}) \quad (3)$$



In this framework, the explanatory variables assumed endogenous or predetermined can be instrumented and the validity of such instruments can be tested. To correct for the endogeneity problem, the Arellano-Bond GMM procedure employs lagged values of the corresponding endogenous variables as internal instruments. More specifically, endogenous variables are instrumented by lags from at least two periods and deeper and a pre-determined variable is instrumented by lags from at least one period and deeper. This demands some assumptions on the endogeneity or exogeneity of the explanatory variables included in the growth model. The explanatory variables can be strictly exogenous to growth or predetermined or endogenous.

For the purpose of this study, the following differenced GMM model is specified for estimation:

$$\ln \Delta Y_{i,t} = a_0 + \partial \ln \Delta Y_{i,t-1} + \beta' \Delta X_{i,t} + \Delta \lambda_i + \Delta \lambda_t + \Delta \varepsilon_{i,t} \quad (4)$$

It is pertinent at this juncture to elucidate on the variables contained in the row vector of explanatory variables ( $X$ ). These are agriculture, manufacturing and services productivity growth, labour measured as the economically active population, capital measured as the gross fixed capital formation, institution, governance, infrastructure measured as the number of both mainlines and mobile lines per 100 persons, human capital denoted by the secondary school enrolment rate, urbanization and trade openness. The model is estimated with the robust option to correct for heteroscedasticity.

The consistency of GMM estimation holds only if lagged values of explanatory variables are valid instruments. To ascertain this, two post-estimation diagnostic tests are provided. The Sargan test for the overall validity of the instruments is reported to determine whether lagged and first-differenced values of endogenous or predetermined explanatory variables are valid instruments. Another specification test examines whether the residual of the regression in differences is second-order serially correlated. While first-order serial correlation is expected, second-order serial correlation must be rejected to confirm the correctness of our model specification.

For the empirical purpose of this study, 38 SSA countries<sup>7</sup> are chosen based on data availability. All data are annual across the selected countries, spanning 1980-2007. Growth is the central focus of this study and is measured as annual per capita GDP growth in percentage. Agriculture, manufacturing and services are measured as the growth in the productivity of each of these variables measured in percentage. These variables are expected to exert positive influence on growth. There is no final judgment on the best measure of infrastructure in growth and development studies in SSA. However, we are constrained by data availability to use the number of telephone lines available, measured as both mainlines and mobile telephone subscribers per 100 persons. In our measure of human capital, we use education attainment, namely, the gross total secondary school enrolment ratio expressed in percentage. A positive

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<sup>7</sup> Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Cote d'Ivoire, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Sudan, Swaziland, Togo, Uganda, Zambia and Zimbabwe.

relationship is expected between human capital and economic growth. To capture issues of governance and institutions, we employ the Polity IV Project Database. The Revised Combined Polity Score otherwise known as Polity 2 is used as a measure of governance. This score is computed by subtracting the institutionalized autocracy indicator from the institutionalized democracy value indicator. The score ranges from -10 to 10 where higher score implies better governance. A positive sign indicates that governance makes a positive contribution to economic growth. To capture the effects of institutions, we follow Tabellini (2005) in using constraints on the Executive, as defined in the Polity IV Database. According to this criterion, better political institutions means that the holder of executive powers is accountable to bodies of political representatives, and government authority is constrained by checks and balances and by the rule of law. The value varies from 1 (= unlimited authority) to 7 (= accountable executives constrained by checks and balances). Higher values thus correspond to better institutions. For details on the governance and institution data, its components and computations, see Marshall and Jaggers (2009).

## **5 Empirical results and discussions**

We begin the discussion of our empirical findings by first examining the basic statistical characteristics of the model (see Table 3). Given the period (1980-2007) and country (38) of coverage of the study and frequency of the data (annual), there are 1,064 observations. The mean per capita GDP growth in the selected countries over the period was about half a per cent. This demonstrates the poor economic growth in SSA during the period under review. Given a standard deviation of more than 5, growth in these countries can be said to be volatile over the entire period. Rwanda recorded both the lowest and highest per capita GDP growth of -47 per cent in 1994 at the height of the genocide and 38 per cent in 1995 as the economy experienced a rebound at the end of the genocide.

Agriculture, manufacturing and services productivity growth recorded a respective mean of 2.73 per cent, 3.76 per cent and 3.76 per cent over the entire period in the selected countries. This suggests that manufacturing recorded the highest mean growth while agriculture had the least average growth. Again, this brings into the limelight the low productivity rate that characterizes the agriculture sector across SSA countries. This is induced by the nature of engagements. Agricultural production in SSA countries is dominated by small, peasant, subsistent and fragmented farm-holders whose mode of production is usually crude and output is usually for consumption.

Most African countries recorded zero number of mainlines and mobile telephone subscription per 100 persons in the 1980s and 1990s. The big relief came in the early 2000s with the infusion of the Global System for Mobile communications (GSM). This has substantially increased the number of mobile telephone lines, although some of these countries recorded a decrease in telephone mainlines subscription. This development explains the average subscription rate that stood at 11 during the period of study. South Africa, Gabon, Mauritius and Botswana are the trailblazers with over 80 subscribers per 100 persons in 2007. South Africa stood tallest with 99 subscriptions per 100 persons in the same year. School enrolment averaged 26.5 per cent over the entire period across the selected countries, revealing low enrolment rates. South Africa recorded the highest enrolment rate of over 95 per cent in 1995 while Burundi has the

lowest rate of 2.7 per cent in 1980. African countries are characterized by poor governance and institutions, explaining the low scores in these variables over the entire period. However, African countries are beginning to witness the emergence of good governance and efficient institutions in recent times.

Table 3: Summary of descriptive statistics of the variables

Variable	Mean	Standard Deviation	Minimum	Maximum
GDP Growth per Capita	0.49	5.44	-47.00	38
Agriculture Productivity	2.73	9.12	-37.00	68.00
Manufacturing Productivity	3.76	10.03	-54.00	66.00
Services Productivity	3.48	7.78	-57.00	48.00
Telephone lines	4.29	11.11	0	99
Secondary School Enrolment	26.51	18.81	2.7	95.4
Governance Institution	-1.49	6.01	-10.00	10.00
	-2.31	21.22	-88.00	7.00

Source: Author's calculations.

The estimated results of the growth models with annual growth in agriculture, manufacturing and services productivity for the 38 selected SSA countries based on the Arellano-Bond first differenced GMM estimates of equation (3) are reported in Table 4.<sup>8</sup> Sargan test are conducted and the results are reported with a view to assessing the validity of the over-identifying restrictions. The results reveal a failure to reject the null hypothesis that the over-identifying restrictions are valid in all cases. We also take cognizance of the fact that the validity of the GMM estimation is based on the condition that there is no second-order correlation, even though first-order autocorrelation is expected. Thus, we computed and report the Arellano-Bond test that average autocovariance in residuals of order one and two is zero. All the results confirm the absence of second-order autocorrelation. Consequently, the estimated coefficients reflect the true (efficient and unbiased) relationship between growth in agriculture, manufacturing and services productivity (our variables of interest) and the traditional pre-determined and endogenous determinants of growth, on the one hand, and per capita GDP growth, on the other. To establish the relative importance of productivity in the sectors as drivers of growth in SSA, we transform all the regressors so that they have mean zero (0) and standard deviation one (1). This is an innovative approach that we have not, to the best of our knowledge, seen done in empirical growth literature based on SSA countries' data.

<sup>8</sup> Estimations of the Arellano-Bond dynamic GMM models are based on the Xtabond command provided in STATA software.

Columns 1-3 in Table 4 report the individual impact of agriculture, manufacturing and services productivity on economic growth in the 38 selected SSA countries. Each of these variables has a positive and statistically very significant effect on growth. The estimated coefficients are, respectively, 0.36, 0.04 and 0.15. This tends to suggest that at this individual level, agriculture has the highest effect followed by services with manufacturing coming last. It seems, however, that the reason for this is the fact that deeper lags were used as instruments in the services model to correct for autocorrelation. In other models where services appear with either agriculture and manufacturing or both of them, services consistently recorded the highest coefficient.

Columns 4-5 combine two of these variables of interest in each of the models. Again, services consistently recorded the highest coefficient in all the models where it appeared. In column 4, where only agriculture and manufacturing are featured, manufacturing is observed to have outperformed agriculture.

Our analysis will be based on column 7, the model that examines the combined effect of all the variables of interest. Agriculture, manufacturing and services productivity all have the expected positive sign with a statistically very significant effect on growth and estimated coefficients of 0.32, 0.30 and 0.44, respectively. It is obvious that the estimate of services is significantly higher than the other sectors. A very important and fundamental finding emanating from this result is that the service sector has been the leading driver of growth in SSA countries. As mentioned earlier, the author is not aware of any earlier study that has done this kind of analysis. Thus, there are no earlier studies with which we can compare our findings. This finding is not surprising given that services productivity recorded the highest growth of 3.44 per cent in the 38 SSA countries considered in this study between 1980 and 2007. This finding has revealed as myth the notion that agriculture is the most important driver of growth in SSA.

There are five possible factors that have led to the emergence of services as the leading sectoral driver of growth in SSA: a reduction in conflict and insecurity that has improved tourism; increased trade in services; growth in urbanization that induces higher labour participation in service-related sectors; large capital and aid inflows that have led to a rise in prices of non-tradables; and recent increased Chinese activities in the service sector. In recent times, especially beginning with the previous decade, there has been a drastic reduction in civil, ethnic and political conflict in most SSA countries. Military despotism has significantly reduced, giving way to liberal democracy with its associated dividend of freedom. These positive developments have led to increased interest in tourism in these countries. Tourism has been an increased source of income for countries like Botswana, Mauritius, Kenya, Namibia, South Africa and Tanzania. The World Tourism Organization (WTO) has indicated that SSA countries have largely untapped potential for seaside, environmental, cultural, sports, discovery tourism and ecotourism.

Increased trade in services is another possible factor behind the importance of services as the leading driver of growth. For instance, between 2000 and 2005, trade in services as a percentage of GDP recorded an annual average of over 13 per cent for SSA countries between 2000 and 2005 and over 11 per cent between 1977 and 2005. The World Trade Organization has acknowledged that trade in services is the largest and most dynamic component of the economies of both developed and developing countries. This high importance explains the inclusion of trade in services as a subject of

multilateral trade negotiations by the World Trade Organization since 2000. To demonstrate the high importance of services to African economies, in 2007, the region recorded 22 per cent growth in exports of commercial services and 31 per cent in transportation services.

Furthermore, growth in urbanization which has induced huge rural-urban migration has resulted in people engaging more in services than agriculture, for instance. Most people, especially young ones, who move to urban areas usually find it difficult to obtain formal employment. In most cases they end up in services-related activities such as trading, hair-cutting, driving, hair-dressing, sewing, etc. In addition, the mass movement to the cities leads to a high demand for housing. This has created a new and rapidly moving estate development and real estate sector as construction is booming in most cities in SSA countries.

Beginning in the 1980s, SSA countries have witnessed unprecedented capital inflows in the form of aid and private capital. Most of these were in form of humanitarian aid to the countries in conflict and to economies implementing the structural adjustment. Others received large foreign exchange from natural resource booms, notably oil and minerals. These factors reinforced themselves to induce a rise in the real foreign exchange rate of these countries. This phenomenon, christened Dutch disease, increased prices of domestic tradables relative to their foreign substitutes while driving up the price of non-tradables. With this, labour, human and physical factors of production moved from production of tradables to the non-tradable sectors dominated by services. This structural shift toward non-tradable services lends a prominent role to services in economic activities.

Table 4: Panel data estimation of the sources of growth in 36 selected SSA countries for 1980-2007 using the Arellano-Bond GMM estimator

Explanatory Variables	Models: Dependent variable is $Y_{it}$ , per capita GDP growth							
	(1) GMM	(2) GMM	(3) GMM	(4) GMM	(5) GMM	(6) GMM	(7) GMM	(1) GMM
$Y_{it-1}$	-.0133 (.0355)	-.1217*** (.0328)	-.0501 (.0498)	-.0338 (.0282)	-.0030 (.0268)	-.0835*** (.0276)	-.0179 (.0239)	-.0133 (.0355)
AgriProd	.3591*** (.0321)			.3589*** (.0257)	.3167*** (.0241)		.3213*** (.0213)	.3591*** (.0321)
ManuProd		.0415*** (.0032)		.3939*** (.0262)		.2935*** (.0288)	.2997*** (.0244)	
ServProd			.1540*** (.0538)		.5431*** (.02901)	.4853*** (.0323)	.4414*** (.0279)	
Physical Capital	.1376*** (.0371)	.1654*** (.0348)	.1598*** (.0479)	.1450*** (.0286)	.1025*** (.0289)	.0869*** (.0305)	.0952*** (.0258)	.1376*** (.0371)
Human Capital	.0514 (.1579)	-.0109 (.1407)	-.0928 (.1375)	.0138 (.1240)	-.0395 (.1144)	-.0492 (.1200)	-.0552 (.0994)	.0514 (.1579)
Labour Force	-.4390*** (.0610)	-.5244*** (.0573)	-.3484*** (.0798)	-.3812*** (.0473)	-.3195*** (.0457)	-.3852*** (.0492)	-.2651*** (.0431)	-.4390*** (.0610)
Governance	-.0517 (.0745)	-.0302 (.0683)	.0708 (.1326)	-.0389 (.0557)	-.0694 (.0551)	-.0615 (.0584)	-.0396 (.0486)	-.0517 (.0745)
Institution	.0550 (.0364)	.0729** (.0337)	-.0403 (.0482)	.0572* (.0301)	.0028 (.0268)	.0192 (.0293)	.0043 (.0245)	.0550 (.0364)
Infrastructure	-.0616 (.1255)	.0684 (.1089)	.1447 (.0919)	.0305 (.0955)	.0219 (.0879)	.0624 (.0924)	.0375 (.0777)	-.0616 (.1255)
Openness	-.1578 (.1098)	-.3674*** (.1031)	.0545 (.1128)	-.2637*** (.0926)	-.0499 (.0878)	-.1719* (.0913)	-.0265 (.0752)	-.1578 (.1098)
Urbanization	.3517*** (.0808)	.4002*** (.0715)	.1962* (.1201)	.2270*** (.0617)	.1547*** (.0589)	.2135*** (.0618)	.0888* (.0539)	.3517*** (.0808)
Number of obs.	626	593	243	655	594	588	577	626
Sargan test, p-level	0.2594	0.2412	0.1237	0.3194	0.2435	0.1429	0.2542	0.2594
AR(1) test, p-level	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AR(2) test, p-level	0.6805	0.9899	0.2347	0.5883	0.2812	0.1662	0.7470	0.6805

Note: Standard errors in parenthesis; \*\*\*, \*\*, \* respectively represents statistical significance at 1 per cent, 5 per cent and 10 per cent.

Source: Author's calculations.

Finally, the recently intensified activities of China in Africa which are heavily concentrated in mining and services, have added impetus to the role of services in economic activities in SSA countries. Their engagement in the service sector are mostly in retail trading and financial services. In fact, the highest single investment in Africa from China is the Industrial and Commercial Bank of China's US\$5 billion purchase of a 20 per cent stake in South Africa's Standard Bank. In addition, China had initiated several other similar, though of less magnitude, engagements in Nigeria and Kenya. Chinese services activities are also found in trading, providing an avenue for the sale of products made in China. In several African countries, these traders own and operate small, medium and large businesses engaged in almost all trading activities from the most sophisticated electrical, electronic, computer and automobile equipment to very simple products like hurricane lanterns, canned juice and household utensils. The proliferation of Chinese trading activities and the cheap prices of the wide range of products they provide have fuelled trading, with a possible positive impact on economic growth.

The finding that services is the leading driver of growth in SSA could be a consequence of the period of analysis. Beginning from the 1980s, African countries have been engaging in heightened activities in the service sector, given the limited success of earlier industrial-led and agriculture-led growth policies of ISI and SAP, respectively. Relative diversification away from these activities into services since then may be a possible factor here. Another plausible explanation is that this finding could be an indication of a gradual maturity of African economies, given the theoretical proposition that as economies mature, services become more prominent and important economic activities.

Perhaps, the myth that agriculture is the driver of growth in SSA countries is driven by the choice of variables. In most analyses, agriculture, manufacturing and services share of GDP are often used. These variables are expected to be highly correlated with GDP growth. We rather use the productivity growth in agriculture, manufacturing and services. The estimation technique could also possibly be a factor. While GMM instrumental variables remain a better estimation technique for a dynamic model based on reasons we have mentioned in the section on methodological issues, most analyses examining growth in Africa often use the pooled regression model.

In general, the results of our estimation model conform with earlier studies on the other estimated coefficients. In agreement with the findings of Barro (1990), Sinclair (1998), Temple (1999), Dritsakis (2004), and Durberry (2004), physical capital is found to have a consistent, positive and statistically very significant effect on economic growth. This suggests the importance of physical capital over human capital with the latter consistently exerting a statistically insignificant effect on growth. While brain drain might be a factor here and should be reversed, attention also needs to be paid to the human capital development institutions in SSA countries because inappropriate human capital development processes through the education system could also be a major issue.

Institutions, governance and infrastructure do not have as much effect on economic growth as has been established by some authors in the literature. In fact, governance is not significant in any of the models while institution is significant only in two models. In our model of interest, none of these variables is statistically significant. This

contradicts the findings of Sachs and Warner (1997) that consistently found institution quality to be statistically significant in all the growth models they estimated. The possible source of this contradiction is the period of analysis. While their study focuses on 1965 to 1990, the current study considers 1980 to 2007. Secondly, unlike our study which exclusively concentrates on SSA countries, their study involved a medley of several developing African and non-African countries, with the dummy for SSA countries turning out to be insignificant. However, agreement could be established when we focus on their policy simulation where the impact of institutional quality on growth in Africa was found to be insignificant. To some degree, our findings agree with Bates (2006) that found statistically significant effects of institutions on economic growth inconclusive depending on the measure adopted. On governance and infrastructure, even though we could establish respective negative and positive relationships with growth, these effects are not statistically significant, contrary to a recent study by Calderón (2009) on infrastructure and growth in which the recent advances in telecommunications penetration account for 94 basis points of the total infrastructure contribution to growth. Our finding does not mean, however, that these variables are unimportant as determinants of economic growth. Activities in these sectors need to be further strengthened for improved performance and stronger impact on economic growth.

Other interesting findings could be gleaned from the relationship between growth, on the one hand, and urbanization and openness, on the other. Urbanization consistently has a positive sign accompanied by high statistical significance, except in columns 3 and 7 where the statistical significance is at the 10 per cent level. This suggests that urbanization is an important determinant of economic growth in SSA countries. This finding makes sense. First, a great percentage of the population lives in the urban areas compared to rural communities in most SSA countries. For instance, between 1980 and 2007, on average, over 176.2 million people live in urban areas in SSA countries, representing about 30 per cent of the total population, with annual growth of about 4.4 per cent. Generally, urban residents in SSA countries are better-off than their rural counterparts because of access to better things of life such as health, education, and employment opportunities. Although the dark side of urbanization in Africa is evident in crime, environmental degradation and growing slums, with appropriate policies on public services provision, infrastructure development, and city management, these risks can be managed.

Our results reveal that openness consistently has a negative coefficient except in column 3. This contradicts Sachs and Warner (1997) that found positive and statistically significant coefficients in all their models. It appears, however, that the source of difference is in the choice of variable. While this study adopts the traditional definition of trade openness, the latter adopts a measure of openness based on their earlier studies.

#### *Channels of impact*

Having established that the service sector is the most important driver of growth in SSA countries, we pursue the analysis further by seeking to establish the channels through which these drivers occur. To achieve this objective, services productivity growth is interacted with selected variables whose impact on economic growth is then assessed. Five interaction variables are created and the results are reported in Table 5. In columns 1 to 5, the impact of each interacted variable is examined in turn while in column 6, the combined effects of all the variables are simultaneously examined.



In columns 1 to 5, all the estimated interacted variables are negative except governance. Out of these, all of them are statistically significant except governance and institutions. In column 6, all the interacted variables maintained their previous signs except infrastructure that turned out with a positive sign. However, only openness and labour force have statistically significant coefficients. This demonstrates that openness, institutions, labour force and, to some extent, infrastructure constrain the impact of services on economic growth in SSA countries.

Table 5: Panel data estimation of the sources of growth in SSA countries for 1980-2007 using the Arellano-Bond GMM estimator and including interaction variables

Explanatory Variables	Models					
	(1) GMM	(2) GMM	(3) GMM	(4) GMM	(5) GMM	(6) GMM
$Y_{it-1}$	.0016 (.0203)	-.0115 (.0209)	-.0119 (.0209)	.0104 (.0200)	-.0043 (.0208)	.0217 (.0196)
Agrivad	.3364*** (.0186)	.3358*** (.0192)	.3352*** (.0192)	.3268*** (.0183)	.3358*** (.0190)	.3279*** (.0177)
Manuvad	.2702*** (.0193)	.2747*** (.0199)	.2758*** (.0203)	.2616*** (.0189)	.2711*** (.0197)	.2552*** (.0188)
Servad	.4482*** (.0231)	.4414*** (.0247)	.4407*** (.0239)	.4084*** (.0229)	.4126*** (.0246)	.4228*** (.0241)
Physical Capital	.0462** (.0198)	.0499** (.0205)	.0496** (.0205)	.0415** (.0194)	.0417** (.0204)	.0394** (.0190)
Human Capital	-.0150 (.0923)	-.0279 (.0956)	-.0291 (.0953)	-.0220 (.0904)	-.0095 (.0945)	-.0013 (.0880)
Labour Force	-.3110*** (.0328)	-.3288*** (.0359)	-.3347*** (.0338)	-.3461*** (.0321)	-.3262*** (.0335)	-.3236*** (.0313)
Governance	-.0280 (.0392)	-.0436 (.0406)	-.0454 (.0407)	-.0580 (.0384)	-.0462 (.0400)	-.0386 (.0376)
Institutions	.0068 (.0226)	.0059 (.0234)	.0092 (.0257)	.0170 (.0222)	.0067 (.0231)	.0114 (.0237)
Infrastructure	.0261 (.0731)	.0095 (.0756)	.0095 (.0754)	.0112 (.0715)	.0647 (.0762)	.0214 (.0709)
Openness	-.1406*** (.0197)	-.0212 (.0682)	-.0209 (.0698)	.0675 (.0668)	-.0696 (.0701)	-.0158 (.0662)
Urbanization	.1367*** (.0427)	.1658*** (.0439)	.1649*** (.0439)	.1928*** (.0418)	.1466*** (.0438)	.1665*** (.0409)
Interaction Variables						
Openness*Services	-.1405*** (.0197)					
Governance* Services	.0029 (.0273)					.0264 (.0261)
Institutions* Services			-.0033 (.0164)		-.0008 (.0159)	
Labour force*Services				-.0734*** (.0091)		-.0745*** (.0093)
Infrastructure*Services					-.1815*** (.0477)	
Sargan test, p-level	0.2442	0.2195	0.2318	0.1645	0.2750	0.2247
AR(1) test, p-level	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
AR(2) test, p-level	0.4556	0.7616	0.7490	0.7660	0.6584	0.7948

Note: Standard errors are in parentheses. \*\*\*, \*\* and \* represent respectively statistical significance at the 1 per cent, 5 per cent and 10 per cent levels.

Source: Author's calculations.

Openness and labour force appear to be the most important constraints given their consistent negative sign and high statistically significant estimated coefficients. This result implies that trade openness could be detrimental to growth in SSA countries when

services is an important component of trade. This makes sense given the state of development of African economies where most of the trade in services involves imports with little or nothing to export. This finding supports some of the arguments made by Rodríguez and Rodrik (2001) and Chang et al. (2005) that trade could be detrimental to economic growth. It also tends to corroborate the traditional assertion that for trade to be beneficial, trading partners should specialize in activities in which they have comparative advantage. Presently SSA countries do not have comparative advantage in services vis-à-vis their trading partners. Competence in specific services activities needs to be further developed to increase comparative and competitive advantage in this sector. Moreover, SSA countries do not have a sufficiently well trained and specialized labour force in services as a result of the non-traditional nature of the sector in these economies. Increasing the amount of specialized training in specific service activities within the labour force is imperative for relaxing this constraint.

My strong position, based on anecdotal evidence, on the channel of causation from services to economic growth is that this occurs through employment generation. In recent times, the financial services sector has witnessed a rapid increase in most African countries, especially in Nigeria and South Africa with strong penetration into other countries. This development has seen the emergence of large and various money and financial market institutions and activities. Given the underdeveloped nature of this sector where technology is highly deficient, engagements are highly labour-intensive. In Nigeria, for instance, this sector has been the major employer of graduates in the past ten years as employment in other sectors is generally low. In addition, staff compensation in this sector is higher than the average obtainable in other sectors of the economy, thus its further attraction to graduates from all disciplines. In addition, the recent developments in telecommunication, especially the GSM, has further served as a high employment avenue for Africans. Firms operating in this sector pay very competitive salaries that are in the same range with the banking sector. They also provide employment for many graduates from all disciplines. These are people that would have otherwise been unemployed. In addition, they have provided millions of jobs for the recharge cards vendors and roadside GSM call operators. Their activities have also sparked other peripheral activities like mobile phone sale and repairs and servicing companies. Given the communal nature of Africans, the millions of jobs thus created are highly welfare-improving and have a poverty-reducing effect, not only on the employee, but also on their several dependants who are sponsored in schools or who are assisted to establish businesses, and through ‘domestic remittances’.

## **6 Policy issues and recommendations**

### **6.1 Financial services**

Given the importance of the service sector, especially the financial services, as a driver of growth in SSA, there is need for fundamental reform of this sector to further position it for better performance. The financial sector in SSA countries is generally weak and is one of the least developed in the world. It is heartening that several SSA countries have commenced the process of reforms and restructuring in this sector. However, money and capital market institutions remain weak with a low range of financial products and a

small asset base. A large proportion of the people, especially those in rural areas are either under-banked or non-banked. Access to credit remains a big challenge not just for individuals but also for most small and medium enterprises. Financial depth remains shallow and inefficient, further constraining the monetary policy-making process and rendering it very costly. Overall, this reduces welfare and further increases poverty among Africans. Conscious policy efforts must be targeted at strengthening the financial systems to generate and ensure domestic savings are channelled to productive uses. Specifically reforms should focus on: reducing or eliminating distortions arising from interest rate controls, controlled lending and supervisory forbearance; improving efficiency of supervision, as demonstrated in the current experience in Nigeria, to prevent actions that could lead to systemic failure; promote, improve and support activities of microfinance enterprises; and legal reforms that would facilitate access to credit through the use of alternative instruments to overcome the bottlenecks of collateral.

More specifically, information asymmetries, imperfect enforcement mechanisms, low savings and inefficient markets characterized by poor business practices and high risks, associated with financial transactions, remain the major challenges in the financial sector of most SSA countries. Necessary reforms aimed at mitigating these downsides are imperative. Another very important policy issue is the development and integration of the informal financial sector. SSA countries have a plethora of varying purpose-oriented, informal financial institutions designed to satisfy the demands of distinct clientele. Systematic efforts are required to harmonize the activities of these institutions and integrate them with the formal financial sector.

The current global financial cum economic crisis offers additional reason for conscious efforts in strengthening the governance, management and oversight of players in the sector. Frequent and routine stress-test analyses of all financial institutions in each country should be conducted with a view to avoiding sudden collapse that could have a contagious effect on the entire industry. The banks should also be required to be more transparent in reporting their transactions and disclosing sources of risks in their engagements. This will help in identifying possible sources of crisis and fixing them before they get out of hand. The good example of the Central Bank of Nigeria in its recent intervention in the banking sector is noteworthy.

## **6.2 Telecommunication**

The role of the telecommunication services sub-sector, and its role in socio-economic development in Africa especially in recent times, cannot be overemphasized. To further improve the performance of this sub-sector and strengthen its impact on economic growth there is need for specific policies targeted at: regulating the activities of operators in the sector, further improvements in infrastructure development to relax the cost of operation, sector reforms to create competition and efficiency in services, the removal of market entry barriers through liberalization, and incentives to encourage innovation and punish sluggish and exploitative service providers.

### 6.3 Tourism

To better position tourism as a major source of economic growth in SSA, sound policies and practices are required at all levels and in all sectors. Lack of human capital specific to the tourism sector could be a barrier to the rapid development of this sector. Improvement in skills peculiar to tourism might be lacking, given the fact that tourism is not a traditional sector in SSA countries but is a relatively new sector compared to economies of Europe and North America. Specific technical and administrative skills in the tourism sector should be developed to create a pool of high and low skills in this sector. In this respect, each country should conduct a needs-based assessment of the available human resources in the sector. More training institutions for human capital development in tourism and hospitality industries should be encouraged. Such initiatives could be implemented at sub-regional levels given the fact that investment may not be feasible at the national levels.

So far, only Southern Africa as a sub-region has made substantial efforts towards a regional policy on sustainable tourism. These include SADC Protocol on Tourism, the Regional Tourism Organisation of Southern Africa (RETOSA) and the New Partnership for Africa's Development (NEPAD) Tourism Action Plan. All these initiatives are helping in consolidating collaboration and maximizing the positive effects of these efforts in the sub-region. For instance, the SADC Protocol provides a regional consensus on a several tourism-facilitating issues, including the need to make entry and travel within countries in the region as smooth as possible for visitors. Similarly, RETOSA is mandated to promote the combined tourism interests of all member states. It is interesting to note that RETOSA is promoting three innovative tourism-enhancing initiatives, namely, community-based tourism, transfrontier conservation areas tourism and the introduction of a single visa for tourists in all SADC members. These are laudable efforts and examples of best practice that should be emulated in the Central, Eastern and Western Africa.

Infrastructure development in and global awareness of the tourism potential of SSA countries is imperative. The need for tourism-promoting infrastructure is underscored below given the importance of infrastructure, not only to the tourism sub-sector, but also to other services within the wider sector. On tourism promotion, SSA countries need to do more both severally and collectively in creating awareness on the tourism potentials and must-see destinations in the continent. For instance, how many people in the world know that Ghana has the biggest man-made lake in the world? This is just one of the many must-see tourist destinations in Africa. The years 2009 and 2010 present a very unique opportunity for African countries to create this awareness with the continent hosting three major World Cup events, namely, the under-17, under-20 and the senior World Cup finals. The nature of football and the enthusiasm it elicits from people around the world provides an excellent avenue for this promotion. Other African countries should not conclude that these events are being hosted only by the countries directly involved. It should be viewed as a joint effort. It is interesting to note that Southern African countries are making use of this opportunity to showcase to the world their tourism potentials. It is proposed that SSA countries organize an annual tourism fair with hosting rotation among the countries. This will help showcase the tourism potential in all the countries, promote regional tourism infrastructure development and integrate the region into the world tourism market. There is also need for active participation in the World Trade Tourism Fairs.

## 6.4 Infrastructure

Infrastructure deficiency is a major risk to the service sector's continued contribution to sustainable economic growth in SSA. In Nigeria, for instance, and I am sure this happens in several other SSA countries, several artisans and skilled providers of services such as electronics repairers, barbers, cobblers, welders, tailors, etc, have resorted to commercial motorcycling because of incessant power failures and an unpredictable power supply. Even in sensitive locations such as the industrial and university areas, the power supply is never guaranteed. There is no doubt that there are several communities in SSA countries where they do not have access to a power supply for more than 15 minutes in a whole week! Conscious effort has to be geared toward developing strategies for a comprehensive development of infrastructure in SSA countries. Fiscal reform policy should be designed not to stifle infrastructure development. Also, the incorrect notion, that the private sector will promote infrastructure investment that will transform the sector, must be reconsidered. The region must develop a comprehensive infrastructure development policy and strategy that will link the whole continent, or at least the Western, Central, Eastern and Southern regions. It is interesting to note that China has emerged as an important source of infrastructure gap-filling development finance partner in SSA. For instance, Foster et al. (2009) show that total Chinese finance commitments in African infrastructure averaged approximately US\$0.5 billion for 2001 to 2003; these reached an annual average of US\$1.5 billion in 2004 and 2005, peaking at US\$7 billion in 2006 before plummeting to US\$4.5 billion the following year. These infrastructure development efforts are concentrated on power—the sector with the highest financing needs, transportation—railways and roads, and ICT. Bilateral and multilateral synergies and private-public infrastructure development initiatives are critical to successful comprehensive infrastructural development in SSA countries.

In addition to using the Chinese engagements as leverage to further infrastructure development, there is a need for national and regional initiatives to advance infrastructure development. For instance, given its oil wealth Nigeria can afford to, and therefore should, assume the role of developing an infrastructure development master plan for Western Africa. The several million metric tons of gas being flared should be effectively utilized to generate electricity across the sub-region, thus reducing the incessant power outages that could be a great disincentive to the development of tourism and telecommunication activities. Moreover, the country should help midwife the development of a ring-railway connecting all the major cities and tourist areas in the Western African sub-region. This would further integrate the region in trading services and promote sub-regional tourism.

I am not by this suggesting the replacement of agriculture with services. Agriculture remains the SSA countries' area of comparative advantage given the arable land endowment, the congenial weather conditions and biophysical environment, and its mass of strong and hard-working Africans. However, the full potential of this sector is yet to be unleashed due to a lack of proper reform and modernization of activities within the sector. Production in this sector continues to be dominated by fragmented, subsistent, small landholding farmers with a heavy reliance on crude equipment. Specific policy and institutional reforms targeted directly at the agricultural sector will help lessen and possibly remove these obstacles. These could be in the form of property rights definition with respect to landholding through a Land Use Act, the development

of indigenous knowledge systems in the practice of agriculture, and mechanization through public, private and foreign investments. All agriculture reform and modernization efforts must, however, take cognizance of the peculiar biophysical, historical, social, economic, political and institutional complexities of SSA countries. Policies from other countries, developed or developing, should not be superimposed on SSA countries. Rather, thoughtful and critical reflection and adaptation to suit the social, economic and environmental demands and needs of the countries are encouraged.

## 7. Conclusion

Sound understanding of the sources and drivers of growth is critical for policy in any economy. The fractured and unsustainable growth experience of most SSA countries over the years rests partly on misunderstandings about the relative importance of sectoral drivers of growth. This study investigates this and tests the general belief that agriculture is the leading sectoral driver of growth in SSA given its dominance in most SSA countries. Employing the Arellano-Bond dynamic GMM panel technique, it is found that contrary to this belief, it is rather the service sector that is the leading driver of growth in the region, followed by agriculture and manufacturing. Important service activities behind this observed phenomenon include tourism, financial services, construction, telecommunication services and trading. To further position this sector for an improved and sustainable performance, particular attention and emphasis needs to be paid to the specific policies required to help improve the performance of this sector, especially in the face of the current economic downturn that is threatening performance in the financial, tourism and trading services.

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