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Is Growth in Services Responsible for Africa's Low Structural Transformation?

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Abstract

Africa has experienced robust growth since the beginning of the 21st century, with the service sector continuously playing a key role by being the largest contributor to GDP and employing the highest proportion of the population on the continent. However, Africa's productivity growth remains relatively low with limited structural transformation, as resources have been shifting from agriculture and manufacturing to low-value services and the informal sectors. Despite this narrative, empirical work on services contribution to growth seems to lag behind research studies done on other sectors' contribution to growth in Africa such as agriculture and manufacturing. This paper aims to assess the extent to which the services sector has contributed to Africa's structural transformation through its impact on productivity and aggregate growth. The results show that resources have been shifting from higher and increasing productivity sectors into lower productivity sectors over the period of the study. However, despite this re-allocation having a positive and significant impact on productivity growth, the service sector's contribution and its productivity growth remain relatively low to effectively enhance Africa's structural transformation.

Introduction

Recently, there has been a wide and increased recognition of structural change as a conduit for long-term growth and development as it induces efficiency and productivity through the reallocation of resources across various sectors of the economy [1-4]. Evidence from countries that have moved from low-income to middle-income status, shows that countries which tend to go through structural and economic transformation are characterized by conditions such as declining share of agriculture in gross domestic product (GDP) and employment, a rural-to-urban migration which is underpinned by rural and urban development (, the rise of a modern industry and service economy, and a demographic transition from high birth and death rates to low birth and death rates [5-8]. However, the transition in most African economies has been marked with, not only a decline in the agriculture sector shares in output or employment, but also with a stagnant or declining manufacturing sector, hence bypassing the middle stage of the structural transformation process, as countries shift towards a service sector dominated economy (IMF, 2012; McMillan et al., 2014).

It is also widely recognized that an integral part of economic growth and development process through structural transformation, is mainly underpinned by changes in the share of output and employment as an economy grows and develops. Economic literature has for some time shown that this follows a pattern where the share of agriculture in output and employment falls while the share of manufacturing and services correspondingly rises, as a country or region passes through an industrialization process [1,9]. Starting with the pioneering work of Simon Kuznets in the 1950s, Timmer et al., (2014) stipulates that beyond a certain point, as the manufacturing sector matures, productivity growth in manufacturing offsets employment growth, and the employment share of services increases, while the employment share of manufacturing begins to decline. However, in recent years some economies have sidestepped this traditional pattern and have moved straight from agriculture into the services sector during their industrialization and structural transformation processes. These recent developments have been experienced in countries such as India and China (World Bank, 2009).

These divergences from the traditional growth patterns have raised big questions in development economics, especially in relation to growth in developing countries. The case in question is the recent growth performance experienced in Africa, where the decline in the agriculture sector performance has not been associated with an increase in manufacturing sector but in the services sector [2]. It has been argued that this shift in the region's growth has been associated with limited structural transformation, hence it has not been able to strengthen the economies productivity and their associated long-term growth [1, 2, 9]. It has further been argued that these de-

velopments have been due to the type of structural transformation where a shift in resources, especially labour, moved from traditional agriculture and rural activities to low productivity sectors. Low productivity performance has often been associated with traditional services and informal activities in the countries' urban areas [2]. The informal sector is believed to account for an estimated 50-80 percent of GDP, 60-80 percent of employment and up to 90 per cent of new jobs in Africa [4].

The service sector has over a long period continued to be the main contributing sector to African economies' GDP. The sector contributed, on average, 49.4 percent of GDP (value added) over the period 1990-1999, which declined slightly to 48.0 percent over the period 2000-2009, before increasing to 52.6 percent over the period 2010-2016 (Table 1). However, the agriculture and industry sectors have moderated around 14 percent and 30 percent, respectively, over the three time periods. It is also interesting to note that over the period 2000-2012, Africa's growth in services was higher than the world average, and faster than that of several other global regions. Even with these higher growth averages, the sector is still perceived to have been undercounted in terms of its output measurement, indicating that it should have performed even much higher than these registered levels (ECA, 2015). The continent's service sector expansion has mainly been led by service activities related to transport, telecommunications, financial, travel and tourism, which have significantly spearheaded overall economic growth in countries such as Mauritius, Nigeria, Seychelles, Tanzania and Uganda [10, 11].

Table 1: Sectoral growth in GDP value added and employment (%), 1991-2016.

	Shares in total value added			Shares in total employment		
	Services	Industry	Agriculture	Services	Industry	Agriculture
1991-1999	49.4	32.7	18	62.1	12.5	26.6
2000-2009	48	35.4	16.7	58.3	13.4	29.5
2010-2016	53.6	29.7	16.8	53.7	14.7	32.9

Sources: ILO (2019) and World Bank (2019)

It is important to note that for a long time services have been assumed to be generally non-tradable and therefore not essential for economic growth and development. As a result development policy in Africa has mainly focused on the development of the agriculture and industrial sectors, with minimal attention given to the services sector. However, services are regarded as key inputs to most of the other businesses and make a direct contribution to GDP growth and job creation. They also attract foreign direct investment (FDI) and are important for adding value along global value chains (GVCs) (ECA, 2015). Furthermore, the decline in commodity prices on the global market since mid-2014 has ignited the services sector as an engine of growth, which could help offset the loss in the growth momentum by African countries. This is because of the relative resilience in performance revealed during the period, as the sector's growth continued to increase over the period 2010-2015 as shown in Table 1. The sector could benefit and, at the same time contribute to Africa's higher productivity which could translate into higher incomes and growth, leading to increased consumption by households and businesses, hence enhance overall growth [12]. Coupled with the increasing middle class and fast urbanization process on the continent, these developments imply a considerable potential for Africa's growth, partly due to the associated and envisaged increase in private consumption and domestic demand. Relative to manufactured goods, as stipulated earlier, services tend to be less tradable, hence more geared towards domestic demand as they account for much of a country's private consumption. Despite falling to 3.9 percent in growth in 2010-2015, from 5.2 percent over the period 2005-2010, Africa's private consumption has been the fastest growing when compared to other regions, surpassed only by the East Asian region [12].

On the other hand, it has been argued that economic growth and overall productivity of service economies would lead to a deceleration of an economy (Baumol's theories). Especially because literature stipulates that economies with higher growth in productivity are associated with lower contributions from the services sector and higher contributions from the manufacturing sector, and vice versa [13]. However, more recent studies have shown that this is not the case, as recent literature has criticized these traditional theories. Recent literature has indicated the need to distinguish between different types of services while emphasizing the role of innovation and technology in the evolution of services. It has also emphasized the need to take into consideration the indirect effects of some services on productivity growth in other industries; while others have highlighted the significance of the interrelationships between globalization, trade and growth of services, among other factors [13].

Furthermore, some service subsectors such as communication, transport, wholesale trade etc., are characterized by intense use of productivity enhancing factors. Making productivity in these activities to be at par or even greater than the productivity of most dynamic manufacturing industries. This has put the negativity associated with the services sectors' impact on productivity into question. Like manufacturing, tradable services do benefit from technological change and productivity growth, and exhibit tendencies for scale and agglomeration economies, as well as the relationship between exports and innovation as is the case with the manufacturing sector [14]. In addition, service sectors that are part of knowledge-intensive, research and development, and financial and business services, have been found to have an increasing role in innovation with high productivity growth rates. However, there has been an underestimation in productivity measurement in some of these services particularly in the knowledge-intensive

services (Barras, 1986; Griliches, 1992). With the relatively high proliferation and penetration of information and communication technologies (ICTs) on the continent, these recent developments might actually prove to the contrary the historical affirmation that services negatively affect overall productivity and structural transformation.

Despite all these developments, the services sector has not been extensively analyzed empirically, as has been the case with sectors such as manufacturing and agriculture, given its dominant role and contribution to GDP in developing countries, especially those in Africa. Since productivity is among the main determinants of an economy's long-term growth and development, the important question is whether this high and increasing contribution of the services sector to GDP is responsible for Africa's low overall productivity, structural transformation and growth. This question has not been empirically dealt with as expected especially in Africa, despite having a few studies on developed economies on the subject [15]. Despite this emerging work on the role of services, the services sector still has a lower profile than the manufacturing, and agriculture sectors in the growth, development and trade literature. Furthermore, with Africa's rapidly growing labor force but with slow employment growth in manufacturing and other activities associated with higher productivity, the existing pattern of structural change has some important implications for job creation and poverty reduction. This is further exacerbated by the continued decrease in services productivity, suggesting that the marginal productivity of new services' workers is low and possibly negative [1]. Indicating that service sector employment rate has been relatively faster than the rate of increase in its output, calling for more robust growth of the sector.

The main objective of this paper is therefore to try to fill this gap and contribute to the debate on structural transformation as to whether the services sector is responsible for Africa's low productivity growth and the associated limited and slow structural transformation process affecting the continent's long term growth. The paper is organized as follows: The next section looks at how the services sector growth could be a viable option for Africa's structural transformation, Section 3 looks at how the sector could contribute to productivity growth and the growth of the economy in general, Section 4 presents the theoretical framework to examine the contribution and impact of the services sector on Africa's structural transformation and its recent growth performance. Section 5 presents the empirical findings while Section 6 concludes with some policy recommendations.

Services Could Provide a Preferable Structural Transformation Pathway for Africa

Services sector could remain being the largest contributor to GDP in the majority of African countries offering an option for economic transformation, especially for those countries where manufacturing might not be the best development option, if countries embark on high-value modern services [3]. These modern services include activities such as software development, business services and outsourced business processes. A dynamic service sector can also contribute to Africa's quest for inclusive growth as services tend to be more labor intensive when compared with manufacturing, hence making a big contribution to employment, inclusive growth and development. As a result, the role of the service sector in development has received increasing attention in developed and emerging economies, as it continues to make significant contributions to the countries' growth as well as increases in services trade [11].

As Africa embarks on structural transformation of the continent, as stipulated in the African Union Agenda 2063 and the global 2030 Agenda, promoting the services sector is expected to be at the center of the ways in achieving the goals of the two agendas. In maximizing the potential that comes with the services sector, Africa is at an advantage as most of the economies are agrarian, with the climate change and rising temperatures having significant impact on their economic performance. Looking at the different economic sectors in low income countries (most of which are in Africa), studies have shown that agriculture and manufacturing sectors are the most negatively affected as temperatures rise in countries with hot climates, while the services sector is relatively sheltered from the adverse effects of higher temperatures and climate changes [16]. Higher temperatures have been found to reduce agricultural output, lower productivity of workers exposed to heat, slow rate of capital accumulation and damage people's health. Hence, structural transformation from a mostly agrarian to a more high-end services-based economy could lower the economic cost of climate change, enhancing Africa's productivity and growth in the process.

As modern services are becoming more tradable and highly skill-intensive, Africa's increasing educated population will play a key role, since the sector is believed to employ comparatively few ordinary workers. It has been observed that technological changes have made manufacturing more capital and skill intensive, hence it is creating fewer jobs in the sector than before. This has led to some form of pre-mature de-industrialization (Rodrik, 2013), as the shrinking of jobs in the industrial sector has led to further employment increase in the services sector. Hence the need for more skilled personnel in the services sectors, especially by focusing on modern services which have proved to have significant impacts on productivity growth [8].

The increasing technological developments, such as the penetration of the internet and mobile phones offers a huge opportunity to enhance growth and productivity on the continent. Penetration of smartphones is expected to reach 50 percent by 2020, from only 18 percent in 2015. Technology has already transformed a number of sectors, such as banking, retail, power, health care, and education, and studies have estimated that the Internet could drive 10 percent of Africa's GDP by 2025 (MIG, 2018). The use of electric payments being extensively used on the continent has continued to change the continent's business landscape, especially in East Africa, which already stands out as the global leader in mobile payments.

The ICT revolution led by the global south has also led to substantial increases in cross-border capital flows and trade in goods and services. The proliferation of ICTs on the continent provide a real opportunity for the development and growth of the services sector, with profound contribution to growth. It is important to note that the most highly productive activities in the services sector are ICTs, banking, finance, insurance and other businesses which are

on the rise in Africa [17]. Technology penetration could also enhance the development of the non-tradable services such as retail trade and households' activities, while operating at very low levels of productivity and employing a bulk of workers. Putting emphasis on equipping its human capital with the required knowledge and skills, while taking advantage of the rising educated population in Africa, these developments could act as growth escalators for African countries.

ICTs play a significant role in revolutionizing the services sector through technological and innovation development. Coupled with the relevant human capital, these have played a significant role in growth and development of the services sector. It has been observed that production in the services sector has a higher amount of qualified labor than manufacturing (see OECD, 2005). The growth of some business services such as management consulting, have been associated with the accumulation of experience, expertise and specialization processes (Wood, 1991). The state institutions and social changes through the existence of public services and the management of services during the liberalization process are growth factors for some of the services such as professional services (Morotto-Sanchez, 2012). Furthermore, the regulation of these public services themselves could be a growth factor for some professional services as well.

Recently, there has been an uptick in information-related services exports apart from the traditional services exports, such as transit trade and tourism, which remain important for most of the African countries. Services trade is particularly important for Africa's landlocked countries, where transportation costs do not significantly raise their export costs as is the cased with goods' exports. Trade in services accounts for around half of the total exports from Rwanda and Ethiopia [14]. With relatively cheap labor costs, and with most of the countries using global languages such as English, French, Arabic and Portuguese, which are great assets to further develop their communication-based services, African countries have a great opportunity to step into a more standardized segment of the services market. This would further be enhanced by the continuing globalization of the services sector, which currently accounts for about 70 percent of the global GDP and the declining costs of communications and information as compared to the fall in transportation costs of goods. The high cost differentials in the production of services, as service providers no longer need to cross national borders to sell services further enhance opportunities for the services market [14].

In addition to technological uptake, Africa's potential for growth and economic development also lies in its efforts to structurally transform its economies by maximizing the potential of its growing labor force, increasing urbanization, enhancing intra-African trade in manufacturing value added goods and Africa's opportunity as a late comer in the development space. Africa has a young and growing labor force, with working age population expected to reach 1.1 billion by 2034, which will be larger than that of China or India. Theoretically, an expanding working-age population is associated with strong rates of GDP growth [3]. However, this provides both an opportunity and also a risk, should Africa fail to take proactive steps in taking care of the challenges associated with these developments. A demographic dividend might provide a great opportunity for Africa, while the rest of the world experiences significant labor shortages due to aging population, leading to significant increases in demand for services. Furthermore, Africa is the fastest urbanizing region in the world. Around half of Africa's population will be urban by 2035, with the number of urban dwellers reaching 1.33 billion by 2050, which will be shaping growth outcomes in Africa. Urbanization is deemed fundamental in Africa's industrialization process, especially through the associated agglomeration economies or the benefits of sharing, matching and learning derived from the density of economic activities that occur in the urban space [3]. As Africa's middle class and urban consumption are on the rise, and as patterns of consumption are changing, demand for manufactured and processed goods is increasing. This provides a major opportunity for industrialization and the associated need for related modern services. Also, as Africa urbanizes, purchasing power of the middle-class grows, which can be leveraged to stimulate industrial development to meet the rising demand. The rising consumer demand presents an opportunity for shifting into job-rich industrial, manufacturing and tradable services, further enhancing the services sector contribution to the continent's productivity and growth.

It has long been believed that services are driven by domestic demand. Therefore, the potential from increasing demand due to increasing workforce and urbanization, could enhance productivity in the services sector. The number of urban residents in Africa nearly doubled between 1995 and 2015 and is projected to almost double again by 2035 as stipulated above. Africa's urban transition overlaps with a demographic transition – the process of moving from high mortality and fertility to low mortality and low fertility rates - which is occurring across the continent in spite of some exceptions where fertility decline has stalled or reversed [3]. Urban centers lead the demographic transition that is associated with demographic dividend in Africa. This could be a positive factor for economic growth and development arising from the estimated increase in labor force on the continent.

Africa has also the advantage of learning from other countries' or regions' experiences, as a latecomer in the development circles, while defining and designing its own pathway, based on its own realities and learning from history and experiences of other countries or regions (see MIG, 2018). The continent can take advantage of new innovations, technologies and business models on a pathway that makes optimal utilization of the continent's existing growth potentials and opportunities, especially those that come with the development of a modern services sector.

All these factors provide an imperative for African countries to reap from the opportunities that come with developing the countries' service sectors. In this regard, it will be important for countries to put the services sector as one of the main priority areas at the centre of their development endeavors. This could shape the countries' growth trajectory, by capitalizing on the potential opportunities that come with the sectors' development. However, it will be important to note that the services that have the capacity to act as productivity escalators tend to require relatively high skills such as those associated with technological advancement. Therefore, raising productivity in services would typically require steady and broad-based accumulation of capabilities in human

capital, institutions and governance (Rodrik, 2018).

Services Sector Productivity and Growth

Service sector productivity performance may affect an economy's aggregate productivity growth directly or indirectly. Directly through the sector's contribution to the increase in aggregate productivity as a result of sectoral shifts towards the services sector (World Bank, 2008). And indirectly through services impact on the efficiency of other sectors in the economy, as service industries account for critical inputs in downstream manufacturing sectors (Arnold, Javorcik and Mattoo, 2007). High quality services in areas such as transport and telecommunications will affect transportation costs hence competitiveness and the degree of integration to the global economy. Furthermore, high quality services, mostly influenced by the liberalization of the services sector, may influence the flow of FDI, consequently enhancing competitiveness leading to more innovations which could be influenced by the drive to successfully meet consumer demand.

Services as inputs

Being mostly the largest and most dynamic sector in most countries, with strong linkages with other productive sectors, services become important inputs for firms across different activities, with the potential for increased economy wide productivity gains through improved service performance. Services are crucial inputs into production of goods and other services, and contribute both directly and indirectly to growth, through lowering of transactions' costs and by creating knowledge spillovers to other sectors. They provide essential inputs to most other businesses especially through infrastructure services, such as energy, telecommunications and transport, which are essential for firms' competitiveness. They also provide support to financial services in enhancing their transaction processes and providing access to credit, construction, legal and accountancy services for business development. Most of these services, especially engineering and information technology services, are knowledge intensive sectors which play a critical role in improving the productivity and sustainability of other economic activities. Services are not only key inputs in the production of most goods and services, but they also offer promising opportunities for export diversification. Trade in services can be a source of export diversification, hence reduce Africa's dependence on a narrow range of commodity exports [4]. The sector also facilitates information flows and enhances communication between buyers and sellers, rural and urban areas, and within the different sectors leading to lower communication costs, making markets operate more efficiently, hence contributing to overall productivity.

The other very important components of the services sector are its imports and exports. The importation of services can improve the availability and quality of services inputs through increased competition, better technologies being utilized and access to foreign capital. Of late, global services exports as a share of total world trade have grown faster than goods exports, rising from 20 percent in 2011 to 23 percent in 2015, mainly driven by outsourcing of intermediate business services [18]. Similarly, Africa has experienced an increase in its services exports, with the biggest single item being travel, which constituted 44.4 percent of total services exports. Followed by transport with 28.3 percent and other business services which include professional, technical and IT-enabled business outsourcing services at 14.4 percent by 2017 (ECA, 2019).

Linkages to production systems, specialization and outsourcing

The relationship and interdependence between goods and services, and their links to changes in production systems and flexibility through the associated processes lead to new specialization that could lead to more professional services (Pilat, 2001). Specialization due to flexible production systems in the service sector have promoted outsourcing, which has led to an expansion of business services. Business services have become the most dynamic sector, composed of intermediate inputs, which contribute significantly to the increase in productivity, especially through outsourcing services from one service industry to another [13]. Outsourcing and globalization processes would lead to a more productive and competitive services sector which would effectively complement the operations of the manufacturing sector, hence raising the overall productivity of an economy. Specialization is also promoted through the process of globalization according to the countries' comparative advantage, while driving the patterns of structural change in the process (Gregory and Russo, 2007).

Competitive pressures associated with market globalization have also enhanced the relationship between countries/companies, increasing the need for modernization and promoting their interaction economically while increasing the demand for services in the process [2]. However, it is important to note that some countries (mostly in Asia) have continued to experience rapid productivity-enhancing structural change, while others (mainly in Africa) have experienced productivity-reducing structural change. Import competition has led to the contraction of many industries and hence release labor to less productive activities, such as agriculture, services and the informal sector in Africa [9]. To save the economies from such contraction due to globalization, in Asia, many import-competing activities (such as state enterprises in China) continued to receive substantial support, while new, and export-oriented activities were being established [2].

Modern services a challenge to Baumol's disease theory

Literature shows that when income grows, consumer demand for services is far greater than that for manufactured goods, hence increasing the participation of services in the labour force and real output growth (Clarke, 1940). In terms of the Eagle's Law, countries with higher income per capita, have higher rates of employment in the services sector, despite being challenged by the work of Summers (1985), who investigated the relationship between expenditure on services and income levels in various countries (Maroto-Sanchez, 2012). There are schools of thought that also suggest the possibility that rising income per capita could lead to an increase in final demand of services within countries (Schettkat, 2004). Studies have also shown that shifts in intermediate demand could lead to about 10-40 percent increase in services employment (Elfring, 1989).

However, literature on the traditional assumption of services shows that the services sector is a stagnant or slowly growing productive sector when compared to manufacturing. The sector has relied heavily on the notion of capital accumulation, mainly driven

by large service sector as a result of the large public sector involvement. Famously known as the 'Baumol's disease' theory, which brings about a decrease in economic growth due to its impact on productivity, as services prices increase (Maroto-Sanchez, 2012). Mainly due to the dynamism and the increasing weight of the services sector within economic activities which leads to a decrease in overall growth, underpinned by the slow growth in services' productivity and its effects on total productivity. Increased productivity in services also influences productivity of other economic sectors, especially in the business service sector, which is the most dynamic sector in advanced economies, mainly used as intermediate inputs, hence increasing productivity of other economic sectors.

Historically, services have been viewed as a non-tradable activity (quintessential), especially when looking at services such as eating in a restaurant, getting a haircut, or having a medical checkup which require face-to-face transactions [14]. However, the recent literature revisiting the traditional assumption of services as a stagnant or slowly growing productive sector, when compared to manufacturing, provides evidence against the 'Baumol's disease' theory. Service sector's low productivity is associated with the increasing share of the services sector employment especially in industrialized countries (Baumol, 1967; Maroto-Sanchez, 2012). Also, a large-part or perhaps a majority of jobs are provided by non-tradable services industry in these countries [2]. It has been argued that the tertiary sector has traditionally been connected with closed markets, with abundant regulations and not very flexible, and exposed to a lower level of competition than the industrial sector. To the extent that increased investments in the sector have not resulted in productivity gains, due to insufficient incentives to increase efficiency, given their protection, which moved them away from the competitive reality. However, recent studies have shown that Baumol's hypothesis may not be feasible with current developments in the services industry (Greenfield, 2005). Recent technological developments and proliferation of ICTs, and task-based production, services such as back-office operations and accounting, can now be spun off and outsourced or subcontracted. Leading them into being tradable services that match with some of the features associated with the manufacturing sector, benefitting from technological change and productivity growth, as well as exhibition of tendencies for scale and agglomeration economies in the process [14].

Services as an FDI magnet

A growing body of literature suggests that services are an essential tool for economic regeneration as they have a significant impact on economic growth as they lead to an increase in FDI. The sector is regarded as one of the most strategic industries with a strong potential to improve overall productivity [19,20]. The sector can attract much needed foreign investment and private equity finance, however, the absence of adequate infrastructure such as telecommunications, transport and power supply discourage foreign investment as it increases transactions costs and reduces investments' productivity (Luiz and Stephan, 2011). Investment in the sector leads to an increase in demand for goods and services, and economic returns in these investments (especially in telecommunications) are envisaged to be much greater due to direct and indirect effects on the productive sectors. The services sector is the largest sector in Africa's stock of FDI, accounting for 48 percent of Africa's total stock, with manufacturing at 21 percent and the primary sector at 31 percent. However, Africa's share of services FDI stock remains lower than the corresponding global and developing countries' shares, despite Africa's share of global FDI flows increase from 3.7 percent in 2013 to 4.4 percent in 2014 (UNCTAD, 2014).

FDI inflows to Africa have mainly been driven by rising intra-Africa FDI expansion mainly by emerging market firms and non-traditional actors through private equity and growing consumer markets, especially in food and beverages industries. Inflows were expected to strengthen by 20 percent in 2018, to US$50 billion due mostly to a recovery in commodity prices, investments in infrastructure projects and accelerating regional integration efforts [21]. The financial sector accounts for a major portion of Africa's stock of services FDI. By 2012, 56 percent of Africa's services' FDI stock was held in finance, followed by transport, storage and communications at 21 percent and business activities at 9 percent. It is important to note that intra-Africa FDI has played a vital role in driving Africa's burgeoning financial industry, especially in retail banking services. Financial services accounted for about 50 percent of intra-African greenfield investment projects over the period 2003-2014, with about 38 percent of the projects in retail banking and 5 percent in insurance [11]. Furthermore, the overall services sector accounted for about 75.5 percent of greenfield investment projects in 2017 as compared to 20.6 percent and 4 percent for manufacturing and primary sectors, respectively [21].

Releasing Services Sector Potential Through Reforms

Reforms in the services sector have led to the opening up of the sector to competition and creation of independent regulatory institutions [22]. The main premise of the reforms has been to allow a multiplicity of players to take advantage of the technological innovations (especially in modern services) in the sector to enhance and provide services that meet the different needs of the population. This has led to a tremendous growth in the sector, providing new services and products with positive spillovers on aggregate growth. Liberalization of the services sector has mostly been part and parcel of a comprehensive trade policy reform package in most developing countries, mainly due to the mutually reinforcing relationship between the goods and services markets [20, 23].

Increased openness, among others, implies increased foreign presence, increasing entry and increasing competition leading to better and more efficient service provision, increased innovations and competitive prices. These would lead to increased productivity, trade and output in the services sector, and improved economy wide performance through links with the productive sectors of the economy. Openness due to liberalization may lead to increased access or access to cheaper services which could lead to improved firm productivity, enabling them to better compete in the global market.

Literature suggests that the liberalization of the services sector, especially the financial sector in most African countries, has contributed positively to the expansion of the sector. It has facilitated the process of financial intermediation among economic agents, and further reduced the barriers to accessing financial services, thereby

boosting investment and the sector's output [24]. This could also be attributed to the spillover effects of the liberalization of other sectors such as agriculture and manufacturing, especially due to the liberalization of the external trade sector, which has led to the booming of the services sector in most countries. The spillover effects from the agricultural sector reforms on the services sector could partly be attributed to increase in the demand for financial services due to the income effect on increased agricultural value-added. On the other hand, Africa's manufacturing sector has not performed as expected due to the increasing competition as a result of increasing trade openness, which has led to an increase in goods and services trade thereby boosting the services sector (Chavula 2015). The influx of cheap imports of final goods, particularly from China, has led to an increase in business services related to the buying and selling of final goods and services.

The Analytical Framework

To investigate whether the services sector is responsible for Africa's limited structural transformation and hence its productivity, the study first assesses the recent pattern of growth and structural transformation on the continent. To do this the study analyses the extent to which the different sectors and subsectors have contributed to overall growth over the period 1991-2016. After this analysis the study employs the shift-share analysis methodology used by to assess whether the resource shift or reallocation has been productivity-enhancing structural change or not [25]. The shift-share analysis technique provides a convenient tool for investigating how aggregate growth is associated with the differential growth of labour productivity between sectors. It originated from Fabricant (1942) where it was used to decompose the change in aggregate productivity into a within effect (capturing productivity growth within sectors), and a between effect (which measures productivity of labour reallocation across sectors – also referred to as structural change) . Among others, the methodology has recently been applied by McMillan and [25]. However, the methodology used by [25]. is an alternative to the one used by McMillan and Rodrik (2011) and others, which explicitly accounts for the possibility that expanding sectors could have low productivity growth rates. The methodology uses base period weights for both the changes in employment shares and changes in the productivity levels as follows:

$$\Delta y = \sum_i (y_i^t - y_i^0)\emptyset_i^0 + \sum_i (\emptyset_i^t - \emptyset_i^0) y_i^0 + \sum_i (y_i^t - y_i^0)\,(\emptyset_i^t - \emptyset_i^0) \quad \text{..... (1)}$$

where y_{it} is the labour productivity level of sector *i,* ϕ_i is the share of sector *i* in overall employment, and superscripts 0 and t refer to the initial (or base) period and final period, respectively. Change in aggregate productivity is decomposed into the *within-sector productivity*, which is the first term on the right hand side (it is positive when labour productivity growth in sectors is positive). This could be a result of changes within the sector, sometimes reflecting a shift towards larger scale activities with increased use of technology and/or related innovation [25]. The second term measures the *between-static effect*, which is also referred to as the structural change effect as it captures whether labour is shifting to sectors with above-average productivity levels. The third term represents the joint effect of changes in employment shares and sectoral productivity levels referred to as the *dynamic effect*. If the dynamic effect is positive (negative), it implies that labour is moving to sectors experiencing positive (negative) productivity growth, i.e. it is positive if sectors with above-average productivity growth increase their share in total employment; it is negative if expanding sectors have below-average productivity growth or if shares in total employment of sectors with high productivity growth are declining.

Secondly, we explore to what extent an increase in the share of resources directed towards the services industries have affected overall productivity growth in Africa. Literature reveals that structural transformation emanates from traditional growth theories particularly those of Lewis (1954) and Chenery (1960), which stipulate that the process of structural transformation involves the transition in aggregate output and labour from low productivity agricultural economy to a service based economy through industrialization. Based on the framework of the widely used endogenous growth models of Barro (1991), in this study productivity is expressed as a function of inputs and a set of policy reform variables. However, the main variables of interest are productivity (capturing the continent's structural transformation and its growth potential) and services growth (the main variable of concern) while conditioning on the relevant and the usual traditional growth determinants such as investment, human capital and population. This being the case the following model specification is formulated:

$$\dot{y}_{it} = \lambda_1 y_{i1} + \lambda_2 \dot{x}_{it} + \lambda_3 x w_{i1} + \lambda_3 Z_{it} + \varepsilon_{it} \text{.....(2)}$$

where y_{it} is the labour productivity growth rate in country *i* in period *t,* y_{i1} is labour productivity in the initial period which will be used to capture technological convergence, x_{it} is the services growth rate. Variable xw_{i1} is the services weight in either total employment or a country's GDP in the initial period, to show how economies' levels and weights differ despite being at the same level of employment [15]. Z_{it} is a vector of the endogenous growth model variables which include capital investment, human capital, trade openness, and demographic transition variables, while ε_{it} is the error term. Note that the idea of fixed effects does not allow the use of the within group constant variables such as the initial weight of the services sector or initial productivity level in this model. Hence, the fixed effects estimation technique is not put under consideration in this analysis despite its wide usage in panel data analysis literature. Furthermore, due to the endogeneity bias that may exist among the explanatory variables in the model, the Generalized Method of Moments (GMM) technique developed by Blundell and Bond (1998) is employed.

Data

The data covering almost all the 54 African countries is used in this paper based on sectoral employment and value added data ob-

tained from the International Labour Organisation database (ILO, 2019) and United Nations (UN) National Accounts (2019) database, respectively. While data for the other variables is obtained from the World Bank's World Development Indicators database. This data coverage stems from 1990 to 2016 covering the different industrial sectors grouped at International Standard Industrial Classification Revision 3 (ISIC 3) level. The data is disaggregated by economic sectors which include: agriculture, hunting, forestry and fishing; mining and utilities such as water and electricity; manufacturing; construction; wholesale, retail trade, restaurants and hotels; transport, storage and communication; and other activities. Since the focus of this paper is on the services sector, emphasis will mainly be focused on the last four subsectors in our analysis. Furthermore, in some cases the main analysis is only carried out on a reduced number of countries for which sectoral data exists over the period 1990-2016. In answering the first part of the question we carry out the analysis at both the regional and country levels, but with the sectoral analysis done only at country level due to data limitations.

Estimation and Empirical Findings

The section begins with an analysis of the contribution of services to productivity and aggregate economic growth. The contribution to growth can either be direct through service sector own employment and value added, or indirectly through positive spillover effects that services create for other industries [26]. This is done by analyzing the contribution of the different sectors and subsectors to labour productivity and output value added growth, as well as through productivity contribution to growth through the decomposition of aggregate labour productivity using the shift-share analysis technique describes above. We then look at the impact of the services sector on structural transformation through its impact on overall productivity growth using the modified growth model defined in Equation 2.

Services Contribution to Productivity and Growth

It is widely believed that productivity is the main element in determining the differences in growth between both sectors and countries. The analysis in Table 2 reveals that, relatively, the services sector contributes more than 65 percent to the continent's aggregate growth. Despite this increasingly important role, the contribution of services growth to productivity has been slow, growing at an average of 0.7 percent, with a cumulative aggregate growth of 5.8 percent over the period 1991-2016. The results show also that overall productivity growth was relatively lower in the 1990s, but accelerated over the 2000 to 2010-2016 periods, growing at 8.04 and 12.7 percent over 2000-2009 and (2010-2016 periods, respectively. Manufacturing, mining and utilities, wholesale and trade and the transport, storage and communication sectors are found to have been the main drivers of overall productivity growth over the study period. Furthermore, the results show that the services sector seems to have remained resilient to the 2008/2009 economic and financial crisis as the sector's productivity grew at an average of 5.7 percent over the 2009-2013 period, before being significantly affected by the decline in global commodity prices since mid-2014. After which, productivity contracted at an average growth of -1.8 percent over the 2014-2016 period, with the construction, manufacturing and mining, and utility sectors experiencing the worst negative effects as their productivity contracted at an average of 9.06 percent, 13.2 percent and 17.9 percent, respectively, over the same period.

Table 2: Services contribution to growth, 1991-2016

	Productivity level*, 1991-1999	Productivity level*, 2000-2009	Productivity level*, 2010-2016	Average productivity growth (%), 1991-2016	Annual cumulative growth rate (%)	Sectoral contribution to aggregate growth **	Relative contribution to aggregate growth (%)
Agriculture	1.51	1.59	2.42	1.45	4.95	-0.002	-4.15
Manufacturing	5.87	11.74	23.56	5.38	4.30	0.005	11.83
Mining, gas and utilities	49.03	69.25	95.27	2.63	4.84	0.01	25.75
Services	6.73	8.04	12.65	0.70	5.99	0.007	66.67
Construction	4.29	5.34	8.26	1.90	6.97	0.003	6.22
Wholesale & trade	7.74	8.82	13.93	1.70	6.00	0.007	16.75
Transport, storage & communication	11.08	13.52	21.49	2.49	5.95	0.005	12.80
Other services	3.82	4.46	6.90	1.96	5.80	0.013	31.04
Total	11.91	16.39	24.55	2.40	5.45	0.073	100.00

Notes: * =thousands of dollars per employee at current prices; ** =$w_{vj}.v_j.w_{ej}.e_j$, where w_{vj} is the average weight of sector j in total value added, v_j is the average value added annual growth rate in sector j, w_{ej} is the average weight of sector j in total employment and e_j is the employment rate for sector j bewtween 1991 and 2016.

Source: Author's calculations based on ILO (2019) and UNSD (2019) data.

Looking at the direct contribution of the services sector to aggregate growth, it is observed that most of the services direct contribution to growth of output value added were positive but considerably low. For example, the construction; and transport, storage and communication subsectors contributed only 3.5 percent and 7.4 percent over the period 1991-2016 (see Table 2). The positive productivity contribution means that value added in these services had grown faster compared to their employment growth over the period, with the opposite happening in sectors such as agriculture where productivity contribution is found to be negative. However, when those subsectors comprising *Other services* (in Table 2) are further disaggregated, it is observed that the financial sector has been the highest contributor to growth over the period compared to the *Other services* subsectors . Subsectors such as real estate, renting and business activities; education, health and social work; and wholesale, retail trade, restaurant and hotels are found to have considerably lower contribution to value added growth when compared to their contribution to growth in employment. This could have weighed on or be the source of the drag on the sector's contribution to overall growth. Despite these negative effects in most of the subsectors, it is important to note that some subsectors such as the financial activities, have relatively high productivity contribution to vale added growth in Africa.

The contribution of the services sector to growth and productivity is further analysed by decomposing aggregate growth and productivity using the shift-share analysis technique introduced earlier. This analytical methodology helps to assess to what extent the within sector productivity gains, the shifts of employment from sectors with low productivity growth to those with high productivity growth, and shifts of employment from sectors with low productivity levels to those with high productivity levels, have contributed to productivity and aggregate growth among countries. The results in Table 3 show that services have grown considerably, relative to growth in the agriculture, manufacturing and mining and utilities sectors in Africa, in terms of their shares in total value added. As a percentage of total value added, results show that services have grown from 68 percent in 1991 to 71.3 percent in 2000 and 74.2 percent in 2016. While the agriculture's share declined from 12.5 percent in 1991 to 9.6 percent in 2000, before increasing to 11 percent in 2016. Similarly, the manufacturing sector's share declined from 9.5 percent in 1991 to 8.7 percent in 2000 before reaching only 7.1 percent in 2016. These developments signify relatively, a large resource reallocation or shift towards the services sector over the period, which is a lower productivity sector as shown earlier. This finding is in support of the earlier narrative stipulating that the limited structural transformation in Africa has been due to the fact that resources have been shifting from higher to lower productivity sectors in African economies [2].

Table 3: Output (value added) and employment contribution, 1991-2016

		Agriculture	Manufacturing	Mining, Utilities	Services
Output value added (% of total VA)	1991	12.5	9.5	9	68
	2000	9.6	8.7	10.5	71.3
	2016	11	7.1	7.7	74.2
	Growth rate, 2000-2016	7.9	6.5	9.9	7.8
Employment	1991	46.3	5.6	0.88	23.7
	(% of total employment)	45.2	5.2	0.86	24.5
	2016	38.6	4.5	0.99	28.2
	Growth rate, 2000-2016	2.2	2.3	4.1	4.1
Productivity	1991*	1.8	6.7	89.8	43.9
	2000*	1.3	5.7	35.6	35.9
	2016*	2.3	16.0	58.1	42.4
	Growth rate, 2000-2016	3.5	8.7	7.3	1.7

* =thousands of dollars per employee at current prices
Source: Author's calculations based on ILO (2019) and UNSD (2019) data.

However, in terms of labour reallocation, as a share of total employment, labour in the services sector slightly increased from 23.7 percent in 1991 to 24.5 percent in 2000 and to 28.2 percent in 2016. However, the share declined in both agriculture and manufacturing sectors over the periods. Share of employment in the agriculture sector declined by 7.7 percentage points from 46.3 percent in 1991 to 38.6 percent in 2016, with an average growth of 2.2 percent over the period 2000-2016. While it declined by 1.1 percentage points in the manufacturing sector, declining from 5.6 percent in 1991 to 4.5 percent in 2016, with an average growth of 2.3 percent over the period 2000-2016. However, over the same period (2000-2016), labour productivity in the services sector increased at an average of 1.7 percent, relatively much slower and lower than the average productivity growth in agriculture (3.5 percent) and manufacturing (8.7 percent). This could be signifying that, despite the shift of labour from agriculture and manufacturing to the services sector, productivity in the services sector has remained relatively low to stimulate and enhance the continent's overall growth over the period.

All in all, both agriculture and manufacturing sectors experienced a decline over the period 1991-2016 in both output value added and employment as a share of the total value added and employment in both sectors. However, the services sector experienced an increase in both value added and employment shares over the same period. Suggesting the shift of resources from agriculture and manufacturing to the services sector. However, services productivity growth remained relatively low standing at 1.7 percent, indicating and supporting the minimal contribution the sector makes to aggregate productivity and hence aggregate growth over the period. Further supporting the existing narrative with regards to shift of labour from relatively higher productivity to lower productivity sectors in Africa.

Has this overall productivity growth mainly been driven by sectoral shifts or by within sector productivity gains? To answer this question, we carry out a shift-share analysis using the technique presented in Equation (1), over the period 1991-2016 for the 39 out of 52 African countries where data was available. Table 4 presents the results of the analysis using base period weights for both the changes in employment shares and in productivity levels as indicated earlier (see Vries et al., 2013 for more details).

Table 4: Shift-share analysis of productivity growth, 1990-2016

(a)	Within-sector productivity								
	Agriculture	Manufacturing	Mining, Utilities	Construction	Wholesale, retail trade	Transport, storage and communication	Other Activities	Services	Total
1991-1999	-0.0761	-0.0208	-0.2234	-0.0085	-0.0666	-0.0149	-0.0339	-0.5218	-0.8421
2000-2008	0.2020	0.5099	0.4162	0.0467	0.2472	0.0669	0.1628	-0.2072	0.9208
2009-2014	0.0280	0.0592	0.0312	0.0072	0.0472	0.0287	0.0378	0.7759	0.8943
2015-2016	-0.0038	-0.0253	-0.0049	-0.0032	-0.0065	-0.0080	-0.0090	-0.2429	-0.2770
2009-2016	0.0043	-0.0553	-0.0506	-0.0065	-0.0019	0.0088	0.0068	0.4647	0.3632
2000-2016	0.2101	0.2566	0.0936	0.0321	0.2500	0.0826	0.1798	0.7716	1.3320
1991-2016	0.0950	0.2149	-0.1152	0.0148	0.1156	0.0529	0.1030	-0.1458	0.0489
b) Between-sector (Static) productivity									
	Agriculture	Manufact-uring	Mining, Utilities	Construc-tion	Wholesale, retail trade	Transport, storage and communic-ation	Other Activities	Services	Total
1991-1999	-0.0060	-0.0095	-0.0108	0.0024	0.0084	-0.0023	0.0050	0.1107	0.0844
2000-2008	-0.0147	-0.0189	0.0041	0.0104	-0.0019	0.0138	0.0099	0.2624	0.2329
2009-2014	-0.0165	-0.0010	0.0218	0.0014	0.0044	0.0050	0.0163	0.1301	0.1344
2015-2016	-0.0041	-0.0009	-0.0009	0.0004	0.0013	0.0020	0.0043	0.0420	0.0362
2009-2016	-0.0225	-0.0015	0.0207	0.0022	0.0068	0.0074	0.0220	0.1786	0.1753
2000-2016	-0.0411	-0.0200	0.0211	0.0138	0.0021	0.0225	0.0337	0.6298	0.5899
1991-2016	-0.0558	-0.0310	0.0377	0.0192	0.0124	0.0234	0.0436	0.8002	0.7511
(c) Cross-sector (Dynamic) productivity									
	Agriculture	Manufacturing	Mining, Utilities	Construction	Wholesale, retail trade	Transport, storage and communication	Other Activities	Services	Total
1991-1999	0.0014	0.0013	0.0074	-0.0006	-0.0019	0.0004	-0.0008	-0.0135	-0.0035
2000-2008	-0.0105	-0.0671	0.0115	0.0144	-0.0019	0.0121	0.0082	-0.0128	-0.0789
2009-2014	-0.0020	-0.0003	0.0038	0.0002	0.0008	0.0016	0.0031	0.0446	0.0462
2015-2016	0.0018	-0.0010	-0.0007	-0.0006	-0.0007	-0.0006	-0.0008	-0.0560	-0.0559
2009-2016	-0.0004	0.0004	-0.0059	-0.0003	-0.0001	0.0007	0.0008	0.0367	0.0307
2000-2016	-0.0305	-0.0356	0.0134	0.0131	0.0021	0.0243	0.0308	0.1146	0.0619
1991-2016	-0.0158	-0.0434	-0.0133	0.0076	0.0049	0.0146	0.0216	-0.0272	-0.0997

Source: Author calculations based on ILO (2019) and UNSD (2019)

The results indicate that growth in productivity over the period 1991-2016 was to a greater extent explained by the between-sector productivity growth or the structural change effect with 0.75 percentage points growth (Table 4(b)). This is followed by the within-sector productivity growth with 0.05 percentage points growth. The negative dynamic (between) effect or cross-sector effect (of -0.1 percentage points) indicates that sectors that expanded in terms of employment shares experienced negative productivity growth. In particular, manufacturing and services sectors appear to account for a large part of these dynamics. The dynamic effect (cross-sector productivity) in Figure 4(b) indicates that, over the 1991-2016 period, the service sector's increase in employment shares was associated with productivity growth that was well below those observed in the shrinking sectors (i.e. the ones experiencing reduced employment shares). A large part of these between (static and dynamic) effects are accounted for by the agriculture and manufacturing sectors as indicated by Table 4(b), showing the shift of labour from these sectors to mostly services sector as shown by the negative between-sector (static) effect.

However, if we restrict the analysis to the 2000-2016 period, productivity is to a greater extent explained by the within-sector productivity growth (depicted in Table 4(a)). Reallocation effects were also important, but had relatively minimal contribution to total productivity (Table 4(b)). But since the reallocation (between effect) term is persistently positive over the period 1991-2016, it implies that labour had generally moved from sectors with relatively lower productivity to those with above-average productivity growth. This is revealed to have been due to the movement of labour from manufacturing and agriculture to services such as wholesale and trade; transport, storage and communication; and other activities especial financial services. These services are found to have relatively lower productivity levels despite being above the average. This is confirmed by the positive cross term (dynamic) in Table 4(c), which shows that over the period 2000-2016, labour moved to sectors with increasing, but relatively low productivity levels (which are services, and mining and utilities sectors) from sectors with decreasing productivity (which are agriculture and manufacturing). However, by looking at their productivity contributions over the period 2009-2016, the services sector seems to have been relatively resilient to the economic and financial crisis of 2008/2009, based on results from all the three productivity decomposition methodologies. Also, as shown by the findings earlier, Table 4 (b) and 4(c) indicate that over the analysis period, labour shifted from manufacturing and agriculture to services, but the service sector's contribution to total productivity remained relatively low. Over the period 2000-2016, the within-sector, the between-sector and the cross-sector productivity levels changed by 0.77, 0.63 and 0.11 percentage points, respectively. The relatively high contribution from the within-sector productivity could be reflecting the increase in investment, and the shift towards large scale activities and increased innovation and technology use in the sectors.

Impact of Services Growth on Productivity

After assessing the extent to which the services sector has contributed to both aggregate productivity and growth in Africa, it would be important to further examine the extent to which this contribution has had an impact on the continent's productivity and structural transformation. To do this we employ the GMM technique based on its ability to take care of the endogeneity bias among explanatory variables in a model. As is the case with most developing countries, endogeneity bias of the explanatory variables may exist in the model employed in this study, especially due to the interrelationships between some of the variables used. Endogeneity bias may also arise due to the omission of relevant explanatory variables and measurement errors of the variables which may affect productivity growth [8]. To address these endogeneity issues, it is deemed necessary to use the dynamic system of GMM technique, which is able to control for country specific fixed effects without assuming the absence of correlation between them and the explanatory variables. The estimation methodology also has the ability of dealing with the endogeneity of all the explanatory variables by using their lagged values (either in levels or in first difference) as instrumental variables.

Based on equation (2), the results in Table 5 indicate that services growth, over the 2000-2016 period , had a positive effect on overall productivity growth, with a 1 per cent increase in service sector growth being associated with a 0.6 per cent increase in overall productivity growth. The results are found to be highly significant at 1 percent level of significance and stable throughout the different model specifications. This is also supported by the GDP-weighted services growth which is also found to have a positive and significant impact on productivity. Following the definition of structural transformation as the shift of resources from low to high productivity sectors, these results imply that growth of the services sector had to some extent a relatively lower (inelastic) but productivity-enhancing structural transformation effects over the period.

However, employment as a ratio of total population is found to have a highly significant direct negative impact on productivity, but having a highly significant positive lagged impact after a year or so. This could to some extent be reflecting the high working age population associated with low quality employment that exists in the service sector as most of the activities are more concentrated in the traditional services with low productivity instead of modern services (such as communication, financial, insurance and business services with relatively higher productivity). This could also be revealing the impact of the spillover effects on productivity from employment in other sectors such as manufacturing and agriculture, hence the lag in having productivity-enhancing effects in the economy.

Table 5: Services growth and productivity growth, GMM results, 2000-2016

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model 5
Productivity growth(-1)	0.157*** (0.002)	0.151*** (0.005)	0.199*** (0.001)	0.154*** (0.004)	0.189*** (0.005)
Services growth	0.645*** (0.000)	0.643*** (0.000)	0.641*** (0.000)	0.641*** (0.000)	0.631*** (0.000)
Services growth(-1)	-0.038 (0.395)	-0.034 (0.458)	-0.054 (0.190)	-0.036 (0.428)	-0.077 (0.140)
Services growth(-2)	0.024 (0.470)	0.025 (0.440)	0.026 (0.397)	0.023 (0.479)	-0.003 (0.942)
Services-weight-employment	0.423 (0.220)	0.417 (0.223)	0.354 (0.319)	0.423 (0.216)	
Services-weight-GDP(-1)					0.068* (0.064)
Capital-GDP ratio	0.176 (0.185)	0.170 (0.199)	0.186 (0.232)	0.180 (0.159)	0.280 (182)
Capital-GDP ratio(-1)	-0.388* (0.100)	-0.396* (0.087)	-0.435** (0.048)	-0.383* (0.107)	-0.373 (0.163)
Trade openness	-0.060 (0.277)	-0.064 (0.338)	-0.066 (0.352)	-0.064 (0.233)	-0.091 (0,251)
Trade openness(-1)	0.210* (0.064)	0.209* (0.085)	0.229** (0.048)	0.209* (0.064)	0.175 (0.198)
Employment-population ratio	-1.078*** (0.005)	-1.086*** (0.005)	-0.978*** (0.010)	-1.079*** (0.006)	-1.184*** (0.007)
Employment-population ratio(-1)	1.137*** (0.000)	1.129*** (0.000)	1.037*** (0.001)	1.144*** (0.000)	1.138*** (0.000)
Secondary education(-2)	0.007 (0.710)	0.007 (0.706)	0.004 (0.822)	0.008 (0.673)	0.004 (0.826)
Government consumption		0.029 (0.797)			
Real effective exchange rate			-0.314 (0.112)		
Inflation rate				-0.001 (0.980)	
Constant	-0.883 (0.662	-0.882 (0.644)	0.046 (0.981)	-0.926 (0.639)	-
Year dummies	Yes	Yes	Yes	Yes	Yes
F-stat	660.85*** (0.000)	596.94*** (0.000)	631.54 *** (0.000)	650.78 *** (0.000)	1181.26*** (0.000)
No. of groups	52	52	52	52	52
No. of instruments	42	42	42	42	42
No. of observations	832	832	832	832	848
Arellano-Bond test for AR(1)	-4.38 (0.000)	-4.34*** (0.000)	-4.39*** (0.000)	-4.35*** (0.000)	-3.81*** (0.000)
Arellano-Bond test for AR(2)	-1.39 (0.165)	-1.40 (0.160)	-1.11 (0.267)	-1.40 (0.162)	-1.27 (0.203)
Sargan χ^2 test	14.55 (0.204)	14.50 (0.151)	14.07 (0.170)	14.57 (0.203)	25.42 (0.008)
Hansen χ^2 test	16.11 (0.137)	15.97 (0.100)	12.19 (0.272)	16.27 (0.131)	14.72 (0.196)

Looking at the traditional growth variables impact on productivity, the results indicate that capital-to-GDP ratio and trade openness have a lagged negative and positive significant impact on productivity, respectively. The negative and significant impact of capital-to-GDP ratio could be suggesting that most of the capital investments targeted may not be productivity-enhancing in most of the African economies, hence retarding overall growth. The result associated with the positive and significant lagged impact of trade openness could be supporting the narrative with regard to the commodity exports dominance in Africa's total exports and the continent's low export diversification, hence having the lagged effect on job creation, product value-addition and hence productivity growth.

The employment-to-population ratio is found to have a direct negative and significant impact on productivity growth while having a lagged positive and significant impact on productivity growth at conventional significance levels. This could be reflecting the time lag before Africa's working-age population acquired the necessary skills and knowledge before it starts contributing positively to the continent's productivity growth. It could be revealing the learning curve that the population has to undergo with direct negative impacts on productivity in the beginning before starting to contribute positively to productivity and growth.

Robustness of The Results

To ensure robustness of the estimates, we further carried out a standard ordinary least squares (OLS) estimation and other policy variables (as above), in a cross section on data covering the period 1990-2016. The results in Table 6 show that there is a positive and statistically significant relationship between growth in services and overall productivity growth. Both services growth and GDP-weighted services growth have a significant impact on productivity growth at below 1 percent level of significance. The results show that a 1 percent increase in services growth has a 0.67 percent increase in productivity growth, similar to the GMM findings in Table 5. Despite the slight difference in the size of the coefficients, the results of the traditional variables of capital-GDP ratio and employment-population ratio are found to be similar to the dynamic GMM results in Table 5. Furthermore, all the policy variables including government consumption, real effective exchange rate and inflation rate, were all found to be insignificant at conventional significance levels. Overall, and to a greater extent the OLS results are found to be in support of the dynamic GMM results reported earlier in Table 5.

Table 6: Services growth and productivity growth, OLS (robust) results, 1991-2016

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model 5
Productivity growth(-1)	0.666** (0.014)	0.064** (0.015)	0.066** (0.014)	0.066** (0.014)	0.245*** (0.000)
Services growth	0.668*** (0.000)	0.668*** (0.000)	0.668*** (0.000)	0.668*** (0.000)	0.613*** (0.000)
Services growth(-1)	0.082 *** (0.001)	0.082*** (0.001)	0.081*** (0.001)	0.082*** (0.001)	0.021 (0.466)
Services growth(-2)	0.015 (0.479)	0.015 (0.477)	0.015 (0.477)	0.014 (0.499)	-0.062** (0.011)
Services-weight-employment(-1)	-0.022 (0.719)	-0.017 (0.778)	-0.025 (0.679)	-0.022 (0.719)	
Services-weight-GDP					0.108*** (0.001)
Capital-GDP ratio	0.081*** (0.001)	0.077 *** (0.001)	0.082*** (0.001)	0.080*** (0.001)	0.044 (0.116)
Capital-GDP ratio(-1)	-0.048** (0.020)	-0.056** (0.011)	-0.049** (0.020)	-0.049** (0.020)	-0.022 (0.405)
Trade openness	0.029 (0.188)	0.029 (0.183)	0.027 (0.210)	0.029 (0.188)	0.008 (0.720)
Trade openness(-1)	-0.011 (0.569)	-0.016 (0.447)	-0.013 (0.513)	-0.011 (0.575)	0.015 (0.507)
Employment-population ratio	-0.880*** (0.000)	-0.885*** (0.000)	-0.873*** (0.000)	-0.879*** (0.000)	-0.577* (0.089)
Employment-population ratio(-1)	0.930*** (0.000)	0.935*** (0.000)	0.923*** (0.000)	0.931*** (0.000)	0.968*** (0.004)

Secondary education(-2)	0.003 (0.728)	0.002 (0.805)	0.003 (0.718)	0.003 (0.736)	0.014 (0.139)
Government consumption		0.019 (0.294)			
Real effective exchange rate			0.010 (0.299)		
Inflation rate					
Constant	0.466 (0.221	0.437 (0.249)	0.475 (0.210)	0.400 (0.326)	-1.410*** (0.000)
F-stat	1541.72*** (0.000)	1487.82*** (0.000)	1429.19 *** (0.000)	1418.28 *** (0.000)	851.66*** (0.000)
No. of observations	1351	1351	1351	1351	1377
R-squared	0.8150	0.8153	0.8152	0.8150	0.8150

Notes: P-values are reported in parentheses; *** statistically significant at 1 percent level; ** = statistically significant at 5 percent level; *= statistically significant a 10 percent level; and variable(-n) indicates a lagged variable.

Conclusions and Policy Implications

The paper tries to assess the contribution of the services sector to structural transformation and overall economic growth through the sector's contribution and impact on overall productivity growth for a panel of 52 African countries over the period 1990 – 2016. This hinges on the literature which stipulates that structural transformation is widely recognized as forming an integral part of a country's economic growth and development process. As an economy grows and develops, structural transformation is mainly experienced through changes in the share of output and employment within and across sectors. This study was motivated by the fact that Africa has experienced robust growth since the beginning of the 21st century, however, its growth has not been inclusive as it has failed to translate into poverty reduction and improved living standards of Africans. It has been argued that this has been due to the limited and low structural transformation process emanating from low productivity among African economies. Resources have been shifting from relatively high productivity to low productivity sectors, including low productivity traditional service sectors and the informal sector. However, the service sector has continuously been the largest contributor to Africa's growth over the years. Contributing close to 50 percent of Africa's GDP in 2016, while agriculture and manufacturing contributed 20 percent and 11 percent of GDP, respectively (World Bank, 2019). Hence the question; is growth in services sector responsible for the low productivity and limited structural transformation of African economies?

In answering this question, the paper has tried to assess the contribution of the services sector growth to structural transformation is carried out by examining the extent to which services sector growth has contributed to productivity and aggregate economic growth in Africa. This is done while recognising that structural transformation occurs when resources shift from low to high productivity sectors in an economy. Hence the need to further assess the extent to which growth in the services sector has been associated with a shift of resources from low (high) to high (low) productivity sectors. To do that we decompose aggregate productivity using the shift-share analysis approach to assess the service sectors' contribution to structural transformation through its contribution to productivity and aggregate economic growth relative to other sectors such as agriculture and manufacturing. The results show that there has been a continuous decline in both manufacturing and agricultural sectors in terms of both output value added and employment, but with a rise in the services sector in terms of both value added and employment over the period 1991-2016. Confirming earlier studies' findings which show that resources have been shifting from both agriculture and manufacturing sectors to the services sector in Africa [9].

However, despite the findings showing that the services sector has been the largest contributor to aggregate economic growth in Africa, and despite labour shifting from agriculture and manufacturing sectors into the services sector, the productivity growth in the services sector has remained relatively very low. Apart from being the largest contributor to growth, the services sector is also found to have positively contributed to both productivity and aggregate economic growth, however, the sector's contribution still remains relatively low when compared to productivity in agriculture and manufacturing sectors. This is supported by the results which show that despite the services sector experiencing an increase in labour productivity over the period, its productivity remained relatively lower when compared with other sectors from which labour was being released i.e. agriculture and manufacturing sectors. This could mainly be attributed to the fact that services seem to be more concentrated in the traditional type of services such as education, health, travel, wholesale trade and construction services which have very minimal contribution to productivity and aggregate growth in general.

The results based on the shift-share analysis approach show also that over the period 1991-2016, productivity growth was mostly explained by the structural change (between-static effect). However, when the period is reduced to 2000-2016, productivity is found to be mainly explained by the within sector productivity growth which could be due to increased investment within the different sectors, and also due to the shift of resources towards larger scale activities with increased technology use. The findings reveal also that labour continued to move from manufacturing and agriculture

to the services sector, which was more pronounced over the period after the 2008/2009 economic and financial crisis when compared to the period before the crisis.

To further assess the impact of services growth on structural transformation, productivity growth is regressed on services sector growth, employment and GDP-weighted services growth, the normal auxiliary growth model variables of physical and human capital, demographic transition and trade openness variables. The results show that services sector performance a positive and significant impact on overall productivity growth over the study period. Both the service sector growth and the GDP-weighted services growth have led to an increase in overall productivity growth. The results also show a positive and significant impact of trade openness and employment-to-population ratio on productivity growth. However, physical capital is found to have a negative and significant impact on productivity growth, to some extent signifying the lack of productivity-enhancing effects of capital investments in the sectors targeted by the countries. Hence having minimal contribution to the economies' structural transformation process. It would therefore be important for governments to make the services sector one of the priority areas with a special focus on developing modern services which have productivity-enhancing capacity. However, this will require human capacity with relatively high technological and knowledge skills. Hence the need for deliberate policies aimed at raising productivity in the services sector coupled with an accumulation of a wide range of necessary and required capabilities in human capital, institutions and governance architecture.

All in all, the findings reveal that despite the positive contribution of services to African economies, their contribution to structural transformation through their effects on productivity and aggregate growth has remained relatively low, translating to low job creation, economic diversification and inclusivity. To some extent supporting the narrative that the sector has contributed to the continents slow and minimal structural transformation process. The findings also indicate that growth in services productivity and growth of the sector as a whole, are likely to depend, to a large extent, on the efficiency and dynamism of services among African economies. The results indicate also that Africa exhibits a clear potential for service-driven productivity and economic growth if policy makers effectively implement reforms aimed at enhancing service sector liberalization, by dismantling economic barriers that retard service sector performance. Dismantling those that limit competition and enacting those that provide incentives to promote trade and encourage investment in modern services would play a significant role. The sector's growth would also benefit from the proliferation of ICTs which need further strengthening of the implementation of policies that could enhance competition through continued liberalization of the telecommunications sector, as well as enhancing the use of digital technologies.

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