

Service Sector: The Source of Output and Employment Growth in Ethiopia

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Abstract According to official data, the Ethiopian economy has grown at 10.9% on average in 2004/05-2014/15. During this period a structural change is observed as agriculture declined in its share and service sector dominates the economy. Hence, in this study we used a Shapely decomposition method to identify the service sector contributions to per capita GDP and employment growth during two periods of (1999-2005) and (2005-2013). Per capita GDP was decomposed into employment rate, productivity, and demographic changes. The result shows that during (1999-2005) growth periods, Ethiopian per capita GDP growth was mainly contributed by employment rate changes originated from the agriculture sector. Whereas the service sector has the highest contribution in productivity but a negative contribution in employment change. However, during the high growth period of (2005-2013) the growth in per capita GDP is due to productivity growth which emanates from the service sectors specifically from the distributive service sector.

Keywords Ethiopia, service sector, decomposition, employment and Per capita GDP

JEL Codes: O1, O5

1. Introduction

Ethiopia is getting an economic structure which is shifting from the traditional agriculture sector to the modern service sector. The service sector accounts for the lion's share in terms of the structure of GDP (46.6%) in 2014/15 taking the lead from the agriculture sector (NBE, 2015). Agriculture has been the dominant sector accounting over 50% of GDP share and 85% of employment for decades as the manufacturing sector contribution to GDP and employment stagnates at lower levels. The Ethiopian development policies during the last two decades targeted industrialization by giving a leading role for the agriculture sector. But, the recent Growth and Transformation Plans (GTP) of Ethiopia aspires to make the country a manufacturing hub by providing infrastructure access and huge industrial parks. The manufacturing sector is expected to make a significant contribution to growth and

structural change during the period of GTP II (2014/15-2019/20). Its GDP is projected to grow at annual average rate 23.9% and the GDP share is expected to increase from 4.6% (2014) to 8% (2019/20). On the other hand, the service sector GDP is projected to increase at an annual average rate of 10.1%, lower than its previous period average growth. It is also anticipated to show a modest decline in its share of GDP from 43.4% (2014) to 41.6% by the end of 2019/20 (NPC, 2015).

Hence, according to the development strategies of the country, the growth and the dominance of the service sector is planned to be contained as it is considered as a threat and unwanted. The government targets attracting investment in the manufacturing sector by pulling resources out of the service sector. Even though the manufacturing sector growth has huge growth effects, the experiences of low-income countries suggest that it is not the only sector to lead economic growth. Recently, services are considered to be dynamic that can drive economic growth and employment. According to Ghani and Connell (2014), services contribute more than manufacturing sector to output and employment growth in low and high-income countries.

Therefore, with the objective of transforming its economy and joining the middle-income country group, Ethiopia is striving to industrialize its economy. However, with a higher share of GDP contributed by the service sector and low level of manufacturing sector growth; industrializing the economy is a daunting task. So, evaluating the service sector growth option at this time may provide alternative strategies to move the manufacturing sector and the economy forward. Various studies have witnessed the contribution of the service sector on GDP growth and employment. However, a disaggregated analysis of service sector role on employment and GDP growth has not been studied so far. Most of the studies on employment growth effects focus on sectoral aggregate levels. Hence, the objective of this paper is to explore the service sectors and sub-sectors growth trend and its role in the Ethiopian GDP and employment growth. The methodology applied is descriptive statistics and growth decomposition techniques. The Shapley decomposition method is applied utilizing the Job Generation and Growth decomposition tool to decompose and identify the contribution of the service sector employment changes on total employment growth and per capita GDP growth.

2. Literature review

Theories on sectoral growth trace their origin from the dual economy model of Lewis (1954) and Hirschman (1958) that attempted to explain economic growth by examining the role and the relationship between the traditional agricultural sector and modern manufacturing sector. Since the pioneering work of Clark (1940), followed by Kuznets (1957) and Chenery (1968), the evolution of sectoral shares in output, consumption, and employment have been studied for a long period. These studies attribute economic

development as a three-stage process, wherein primary, secondary and tertiary sector dominate the economic activity sequentially.

The positive association between economic growth and the share of services in the distribution of the labor force has been documented by a number of Investigators, including Fisher (1935), Clark (1941), Kuznets (1957, 1966), Chenery (1979), and Fuchs (1980). Kuznets (1966) suggested that the tertiary sector expands in relative terms after the secondary sector dominance in terms of output and employment. The demand for services increases as the consumption demand for commodities gets saturated due to a rise in per capita income originating from the commodity producing sector (Bansal, 2013). Fisher (1935) had also suggested that economic progress would lead to the emergence of a large service sector, which followed the development of a primary and secondary sector.

There are opposing arguments on the relationship between the service producing sector and economic growth. There is a view that 'the service-producing sector can aid economic growth'. The other view is that 'the service-producing sector should not be considered as an independent' or a 'replacement for the traditional goods-producing sectors' (Glasmeier and Howland, 1993). There has been also an argument that as economic growth proceeds service sector grows. But along with the growth of service sector, growth in the manufacturing sector also takes place and the two-way spill over effect induces growth in the economy. On the other hand, the dominance of services in the developed world is attributed to its level of income Fisher (1935), Clark (1940), and Fuchs (1965) recognized the low productivity in services as a factor behind the faster employment growth in services than in industry. Such productivity differentials are the basis of the 'cost disease' hypothesis of services advocated by Baumol (1967).

In the context of the developing countries, a relatively large tertiary sector could be observed much before the development of the secondary sector in terms of value added and employment. In this case, Ethiopia can be an example, as the service sector is dominating its economy much before the development of the manufacturing sector. Various studies have identified that the Ethiopian economy is shifting from the dominant agricultural sector to the service sector EEA (2015), (WB, 2015). Accordingly, the recent growth of the Ethiopian economy has been largely attributed to the growth of the services sector as this sector contributed the highest average share of aggregate growth, accounting close to half of the growth of overall GDP (Ferede and Kebede, 2015; EEA, 2015). In addition, the employment share of the services sector has also increased. According to the NBE report in 2010, the service sector accounts for the lion's share in terms of four indicators: structure of GDP (46%), contribution to GDP growth rate (58%), structure of capital investment (46%), and structure of capital expenditure (75%) (NBE, 2010).

On the other hand, Seid, Taffesse, and Ali (2015) and Martins (2014) argue that there is a structural change in the Ethiopian economy. A continuous decline in the role of agriculture and rise in that of services have led to a reallocation of jobs and labor from the low-productive agriculture sector to the more productive sectors of the construction sub-sector and service sectors. In addition, the rise in total factor productivity, the overall increase in labor force participation rate, and fall in the labor share of the agriculture sector are indicative of the nature and extent of the structural shift in the Ethiopian economy. Although Ethiopia has experienced high economic growth and some structural change in production from agriculture towards services, the similar shift in employment has been insignificant. Nevertheless, the observed structural change in Ethiopia differs from the vision of government policy (WB, 2015).

Rodrik (2014) argues that services are unlikely to play the role of a growth escalator. With the rise of technology, many types of services are becoming tradable in global commerce. According to Rodrik (2014), these are 'high productivity, high wage, and high skill-intensive sectors' that require highly trained workers, which are unlikely to exist in developing countries. Thus, 'the bulk of excess labor in low-income countries is absorbed in non-tradable services that operate at low levels of productivity' since manufacturing sector's potential to absorb abundant labor from rural areas has diminished due to the 'capital and skill-intensive nature of the manufacturing sector' (WB, 2015).

On the other hand, there are arguments that support services as a dynamic sector that can contribute to growth and jobs. According to Ghani and Kharas (2010), developing countries have a higher revealed comparative advantage in modern services export than their own goods export. Although India is the most famous case of services-based growth, there are a dozen other examples including Bangladesh, Mozambique, and Rwanda (WB, 2015). In addition, the globalization of service provides alternative opportunities for low-income countries to find niche markets beyond manufacturing. A service led growth can be sustained because of the current growth in the globalization of services and its dominance in global output (more than 70% of global output). Fast-growing African countries like Ethiopia can sustain service-led growth as there is enormous space for catching up and convergence (Ghani and Connell, 2014). Therefore, as Ethiopia is experiencing service sector surge, how it can make use of its service-led growth to transform and sustain its economy can be a timely investigation.

3. Methodology of research

In this study, Shapley decomposition method is applied using the Job Generation and Growth/JoGG decomposition tool to describe how growth is reflected in the sectoral pattern of growth and employment generation. Here, it is used to describe how growth is linked to change in employment at the aggregate level and specifically with service

sector. It shows ‘how growth has translated into productivity, employment, and demographic changes’ at the aggregate level or by sectors (WB, 2012). The Shapely decomposition is a simple additive method associated with changes in per capita GDP (Per capita Value Added) by taking into account the relative size of the sector and the magnitude of change. The methodology decomposes GDP growth using several consecutive steps. However in this paper, since the focus is on sectoral contribution on changes in employment rate and per capita GDP, we considered some of the steps only. First, growth in per capita GDP is decomposed into employment rate change, change in output per worker and demographic changes. Then, employment changes are further decomposed into changes in employment by sectors. The other step identifies the role played by each sector on the aggregate effect of employment reallocation across sectors (WB, 2012). Thus, Per capita GDP is written as; $\frac{Y}{N}$

$$\frac{Y}{N} = \frac{Y}{E} \cdot \frac{E}{A} \cdot \frac{A}{N} \tag{1}$$

Where $\frac{Y}{E}$ is total output per worker which measures productivity, $\frac{A}{N}$ is the share of working-age population measuring demographic changes and $\frac{E}{A}$ is employment rate.

Thus, per capita GDP can be decomposed into growth associated with changes in the size of the working age population. This means that total change in per capita GDP is the sum of growth attributed to each of the components ω , e and α ; each representing output per worker, employment rate and working-age population respectively. Thus, if we denote $\bar{\omega}$, \bar{e} and $\bar{\alpha}$ as a fraction of the growth attributed to each component of ω , e and α , then the total growth rate of an economy can be expressed as;

$$\Delta y = \bar{\omega} * \Delta y + \bar{e} * \Delta y + \bar{\alpha} * \Delta y \tag{2}$$

In the decomposition each component has the interpretation of a counterfactual scenario. For instance, the employment rate, $\bar{e} * \Delta y$, will be the amount of growth consistent with a scenario in which output per worker ω and the share of working-age population α , had remained ‘unchanged’. To understand the way in which sectors contributed to employment generation and to total per capita growth it is possible to further decompose employment (rate) growth ($e\Delta$) by sectors. The easiest way is to express the total growth in employment as the sum of employment generation in each sector.

$$\Delta e = \sum_{i=1}^s \Delta ei \tag{3}$$

Where $\Delta e_i = \frac{\Delta E_i}{A}$ - is the changes in employment in sector i as a share of total working age population. This gives a simple measure of which sector contributed more to changes in the employment rate.

The other step is the decomposition of output per worker to changes in output per worker within sectors and changes in the relocation of workers between sectors. Output per worker can be also decomposed into sectoral employment shifts and changes in output per worker within sectors.

$$\frac{Y}{E} = \sum_S \frac{Y_i}{E_i} \cdot \frac{E_i}{E} \quad (4)$$

Where Y_i is Value Added of sector $i=1...S$; E_i is employment in sector i , and E is total employment. This equation just states that total output per worker is the weighted sum of output per worker in all sectors, where the weights are simply the employment share of each sector (WB, 2012).

To perform the decomposition, data was collected on output (Value Added) and population from the National Bank of Ethiopia report (NBE, 2015). Employment data was collected from the 1999, 2005 and 2014 National Labour Force Survey of the Central Statistical Agency of Ethiopia. The analysis is made for the period (1999-2013) by classifying the period as the low growth period of 1999-2005 and the high growth period of 2005-2013 (See WB, 2015). Another sort of secondary data for the descriptive analysis is collected from the Groningen Growth and Development Center (GGDC) 10 sectors database for the periods 1961-2011 (de Vries *et al.*, 2013).

4. Data analysis and results

4.1 Descriptive analysis

The main stylized facts observed in the structure of Ethiopian economy within a half century are the decline of agriculture, the rise of service and the stagnant growth of manufacturing sector. Agriculture share in the total output (Gross Value Added) declined by 43 percentage point from its highest level of 85% in 1961 to 42% in 2011 (de Vries *et al.*, 2013) and declined further to 38.8 % in 2014 (NBE, 2015). On the other hand, the output share in the service sector increased by 35 percentage points from 9% in 1961 to 44% in 2011 and 46.6% in 2014 (NBE, 2015). The manufacturing sector's output share has changed slightly from just 2% to 5.2% within fifty years (1961-2011).

Ethiopia is said to be largely an agrarian economy not only because of its share of GDP is dominated by agriculture but mainly due to a large number of its population is employed in agriculture for centuries. The share of population employed in agriculture was 96% in 1960, and it declined to 73% in 2013. As the share of agriculture in GDP decreased by 43 percentage points, the share of employment decreased just only by

23% within a half century (See Table 1). That means the number of people employed in agriculture increased in absolute terms from 9 million to 30 million. This level of employment share in the agriculture sector is one of the highest in the world and it exceeds the SSA average of 58% in 2011. There are no countries that achieved structural transformation and joined middle-income countries with a share of agriculture in employment exceeding 60%, manufacturing employment lower than 10%, and service employment lower than 20%. The share of employment in the manufacturing sector in Ethiopia was much lower in the early periods as compared to SSA average. Ethiopia's labor employed in manufacturing has increased from 1% in 1961 to 7% in 2011 as the SSA average increased from 4% to 7% for same period. It employed 119 thousand people in 1960 and increased to 2.8 million people in 2011. On the other hand, the service sector employed more than 218 thousand in 1960 and it increased to 6.7 million people in 2011. As the Lewis-type dual economy model suggests, workers that move out of subsistence or traditional agriculture are absorbed in the modern manufacturing sector. However, in Ethiopia, the sectoral employment shift of the economy is rather from agriculture to the service sector, which deviates from the conventional Lewis and structural change models.

Table 1. Gross Value Added and Employment Share of Ethiopia across SSA average* (1961-2011)

Sectors	SSA Average				Ethiopia			
	Gross Value Added Share							
	1961	1981	2001	2011	1961	1981	2001	2011
Agriculture	0.51	0.18	0.26	0.19	0.85	0.69	0.50	0.42
Industry	0.15	0.33	0.21	0.22	0.03	0.05	0.07	0.09
Manufacturing	0.06	0.11	0.10	0.09	0.02	0.04	0.05	0.05
Service	0.29	0.37	0.44	0.50	0.09	0.21	0.38	0.44
	Employment Share							
Agriculture	0.77	0.61	0.65	0.58	0.96	0.89	0.85	0.73
Industry	0.04	0.04	0.03	0.04	0.00	0.00	0.01	0.03
Manufacturing	0.04	0.06	0.05	0.07	0.01	0.02	0.03	0.07
Service	0.15	0.29	0.27	0.31	0.02	0.09	0.11	0.17

Source: Authors Computation from (GGDC) 10 sectors database (de Vries *et al.*, 2013)

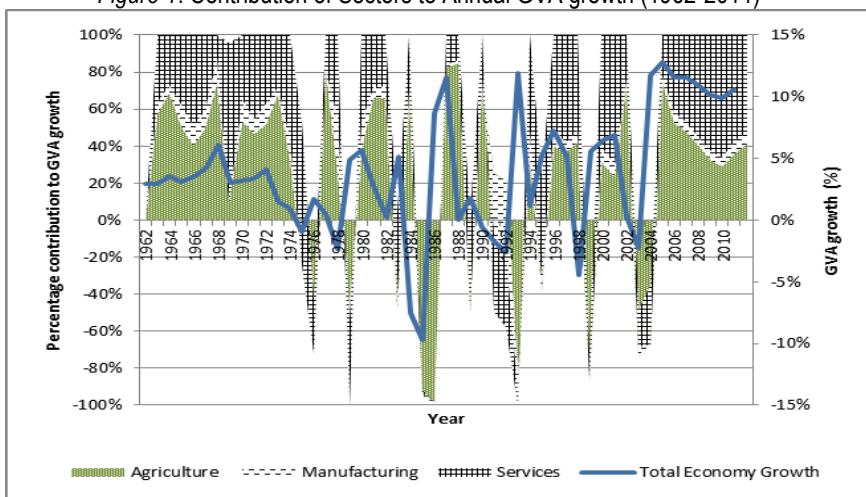
*SSA (Sub-Saharan Africa average) includes (Botswana, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Senegal, South Africa, Tanzania, and Zambia)

The economic growth of Ethiopia, as measured by the GVA growth as shown in Figure 1, is full of ups and downs fluctuating from positive to negative growth. In between 1974 and 2003, the GVA growth rate recorded negative growths in 1975, 1978, 1984-85,

1990-92, 1998 and 2003. The 1975 negative growth was due to the 1974 drought and famine as well as due to instability at the time of the overthrow of the imperial government by military government. The 1978 and 1998 were years that Ethiopia involved in a war with its neighbors Somalia and Eritrea respectively. A decline in growth in 1990-92 is associated with the civil war and instability during the overthrow of the military rule by the current government. Finally, the 1984-85 and the 2003 negative growth in GVA were due to a drought in the country.

Figure 1 also shows the contribution of agriculture, manufacturing and service sectors to the growth in output. During the positive growth periods of 1962-1973, on average 47% of the GVA growth was contributed by the agriculture sector. The manufacturing sector contributed 8% of the growth and the service sector contributed 39%. In 1974-1985, the average GVA growth was around 1% with the minimum of -9.7% and maximum of 11.5%. The larger share of the fall in the growth was attributed to the poor performance of agriculture because of drought and instability. However, on average the service sector has contributed largely to maintain the positive average growth of the period. The average contribution of agriculture to the total economy growth was just only 16% as the manufacturing and the service sector contributed 12% and 64% of the growth. During 1993-2003, the average GVA growth was 3.9% with the minimum growth of -4.4% and maximum 11.9%. Similarly, the larger contribution for the rise in the GVA growth was contributed by the service sector.

Figure 1. Contribution of Sectors to Annual GVA growth (1962-2011)

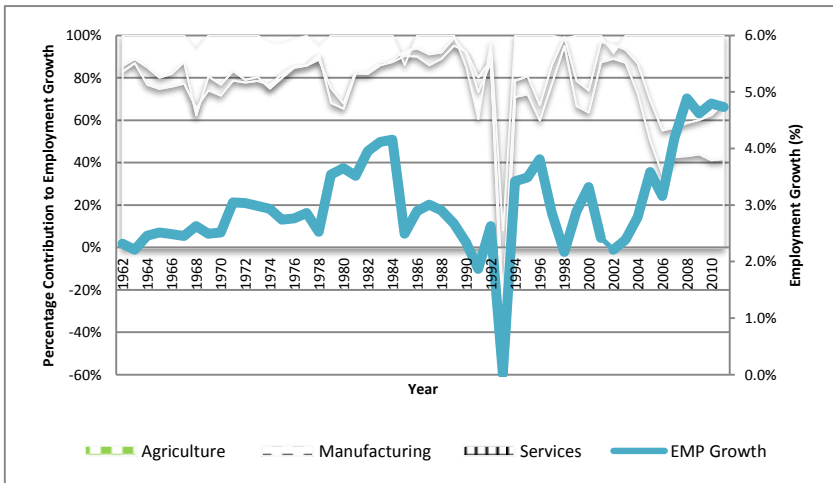


Source: Authors Computation from (GGDC) 10 sectors database (de Vries *et al.*, 2013)

The growth in the economy in GVA from 2004-2011 was stable and achieved successive high growth averaging 11.2% with a minimum of 9.9% in 2010 and a maximum of 12.8% in 2005. In this period, the contribution of agriculture to the total economy growth rate has declined from 68% in 2004 to 35% in 2011 and the period average was 41%. The service sector contribution to the economy growth has increased from 20% (2004) to 62% (2009) with the period (2004-2011) average of 47%, which is more than the agriculture sector. However, the manufacturing sector's contribution to the output growth in the economy was very small (5% for the period average). Therefore, this implies that the service sector played a leading role in driving the high growth in Ethiopia during the high growth periods of (2004-2011).

On the employment side, the total employment growth in Ethiopia is largely affected by the dominant employing sector, agriculture. Since Ethiopia has huge agricultural labor share, about 80% of the employment growth is attributed to the agriculture sector. Apart from agriculture, the service sector is contributing positively to the growth in employment since 2004.

Figure 2. Contribution of Sectors to Employment growth (1962-2011)



Source: Authors Computation from (GGDC) 10 sectors database (de Vries *et al.*, 2013)

Figure 2 shows that there has been a 2 to 4 percent employment growth from 1962 to the beginning of 1990 at the aggregate level. There was no negative employment growth but near to zero employment growth was observed when Eritrea separated from 147

Ethiopia and become an independent country in 1993. The employment growth declined below 2% as a result of the civil war and a succession of Eritrea from Ethiopia during 1990-1993. After 1994 the employment growth has increased though it declined in 1998 and 2002/3 because of Ethio-Eritrean war and drought respectively. However, since 2004 the employment growth is increasing along with the GDP growth. The agriculture sector has been contributing the largest share to the employment growth in all the periods prior to 2006. In 2006 and 2007, the contribution of agriculture to employment growth was overtaken by the service sector. The dominance of the agriculture sector contribution in employment growth was reduced since 2004 as both the service sector and the manufacturing sector contribution increased.

Therefore, from the descriptive analysis, we can observe that the role of the service sector to the total economy growth in GVA and employment is increasing. The leading role of the service sector could be attributed to the change within the service sector itself as its output share and employment share has increased along with a rise in its productivity level. The decomposition analysis can further indicate the sources of this growth.

4.2 Growth Decomposition Analysis

This section discusses the Ethiopian service sector contribution to the change in total employment rate and per capita value added during 1999-2014 using decomposition analysis. The data used for the growth decomposition is collected from the National Bank of Ethiopia NBE (2015), and the National Labour Force Surveys (NLFS) of 1999, 2005 and 2014 (CSA, 1999), (CSA, 2005), (CSA, 2014). The periods are classified based on the growth performance of the country as the low growth period (1999– 2005) with average GVA growth of 4.8% and high growth period (2005 - 2013) with average growth rate of 11%.

Table 2. Decomposition of Growth in per capita GDP/Value Added, Ethiopia

Decomposition of Growth in PCGDP	1999-2005		2005-2013	
	ETB*	% of total Δ in PCGDP	ETB	% of total Δ in PCGDP
Total Growth in PCGDP/ per capita GDP	527.2	100.0	3,568.7	100.0
Growth linked to output per worker	173.9	33.0	3,592.3	100.7
Growth linked to Δ employment rate	255.1	48.4	157.8	4.4
Growth linked to Δ in the share of population of working-age	98.3	18.6	-181.3	-5.1

*ETB-Ethiopian Birr (1USD=14.4 ETB) in 2010/11

Monetary value is in (2010/11 constant ETB)

Source: Own Computation using decomposition tool

The growth in per capita GDP (Value Added) decomposition result shows that employment rate growth has accounted the largest share (48.4%) to the total growth in GDP per capita followed by productivity growth (33%) in 1999-2005. However, during 2005-2013 period productivity growth has much more pronounced contribution to the GDP per capita growth. The contribution of employment rate has declined to 4.4% as the demographic change reduced the growth in per capita value added by 5.1%.

The contribution of employment changes to the overall change in employment rate is decomposed in Table 3. It shows how the 5.7 and 2.3 percentage points of growth in the employment rate in 1999-2005 and 2005-2013 respectively were distributed among the different sectors. During 1999-2005, the agriculture sector accounted 85.1% of the growth in employment rate followed by manufacturing, construction and public services contributing 10.2%, 7.8%, and 5.8% respectively. However, due to the negative share of the distributive trade service, the service sector at aggregate level had employment rate reducing growth.

Table 3. Contribution of sectors to the overall change in employment rate (e)

Sectoral contribution	1999-2005		2005-2013	
	Δ in total e (percent points)	contribution of the sector to total e growth (%)	Δ in total e (percent points)	contribution of the sector to total e growth (%)
Agriculture	4.87	85.16	-0.50	-21.43
Mining	0.16	2.79	0.19	8.27
Manufacturing	0.59	10.24	0.00	-0.20
Utilities	0.00	0.01	0.10	4.34
Construction	0.45	7.84	0.56	24.24
<i>Service</i>	<i>-0.35</i>	<i>-6.05</i>	<i>1.97</i>	<i>84.77</i>
<i>Market Service</i>	<i>-0.81</i>	<i>-14.19</i>	<i>0.34</i>	<i>14.55</i>
Distributive Trade	-0.85	-14.91	-0.25	-10.56
Transport and Comm	0.00	0.08	0.41	17.44
Finance and business	0.04	0.64	0.18	7.67
<i>Non Market Service</i>	<i>0.47</i>	<i>8.14</i>	<i>1.63</i>	<i>70.22</i>
Government service	0.13	2.29	0.64	27.61
Personal services	0.33	5.85	0.99	42.61
Total employment rate	5.7	100.00	2.3	100.00

Source: Own Computation using decomposition tool

e – refers to employment rate

Nevertheless, the service sector contribution to the employment rate has changed in the high growth periods, accounting 84.7% of the total employment rate growth or job generation. The agriculture sector contributed negatively (-21.43%) to employment rate growth witnessing the shift to the service sectors. The largest contribution in this period is observed in the government and personal services (non-market services) accounting 70% of the change in the employment rate. The other important contributors are the construction, and transport and communication sectors accounting 24.4% and 17.4% respectively. The manufacturing, the agriculture, and the distributive trade experienced employment rate reducing growth. Therefore, the contribution of agriculture to job creation is overtaken by the service sector. Despite the fact government of Ethiopia had introduced employment generation policies focusing on micro and small scale manufacturing enterprises, the decomposition result indicates it is not contributing to job creation.

The role of employment changes observed in the service sector on per capita GDP growth can also be further decomposed as shown in Table 4. In 1999-2005, if the growth in which the demographic change, total output per worker, and employment in all sectors other than agriculture sector remain unchanged, the larger change in total per capita GDP would have increased by 217.2 ETB. This is due to the increase in employment in agriculture observed during 1999-2005. In the previous Table 3, the contribution of agriculture to total employment rate growth was 85.16%. Hence, due to this change assuming unchanged working age population, total output per worker, and employment in all sectors; the total per capita output would have increased by 217.2 birr. This amount takes 41.2% of the total change (48.4%) in per capita GDP growth linked to employment rate. Other than agriculture, the manufacturing, construction, and personal service sectors have contributed more to per capita GDP growth by 26.12, 20.01 and 14.93 birr respectively. However, the distributive service trade sector would have reduced per capita growth by 38.04 birr. This undermines the contribution of service sector at the aggregate level, reducing per capita GDP by 15.42 birr. The positive and high contribution of the non-market service (20.76 birr) couldn't offset the negative contribution that the distributive service sector experienced during 1999-2005. However, during 2005-2013, the share of agriculture in employment rate growth is overtaken by the service sector, specifically by the non-market service accounting 3.1% of 4.4% (see Table 4). On the other hand, agriculture, manufacturing, and distributive service had a negative contribution to the change in per capita GDP. This decomposition analysis of employment changes on per capita GDP identifies the importance of the non-market service sector for GDP per capita growth through employment changes.

Table 4. Contribution of employment changes to overall change in PCGDP

Sectoral contribution	1999-2005		2005-2013	
	Contribution to Δ in PCGDP	% of total Δ in PCGDP	Contribution to Δ in PCGDP	% of total Δ in PCGDP
Agriculture	217.22	41.20	-33.81	-0.95
Mining	7.12	1.35	13.05	0.37
Manufacturing	26.12	4.95	-0.31	-0.01
Utilities	0.02	0.00	6.85	0.19
Construction	20.01	3.79	38.26	1.07
<i>Service</i>	<u>-15.42</u>	<u>-2.93</u>	<u>133.76</u>	<u>3.75</u>
<i>Market Services</i>	<u>-36.19</u>	<u>-6.86</u>	<u>22.96</u>	<u>0.64</u>
Distributive trade	-38.04	-7.21	-16.67	-0.47
Transport and Comm	0.21	0.04	27.52	0.77
Finance and business	1.64	0.31	12.11	0.34
<i>Non Market Service</i>	<u>20.76</u>	<u>3.94</u>	<u>110.80</u>	<u>3.10</u>
Government service	5.83	1.11	43.57	1.22
Personal Service	14.93	2.83	67.23	1.88
Total contribution	255.1	48.4	157.8	4.4

Monetary value is in (2010/11 constant ETB)

PCGDP – refers to Per Capita GDP

Source: Own Computation using decomposition tool

In the final Table 5, sectoral contributions are decomposed into the contribution of changes in employment, contribution to productivity (within sectors productivity change and the inter-sectoral employment shifts) and the total effect of the sector. During 1999-2005, the agriculture sector took the biggest role in per capita growth followed by the service sector that originated from market services. This is due to the higher within productivity changes in the market services observed than other sectors. Furthermore, the finance and business service sector experienced the highest contribution in intersectoral shifts. Hence, the service sector has a greater contribution to productivity than other sectors but the negative contribution in employment changes.

In 2005-2013, the service sector dominated the contribution to changes in GDP per capita growth from both employment and productivity sides. It accounted 56.2% of the change in GDP per capita growth, the larger share originating from the distributive trade (26.8%) due to its highest productivity level. One important observation in the distributive service is its negative contribution in employment rate and intersectoral shifts in both periods. Even though the distributive sector is the dominant service sub-

sector in Ethiopia (in output and employment) with higher productivity level, it has lower employment generation capability and intersectoral shifts.

Table 5. Growth Decomposition. Contribution to Total Growth in GDP (value added) per capita, Ethiopia 1999-2013

Sectoral contributions	1999 -2005				2005-2013			
	(%) Δ in Employment	output per worker			(%) Δ in Employment	output per worker		
		(%)within sector Δ in w*	Intersectoral Shifts (%)	Total (%)		(%) within sect	Intersectoral Shifts (%)	Total (%)
Agriculture	41.2	3.9	-0.8	44.	-0.9	30.2	1.9	31.
Minining	1.4	-11.8	10.7	0.2	0.4	0.5	0.7	1.6
Manufacturing	5.0	-2.2	-0.3	2.5	0.0	5.4	0.0	5.4
Utilities	0.0	1.2	-0.5	0.7	0.2	-0.6	1.2	0.8
Construction	3.8	-1.3	6.4	8.8	1.1	6.7	2.1	9.9
<u>Service</u>	<u>-2.9</u>	<u>18.2</u>	<u>9.6</u>	<u>24.</u>	<u>3.7</u>	<u>34.1</u>	<u>18.4</u>	<u>56.</u>
<u>Market Service</u>	<u>-6.9</u>	<u>27.7</u>	<u>9.3</u>	<u>30.</u>	<u>0.6</u>	<u>26.3</u>	<u>16.8</u>	<u>43.</u>
Distributive	-7.2	27.1	-9.6	10.	-0.5	28.5	-1.3	26.
Transport	0.0	9.7	-1.4	8.3	0.8	0.0	4.1	4.9
Finance	0.3	-9.1	20.3	11.	0.3	-2.3	14.0	12.
<u>Non-Market</u>	<u>3.9</u>	<u>-9.5</u>	<u>0.3</u>	<u>-</u>	<u>3.1</u>	<u>7.8</u>	<u>1.6</u>	<u>12.</u>
Public	1.1	-7.4	0.0	-	1.2	6.9	1.8	10.
Personal	2.8	-2.1	0.4	1.1	1.9	0.9	-0.3	2.5
Subtotals	48.4	8.0	25.0	81.	4.4	76.4	24.3	105.
Demographic component				18.				-
Total				10				10
Total % change in value added per capita				16.				97.

*w - refers to productivity

Source: Own Computation using decomposition tool

The inter-sectoral shifts with positive contribution refer that on average labor moved from lower than average productivity sectors to above average productivity sectors. Hence, in the period 2005-2013 except for distributive trade and personal service sector, all the other sectors has a positive contribution implying that on average labor has moved from low productivity sectors of agriculture and manufacturing sectors to high productivity sectors of the service sector.

Therefore, the decomposition result identified the sectors and factors which are most linked to per capita GDP growth. The service sector has become the major contributor in Ethiopia for the growth of per capita GDP during 2005-2013. In addition, it has

contributed more than other sectors to the productivity growth and intersectoral shifts. The major contribution to per capita GDP growth originates from the distributive sector due to its higher within sectors productivity change. Whereas the contribution of service sector employment to the GDP per capita growth emanates from the non-market service sectors. On the other hand, the contribution of the service sector in intersectoral shifts also comes from the higher intersectoral shifts occurred in the finance and business service sector.

5. Conclusions

In Ethiopia, the contribution of the service sector to the total output growth or GDP growth and to employment growth is increasing and the sector is becoming an important sector to drive growth. The decline in agriculture paved the way for the dominance of the service sector. The agriculture share in the total output declined by larger percentage points as the manufacturing sector's output share changed slightly within fifty years (1961-2011). Concomitantly, the output share in the service sector has increased. The service sub-sector output is also dominated by the distributive trade and public service sub-sectors. Hence, these changes in the sectoral structure of the Ethiopian economy imply that there is some sort of sectoral growth dynamics.

The sectoral shift of the Ethiopian economy from agriculture to service sector has deviated from the conventional Lewis and structural change models. As the Lewis-type dual economy model suggests workers move out of subsistence or traditional agriculture are absorbed in the modern manufacturing sector. However, in Ethiopia, it is the service sector that is creating more jobs than manufacturing sector. Employment in service sector generally increased in Ethiopia by 15 percentage points within a half century (1961-2011). The distributive sector takes the largest share in employment share followed by the employment in government and personal services. The employment share of the finance and business, and transportation and communication sub-sectors are very small as both sectors employ highly skilled labor force and pay higher wages than the other service sub-sectors. Hence higher productivity is observed in these sectors.

The decomposition analysis identified the importance of the service sector in general for the employment and GDP per capita growth. The sector has played the main role in productivity growth and intersectoral shifts. The major contribution of the service sector to per capita GDP growth originates from the distributive sector due to its higher within sectors productivity change. Whereas the contribution of service sector employment to the GDP per capita growth emanates from the non-market service sectors. On the other hand, the contribution of the service sector in intersectoral shifts also comes from the higher intersectoral shifts occurred in the finance and business sector.

Generally, the service sector witnessed its importance to the growth of the country by contributing the largest share to the creation of more jobs and growth of per capita GDP. Prior to the high growth period of 2005-2014, the agriculture sector has got a bigger share on total employment growth and per capita GDP growth. The country's successive growth and transformation plan envisage transforming the economy from agriculture dominance to manufacturing by creating more employment for the youth through the manufacturing sector especially using massive investment on micro and small-scale enterprise development. However, it was not manufacturing sector that took the lead from the agriculture sector, rather it is the service sector. Thus, the current growth of the service sector is seen as untimely and unwanted growth from Ethiopia policies perspective. Nevertheless, the growth in GDP and employment in Ethiopia is the result of the growth in the service sector, especially from the employment growth of the non-market service sector and productivity growth of the market service sector. Without the massive growth in the service sectors, the much required high GDP growth wouldn't be achieved. Therefore, the policies in Ethiopia shouldn't undermine the role played by the service sector. More employment opportunity can be created by the manufacturing sector along with the service sector by channeling the abundant labor force from the agriculture sector.

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