ECONOMIC POLICIES AND EMPLOYMENT ELASTICITY OF GROWTH IN SUB-SAHARAN AFRICA

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ABSTRACT

The impact of policy dimensions on the employment elasticity of output growth was examined in this study using data from 37 sub-Saharan African (SSA) countries. It is argued that the patterns of policies based on institutional capacity of government provides a strong background for improving the relationships. Employing the two-stage least squares technique, employment elasticities for three different sub-periods between 1991 and 2016 (1991-1999, 2000-2009, 2010-2016) were estimated for the 37 SSA countries. Then the effects of policies and policy interactions with changing macroeconomic factors (policy shifts) on employment elasticities were estimated using the feasible generalised least squares method. Policy directions were proxied by measures provided by the Fraser Institute's Economic Freedom of the World database, while policy interactions were measured by multiplying policy interactions with target macroeconomic variables. Empirical analysis showed that policy interactions with target macroeconomic variables provide stronger employment yields when output grows. This implies that effective application of growth-led policies on particular macroeconomic sectors yields more beneficial employment outcomes than merely setting up policy benchmarks that are economy-wide. Although overall policy directions tend to improve economic growth, there is need for careful balancing of policies that are regulatory in nature in order to achieve the required employment benefits.

JEL classification: E02, E24, J21, J4, L16

1. Introduction

In the last few decades, research and policy directions on economic growth (and development) have highlighted the central role of the creation of more and better jobs in the growth process. The consensus is that if economic growth is to be meaningful, especially for developing countries, it must lead directly or indirectly to improvement in employment opportunities (Fields, 2012). This is relevant when the widely-held view that productive employment is the main channel through which economic growth could be translated into better living conditions is considered. There is no doubt that the SSA region experienced some of the most impressive growth figures in the years following the dawn of the century. The 2014 report of the African Center for Economic Transformation observed that "six of the world's 10 fastest growing countries in the 2000s were in sub-Saharan Africa: Angola at 11.1% a year, Nigeria 8.9%, Ethiopia 8.4%, Chad 7.9%, Mozambique 7.9%, and Rwanda 7.6%" (ACET, 2014, p.2). In spite of the impressive growth performances, the region has some of the worst standard of living conditions and poverty figures in the world. For instance, absolute poverty in the region was 40.7% in 2012, compared to 12.2% in Asia and the Pacific. The problem with the pattern of growth in these countries thus embodies the struggle to translate the impressive figures to improved employment regimes.

From the structural perspective, linking employment with growth has been difficult for many SSA countries due to the deep duality that characterizes the markets – both the production and labour markets. Such duality has the implication of generating highly segmented employment structures while also weakening the capacity of policy influences on the labour market (Martins, 2012; Adegboye, Egharevba & Edafe, 2019). Thus, the dimension of labour markets in SSA countries may require more particular policy treatments in order to effectively link employment with growth. A range of policies have been formulated to address dualism, especially with the goal of facilitating inter-sectorial production linkages and enhancing regulation. Both trade and industrial policies have been directed at ensuring smooth adjustments in the major sectors, while fiscal and monetary policies have been used to stabilize sectors that are deemed to be weak and less productive. Though the impressive growth experienced in many of the SSA countries have been stimulated by structural policies and adjustment programmes, there are concerns over the effectiveness

of such policies in ensuring more productive employment yields. This is because, while these policies ensure consistent output expansion, they may be weak in ensuring distributional equity, sectorial inter-linkages, or productivity shifts in the necessary sectors. These policies are also, sometimes, inconsistent (Basnett & Sen, 2013). In a study by the International Labour Organisation (2011), it was revealed that policy measures that are used for growth enhancement tend to turn-back to stifle employment growth, especially in the long run. For instance, when government increases its fiscal capacity through domestic financial markets, businesses may experience credit deficit, which in turn may directly impact businesses and force them to substantially cut costs, including labour losses.

The critical questions that arise from the foregoing are with respect to the use of policy as a tool for stimulating and directing employment in the SSA region. Have the growth policies also promoted employment, or are they actually limiting employment prospects among the sectors of the economies? How do policy regimes in SSA countries help to create favourable employment conditions during periods of economic growth and prosperity? In this study, we seek to examine the role of policy directions in aiding employment yields from given output growth among SSA countries. In the first place, the study identifies the pattern of responses of employment to economic growth in SSA countries. We also consider the role of "growth-led" policies in the provision of "good jobs" in SSA countries. We argue that growth policies (including industrial/investment, trade/liberalization, and fiscal/monetary) should also be able to provide employment benefits since the ultimate aim of economic growth is to improve welfare.

2. Economic Performance and Employment in SSA

Generally, the performances of most countries in the sub-Saharan Africa (SSA) region has been impressive since the late 1990s. Favourable terms of trade – due to increasing commodity prices – as well as enhanced domestic institutional conditions have contributed largely to this impressive performance (Iyoha & Oriakhi, 2002). In figure 1, a comparison of growth in the region with other regions of the world shows that SSA economies reported the highest growth rates of GDP for the period 2000 to 2010. Indeed, growth rates started to rise appreciably after 1998 conspicuously coinciding with periods of higher

commodity prices. In figure 1, trends movements in the growth rates of output and employment are shown. Between 1990 and 2002, there was no evidence of similar trends for the two growth rates. From 2003 however, there were strong similar patterns of movement between the growth rates. Remarkably, the higher correlated movements coincided with the period of improvements in the region's economic performance. This was also the period with more stable growth rates, on average. The chart therefore suggests that for the SSA region, periods of stable and impressive economic growth appear to also have higher employment regimes.

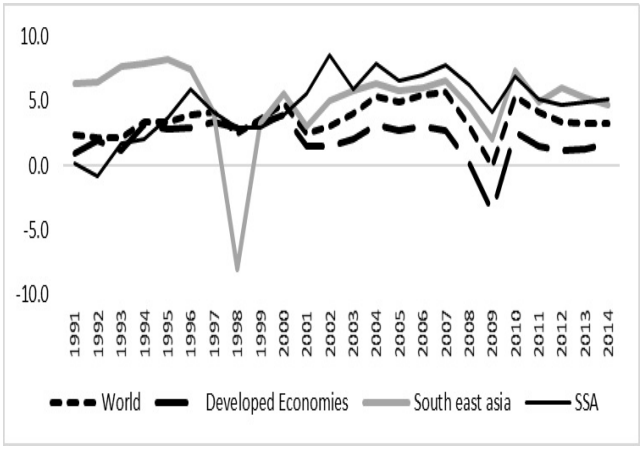

Figure 1. Trends in growth performance in SSA and other regions.

Source: Background data from WDI.

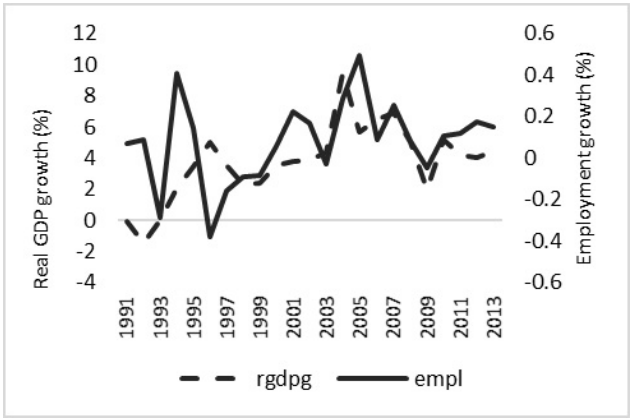

Figure 2. Trends in growth of output and employment in SSA.

Source: Background data from WDI.

The main rationale for the outcome in figure 2 can be traced to micro-level participation since high growth rates often entail rising business profitability, encouraging entrepreneurs to increase investment and labour input. However, a clear point to be noted in the figure is that employment growth was below the output growth for most of the period in the chart. This suggests that for the region, growth in employment is always lower than growth in output, and the margin is relatively wide.

In table 1, the general employment levels in SSA are presented. It shows that more males have found employment in the region over the years. The shares of both males and females in employment have been on the increase, implying that total employment has increased between 1991 and 2014 from 64.1% to 65.4%. The change is rather minute, especially considering that the SSA economies have had rapid growth rates over the period. Furthermore, more adults are in employment than youth. Indeed, over the period, the youth employment rate was at maximum of 47.9% while that of adults was 74.7%. This emphasizes the problem of youth unemployment in the region as indicated by Okojie (2003). Moreover, the change in total youth employment has been rather static between 1991 and 2014. The rise in institutional turnover since the 1990s is a major factor contributing to the widening gap between adult and youth employment rates in the region. As more youths graduate from these institutions, the probability to return to agricultural employment falls, reducing the employment rate of that age group and leaving the persons more prone to general unemployment.

Table 1. Employment rates in SSA

Year	Total	Male	Female	Youth	Adult
1991-1995	64.1	73.1	55.3	46.76	73.5
1996-2000	63.9	71.8	56.2	46.76	73.4
2001-2005	64.2	70.7	57.8	47.3	73.6
2006-2009	64.8	70.9	58.8	47.4	74.2
2010	64.8	70.9	58.9	47.4	74.3
2011	64.9	71	59	47.4	74.3
2012	65.1	71.1	59.1	47.5	74.4
2013	65.3	71.3	59.4	47.9	74.6
2014	65.4	71.4	59.5	47.9	74.7

Source: Background data from International Labour Organisation.

The growth rates and changes in labour employment among the sectors in the region are presented in table 2. The services sector clearly had the highest growth rate in the region over the period 1991 to 2014. The growth rate of services employment also increased from 2.21 in 1991-1999 to 5.12 in 2014. Also, the change in the growth rate of services sector employment was very high between 1991 and 1999. The constant positive growth in agricultural employment could be due to general labour force growth in the countries. The wide-spread expansion of the services sector is due to combined effects of structural changes, labour force growth, and the ease of lapsing into the informal sector in the urban areas once an individual fails to secure more productive jobs.

Table 2. Growth Rates of and Changes in Sectoral Labour Employment

Period	Growth Rate (%)			Period Change (%)		
	Agriculture	Industry	Services	Agriculture	Industry	Services
1991-1999	2.82	2.67	3.21	24.9	23.3	28.7
2000-2005	2.61	2.66	3.98	14.1	12.6	21.1
2006-2010	2.35	3.39	4.02	9.84	15.5	16.5
2012	1.71	3.48	5.56	-	-	-
2013	2.22	3.98	4.74	-	-	-
2014	2.17	4.21	5.12	6.9	14.1	14.7

Source: Background data from International Labour Office.

3. Brief Review of Literature

Okun's law has provided a veritable background for much of the studies relating growth with employment over time. As Fuchs (1980) noted, even the distribution of employment among the main and aggregative sectors of the economy in any country is closely related to the level of real per capita GDP. Thus, output growth plays a critical role in the determination of overall employment and the direction of employment in an economy. In Okun's (1962) work, the rather steady and inverse relationship that exists between the unemployment rate and real output growth rate was formalized, setting the tone for expectations of positive relationship between employment and growth in empirical studies. For most of these studies, estimation of employment elasticities has been the main focus, given that each proportion of output growth is expected to yield

employment outcome. Moreover, few studies have employed decomposition and other methods in investigating the growth-employment relationship.

One of the earliest attempts at estimating employment elasticities of growth was conducted by Kapsos (2005) for a panel of 160 countries over the period 1991 to 2003 for total employment as well as different demographic groups. The study found that, surprisingly, employment elasticities were higher in Africa and the Middle East when other macroeconomic factors were controlled for. Pleic and Berry (2009) found similar results in the estimation of employment elasticities for Thailand, Brazil, Chile and Argentina. Döpke (2001) estimated employment intensities for European and other selected advanced economies and the factors that explain the estimates. For the results, real cost of labour, labour market flexibility, and exchange rate volatility had significant impacts on employment elasticities. Also using data for the Euro area, Mourre (2006) estimated employment elasticities using the CES production function as the starting point while breaking down data for different periods. In line with the results from Döpke (2001), lower real labour costs were found to largely increase employment elasticities in the Euro area. A main reflection from this result is the perception that less rigidities in labour markets would also enhance employment elasticities.

Using cross-country data analysis, Slimane (2015) assessed the determinants of cross-country variations in employment elasticities and found that employment elasticities tended to be higher in more advanced and closed countries and that macroeconomic policies aimed at reducing macroeconomic (price) volatility had significant effects in increasing employment elasticities. Using a decomposition technique, Basu and Das (2015) investigated the patterns of output growth and employment for India and the US, with focus on the problem of "jobless growth". It was observed that aggregate elasticity (both in levels and changes) was due largely to agricultural patterns for a long time in India. For the US economy, the main drivers of aggregate elasticity were the services and manufacturing sectors. This implies that the level of development in an economy tends to determine the factors that contribute to the employment-output growth relationship.

In many of the studies for the SSA region, weak and mostly negative elasticities and output-growth relationships were found. Page and Shimeles (2015) also decomposed employment and output for the SSA region and

revealed an interesting outcome; that the economies with fastest growth rates where those that had the least responsiveness of employment to growth. They showed that the weak reallocation of labour and capital to more productive sectors in the region contributed largely to their findings. Ajakaiye, Jerome, Nabena, and Alaba (2016) employed the same decomposition methods to examine the relationship between growth and employment in Nigeria and found that Nigeria's growth "over the last decade had been 'jobless' and sustained largely by factor reallocations rather than productivity enhancement".

There are also indications that employment elasticities can be sector-specific with certain sectors having very low absorptive capacity with output growth. Crivelli, Furceri and Toujas-Bernaté (2012) initially found that employment elasticities varied considerably "across regions, income groups, and production sectors, with the highest estimates typically recorded for the most economically developed regions, and in industry and services sectors". Ait-Ali, Ghazi and Msadfa (2017) also found that employment elasticities varied considerably across countries and sectors, and that manufacturing elasticities were higher than those of the rest of the economy in low-income countries of sub-Saharan Africa. In terms of determinants, the study found that labour market flexibility, structural transformation, and macroeconomic stability had strong positive impact on both overall and manufacturing employment elasticities. For the Indian economy, Misra and Suresh (2014) estimated employment elasticity of growth using a variety of approaches. They found that elasticities in the manufacturing sectors where higher than those of overall economic aggregates, though all elasticities where generally low.

In a study for Uganda, Bbaale (2013) found generally weak and negative employment-growth relationships, with the agricultural and manufacturing sectors employment having negative elasticities and the services sector having low positive elasticities. Akinkugbe (2015) also found that most of the sectors in the Zambian economy exhibited positive employment elasticities during the period 1990-2008, although elasticities were negative for the mining, and modern services sectors. Ajilore and Yinusa (2011) explored employment elasticities in terms of sectoral output changes for Botswana and found low labour absorptive capacity and weak elasticities both at the aggregate and sectoral levels. Leshoro (2014) confirmed the possibility of the sectorial variations in elasticities when he employed the error correction mechanism

(ECM) to estimate the employment intensities of growth for Botswana using data for the period 1980 to 2011. He also found negative employment elasticities for the aggregate economy and very low estimates for sectoral disaggregation. For the South African economy, Mkhize (2016) found weak long-run elasticities for non-agriculture employment, suggesting jobless growth over the period 2000Q1 to 2012Q2.

Thus, productivity losses and inadequate reallocations within and between sectors are shown to be strong factors that have hindered employment yields from growth outcomes in many SSA countries. Apparently, if growth mechanisms are left to direct the allocation of both human and labour resources, efficiency may be lost with resultant structural employment challenges. This is the situation that many Africa countries appear to be going through in recent years. Thus, recent studies have demonstrated the role of policy dimensions in facilitating factor reallocation and sectoral adjustment during periods of growth in order to attain better employment outcomes (Adegboye et al, 2019; Anderson, 2016; Crivelli et al., 2012; Bassanini & Duval, 2009).

The theoretical background for the involvement of policy dimensions to employment problems with adjustment concerns was initially embedded in the Harris and Todaro (1971) model. On the basis of the model, two strategic policy propositions were made about managing employment conditions for developing economies. The first concerned a policy of formal sector employment creation to employ the unemployed, and the second policy option considered was a policy of rural development. This implies that a booming modern sector does not always solve the problem of urban unemployment (Fields, 1972). This is what has been referred to as the employment, rather than, the unemployment problem for many SSA countries. Apparently, the solution to urban unemployment lies in policies that affect macroeconomic and social stability over time and across regions.

By implication, the conclusions of the Harris-Todaro model imply that as long as policies provide incentives for labour migration from the agricultural to the modern sector, then the model outcome (of persistent unemployment) will always hold. In the same vein, any policy that tends to promote urban wage rigidity or keep the wages high will negatively affect employment growth in the modern, more productive sectors. A variety of policy factors that could keep urban wages high has been considered including public sector participation in

the labour market, rate of urbanization (since it is more expensive to live in the urban sector), foreign ownership of businesses or FDI inflow among others (Greenwald & Stiglitz, 2006; Stiglitz, 1976). Appropriate structural transformational policies that affect the labour market and production conditions are particularly required in ensuring that improved growth in modern sectors is well distributed in terms of employment growth in an economy.

Empirical studies on the role of policies on employment elasticities have generally found that appropriate policies enhance the nexus between growth and employment through facilitation of adjustment processes and strengthening sectoral linkages (Crivelli et al., 2012; Bassanini & Duval, 2009). Using a cross section of both lower and higher income countries, Crivelli et al. (2012) found that structural policies aimed at increasing labour and product market flexibility and reducing government size had a significant and positive impact on employment elasticities. They also showed that when structural policies are complemented with macroeconomic policies aimed at increasing macroeconomic stability, then the positive responsiveness of employment to economic activity can be maximized.

For a group of SSA countries, Adegboye et al. (2019) found that policies that lead to less economic regulation enhance formal sector employment, while the effects on informal and pro-poor employment is not straight-forward. Moreover, labour market flexibility tends to worsen informal sector employment, while policies that strengthen the legal institutions appear to be pro-poor in terms of employment effects, while government participation has strong disincentive effects in improving employment elasticity of output growth in SSA regions.

However, most of the studies focused on how policies influence employment directly, but not employment elasticities. They considered how policies have affected employment patterns, rather than how policies influence employment yields from growth. It is important to evaluate the interlinkages from this perspective since, for most SSA countries, economic growth has remained the best, and in some cases, the only means through which large social changes may be achieved.

4. Methodology

4.1 Estimation of elasticities

Computation of elasticities (both aggregate and sectoral) is aimed at representing the absorptive capacities of the economy in terms of employment yields (Ait-Ali et al., 2017; Misra and Suresh, 2014). The methodology employed for estimating employment elasticities is drawn from the initial panel study by Kapsos (2005) and adapted by Madariaga (2014), Islam and Islam (2015) and Anderson (2015). The basic model for employment elasticity is specified as:

$$lnE_{it} = \alpha + \beta_1 lnY_{it} + \sum_{i=1}^{n} \beta_{2i}\, lnY_{it} \times D_i + \sum_{i=1}^{n} \beta_{3i}\, D_i + \mu_{it} \quad (1)$$

where:

lnE	=	logarithm of the amount of employment
lnY	=	log of real output
D	=	country-dummy variable
u	=	stochastic error term

Taking partial derivatives of equation (1) with respect to lnY, we obtain the value for the employment elasticity of output for the economy as:

$$\frac{\partial E_{it}}{\partial Y_{it}}\left(\frac{Y_{it}}{E_{it}}\right) = \beta_1 + \sum_{i=1}^{n} \beta_{2i} \times D_i \quad (2)$$

From the partial derivative, $\beta_1 + \beta_2$ represents the change in employment associated with a proportional change in output for a particular economy.

Equation (1) is the baseline equation from which the aggregate economy-wide elasticity of employment for each of the countries can be obtained. At a basic level, output at any given period is the resulting product of employment and productivity. As Kapsos (2005, p.11) noted, "taking small changes, it can be shown that any increase in the rate of employment growth, for a given amount of output growth, must be met by an equal and opposite decrease in labour productivity growth". Apparently, the role of productivity in the output/employment relationship has to be considered when interpreting

employment elasticity values. Table 3 provides a guide in terms of analysis of the signs of the coefficients in the models specified in the equations (see Kapsos, 2015).

Table 3. Interpreting employment elasticities

Employment elasticity	Positive GDP growth
e < 0	negative employment growth
	positive employment growth
0 < e < 1	positive employment growth
	positive employment growth
e > 1	positive employment growth
	negative employment growth

Source: Kapsos (2005, p.4)

Estimation of the role of policies in the determination of employment elasticities in this study follows the formulations in Anderson (2016), Slimane (2015), Crivelli et al. (2012), and Kapsos (2005). Fundamental variables included in the elasticity estimates are structural factors, demographic factors, and other labour market factors. The model for estimating the effect of policy regime on employment intensity/elasticity of growth is specified for a panel data form as:

$$\xi_{it} = \Omega_{it} + \delta P_{it} + \lambda S_{it} + \pi X + \psi_{it} \tag{3}$$

where*:*

ξ = estimated employment elasticity

P = policy variables

S = shift in policy direction (more appropriately measured as policy interactions with changes in focus factor)

X = other control variables included in the model

The interactions or shifts in policy variables are determined by multiplying the policy factors with the respective macroeconomic indicator. For instance, interactions in trade policy (or trade liberalization) were captured by multiplying

trade openness with the index of policy drive for international trade. Four policy variables are used in the study, including indicators of industrial/investment policies, labour market policies, fiscal and monetary policies, and trade policies/trade liberalization. Explanations of the variables are shown in table 4.

Table 4. Measures of Policy Dimensions

Variable	Indicator	Description	Targeted macroeconomic policy	Expected effect on employment elasticity
Labour market rigidity	*lmr*	Extent of direct and indirect policy influences on the labour market	Labour markets	+
Legal system	*lsyst*	Focuses on the importance of the legal system as a determinant of economic freedom, including rule of law	Investment policies	+
Government participation	*gpart*	Measure the degree to which a country relies on personal choice and markets rather than government budgets and political decision-making.	Fiscal policy	+
Government enterprises and investment	*gentpr*	Government investment as a share of total investment were used to construct the index.	Fiscal policy, industrial policy	-
Freedom to trade internationally	*intrade*	Policies that show the extent of restrictions that reduce the ability of citizens to engage in voluntary exchange with people in other countries. Higher values indicate less restrictions to trade.	Trade policy, industrial policy	-
Top marginal income tax rate	*mtaxr*	Marginal tax rates that take effect at lower income thresholds.	Investment/industrial policy, trade policy	-
Sound money	*qmpol*	Quality of monetary policy	Monetary policy	+
Degree of market regulation	*regulate*	Policies that affect level of regulation of all markets in the economy	Industrial policy, trade policy, labour markets	+

Source: Authors.

Since the data used covers 1991 to 2016, three multi-year periods (1991 – 1999, 2000 – 2009, and 2010 – 2016) will be used in the estimations and each of the regressors will be obtained by taking average samples over each multi-year period for each of the countries. A major advantage of the multi-year period stated above is that it easily avoids incorporating short-term output volatilities in the elasticity estimates (Basnett & Sen, 2013). Moreover, the disaggregation of the data into three periods is to align with certain regional economic occurrences that have been observed in many SSA countries. For instance, the 1991 to late 1990s period was the era of weak economic performances for most of the countries in the region. "Growth performance started to pick and stabilize during 2000s for most SSA countries, while the period after 2009 represented an anticlimax of sorts for the region given financial sector crisis and commodity price declines" (Gong, 2015, p.16).

4.3 Method of analysis

As noted in the identities demonstrated by Pissarides and Vallanti (2004) and Landmann (2004) as well as other relational effects reported by Kapsos (2005), employment and output are endogenous in their relationship. An estimation problem therefore arises in the analysis of employment elasticities: labour, employment and output relationship equations we intend to estimate in this study have endogenous regressors (see Sorensen & Whitta-Jacobsen, 2010) as well as country heterogeneity (Woodridge, 2010). Traditionally, an estimation technique that addresses this problem is adopted, or a dynamic specification should be provided. It has been established that employment and output tend to be endogenously determined in an estimation framework. This endogeneity could result in efficiency and consistency problems when the ordinary least squares (OLS) technique is employed. Thus, the instrumental variable technique is employed, with instruments that are uncorrelated with the error term. Specifically, the two-stage least squares (2SLS) technique was adopted for the estimation, while the first lag of output is used as instrument in the estimation. Behar (2012) and Crivelli et al. (2012) have found a cointegrating relationship between output growth and employment which implies the need to include the lag of employment as an explanatory variable in the estimation of the relationship. However, such estimation pattern has proven to only be suited for

estimating short-run elasticities. Long-run estimates (which is the focus of this study) often take the cointegrating relationship for granted.

The dependent variable in the model in equation (4) is itself estimated, suggesting the presence of heteroskedasticity for the series (Lewis & Linzer, 2005; Anderson, 2015). Therefore, in order to produce unbiased and consistent estimation, a weighted generalized least squares estimation technique is adopted in estimating the elasticity-determinant equation. Thus, the feasible generalized least squares (FGLS) technique is used for estimating the elasticity determinants equations. The feasible GLS specification corrects for heteroskedasticity and contemporaneous correlation among observations within a cross-section.

4.4 The data

Data used in the study cover the period 1991-2016 for 37 SSA countries. The data on policy dimensions were obtained from the Fraser Institute's Economic Freedom of the World (EFW) database. The database provides composite measures of overall economic freedom based on policy leanings by governments of the respective countries. All data on employment were obtained from the International Labour Office Key Labour Markets Indicators (KLMI) database, while data on demographic, structural and other macroeconomic factors were obtained from the World Bank World Development Indicators (WDI) database.

5. Empirical Analysis

5.1 Analysis of employment elasticities

As noted in the previous section, employment elasticities are estimated for the sub-periods in the sample for each country and employment group. Average elasticities for the 37 countries in the sample, along with other relevant variables (including average GDP growth rate, total employment and productivity) in the analysis are reported in table 5. From the table, it is seen that the period 2010-2016 recorded larger employment elasticities, coinciding with the period when average GDP growth rate was higher. This indicates that employment generally tends to respond better to output growth during periods of higher output growth in the SSA region. This establishes a fundamental outcome for the relationship between economic performance and employment in the region, namely that output growth matters significantly for employment performance. Though

Okun's law suggests this outcome for fairly stable economic systems, the finding above further expresses the relevance of growing the economy in order to achieve better employment generation regimes. Employment growth of 2.96% was also highest during the period of largest elasticity. In the same vein, growth of labour force was high during the entire period (reaching 2.96%), suggesting that the employment elasticity of growth could have been immersed in the strong labour force growth.

Table 5. Employment Elasticities

Employment elasticity	1991-1999 Mean (Std. Dev)	2000-2009 Mean (Std. Dev)	2010-2014 Mean (Std. Dev)
Total employment	0.16	0.36	0.45
	(0.20)	(0.21)	(0.21)
Demographic groups			
Male employment	0.16	0.34	0.45
	(0.20)	(0.21)	(0.21)
Female employment	0.17	0.39	0.46
	(0.21)	(0.22)	(0.22)
Youth employment	0.16	0.30	0.38
	(0.20)	(0.21)	(0.21)
Socio-economic status			
Vulnerable employment	0.14	0.23	0.30
	(0.23)	(0.24)	(0.24)
Non-vulnerable employment	0.18	0.57	0.64
	(0.19)	(0.22)	(0.22)
GDP growth rate	3.01	4.81	5.12
	(9.67)	(6.31)	(5.47)
Employment growth	2.94	2.86	2.96
	(2.29)	(2.19)	(1.13)
Productivity growth	0.33	1.77	1.62
	(10.2)	(2.23)	(4.73)
Labour force growth	2.83	2.90	2.96
	(1.31)	(1.29)	(1.18)

Source: Authors' computations.

In terms of the periodic episodes, elasticity of total employment was low, on average, during the 1991-1999 period. The large standard deviation value for the period suggests that the elasticities were generally unstable either over the period or among the country groups. Manning and Purnagunawan (2013) have noted that an elasticity of 0.3-0.5 is essentially impressive for countries where the labour force is growing between 1-2% per annum. For the SSA region where employment grew at 2.96% and labour force grew at 2.96% between 2000 and 2014, the overall employment elasticity of 0.45% during the same period cannot be considered as very impressive. This is one of the reasons why researchers have concluded that growth in the region has been rather "jobless". Apparently, employment creation is inextricably linked with demographic developments in the region; any consideration that does not take population issues into account may not effectively measure the true employment position in the SSA region.

Though employment elasticities for the male and female groups are similar in trend to that of total employment, the female group is slightly higher than the total mean value. On the other hand, youth employment elasticities are lower than the overall average figure in each of the sub-periods. Youth employment elasticity does not appear to increase as rapidly as the total (or male and female) level after 2000, thus underscoring the challenge of widespread youth unemployment in the SSA region. Table 5 also shows that in each of the sub-periods, elasticity of non-vulnerable employment was larger than that of vulnerable employment. Anderson (2016) found similar results and suggested that economic prosperity often favours non-vulnerable employment over time.

Employment elasticities on country basis are shown in figure 5. It is clear that elasticities are less in the 1991-1999 period, with many countries having negative figures. Smaller countries like Cape Verde, Comoros and Swaziland had the largest negative elasticities for the 1991-1999 period and they also had the least positive figures for the other sub-periods. This suggests that the size of an economy may actually determine how employment responds to output growth.

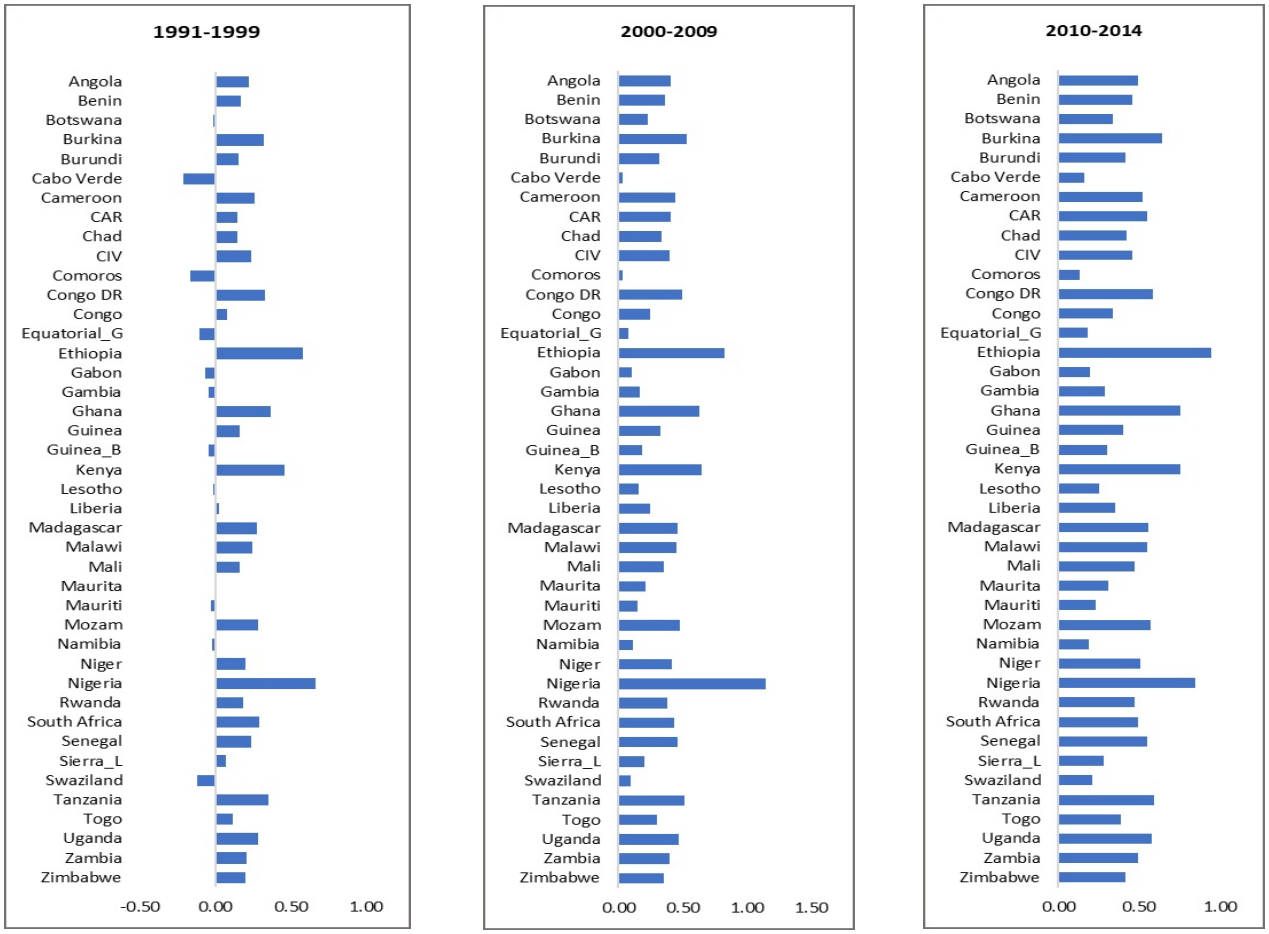

Figure 5. Employment Elasticities of Growth

5.2 Policies and employment elasticities of growth

5.2.1 *Descriptive Statistics of Elasticities and Determinants*

Annualized summary statistics of the series used for the estimations are reported for sub-periods in table 6. For the structural factors, the share of services in total output was larger than the other shares over the entire period, with the share of industry coming last in each case. In terms of employment shares, the summary statistics show that the share of agricultural employment was higher than for any other sector in many of the countries in SSA. Given large employment with attendant low output in the agricultural sector for the economies, it can be seen that labour productivity in the sector has been low since 1991. With a coefficient of variation value at 2.17, the mean volatility in output growth was highest for the period 1991 to 1999. The period with lower volatility (from 2000) represents the period of improved institutional framework in the country and rising commodity prices in the international market.

Table 6. Summary Statistics of Factors in Employment Elasticity of Output

	1991-1999		2000-2009		2010-2014	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Agric share (in %)	26.4	14.7	25.2	15.2	23	15.1
Industry share (in %)	25.4	16.8	26.2	16.3	26	14.4
Services share (in %)	42.7	11.5	43.7	11.8	46	13.2
Volatility of output growth	2.1	3.1	0.8	0.9	0.3	0.7
Share of population in urban areas (%)	30.8	13.3	34.1	14.1	37	14.7
Population density	63.1	93.7	78	108.8	92	121.6
Labour force growth rate (%)	2.8	1.3	2.7	1.3	2.9	1.3
FI ratio (%)	3.1	13.1	4.1	7.1	5.9	9.1
Government size (%)	14.9	7	13.8	5.8	15	5.6
Investment to GDP ratio (%)	23.9	35.1	25.5	39.8	29	42.6
Trade openness (%)	67.4	53	72.1	42.7	74	27.4
Labour market flexibility	4.8	1.7	5.6	1.5	5.9	1.5
Index of quality of legal system	4.4	1.3	4.2	1.4	4.5	1.2
Index of government participation	5.1	1.1	6	1.2	6	1.1

Source: Computations based on data from World Bank WDI, ILO KLMI and EFW.

At a minimum of 30.8 across the sub-periods, urban population rate is high for the region – a rate which supersedes many regional levels across the globe (Grant, 2012). Population density and labour force growth rate have also increased over the period. In relation to employment, the characteristics of the highlighted demographic factors suggest that employment opportunities will continue to reduce over time. An overall average of 15% for the share of government consumption in GDP across the periods suggests a relatively large government for the region. Apparently, much of government spending went into consumption and other unproductive activities. FDI rate was low, with the highest rate at 5.9% of GDP in the 2010-14 period, while domestic investment to GDP ratio was over 29.0% in the 2010-14 period. Also, mean level of regulation decreased dramatically within the period of the analysis. Perhaps, institutionalization of democracies as well as expansion of better governance indicators have contributed to improved economic freedom for the periods. Governments in the SSA region are loosening control and strong regulations over economic activities. The downside of this outcome, however, is that higher economic freedom, along with more flexibility in the labour market, may deter direct government involvement in the labour market (Pena, 2013).

5.2.2 *Econometric Analysis*

This section focuses on the analysis and discussion of the factors that explain the employment elasticity (intensity) of output for the SSA region using the models specified in the previous section. The factors of interest are the policy dimensions and the shifts in policies obtained from the multiplication of policy dimension with given macroeconomic outcomes. It should be noted that data on economic regulation were available for only 37 countries in SSA. Thus, countries in the three subgroups (1991-1999, 2000-2009, 2010-2016) were pooled to obtain a total of 111 observations that were used to estimate the relationships. In table 7, the results for the estimated equations with control for policy interactions (and without controls) are presented. The diagnostic tests reveal impressive goodness of fit for each equation with adjusted R-squared values of 0.55 and 0.52. The F-values are also significant at the 1% level for each equation, suggesting strong relationships between employment elasticities and the explanatory variables.

Table 7. Results for Policies and Employment Elasticity of Growth in SSA

Variable	With target variable	Without target variable
constant	-3.348**	-1.087
	(1.22)	(0.83)
lmr	0.030***	0.026**
	(0.01)	(0.01)
lsyst	-0.030***	-0.032
	(0.11)	(0.01)
gpart	0.230***	-0.004
	(0.09)	(0.02)
gentpr	-0.017*	-0.011*
	(0.01)	(0.01)
intrade	0.240	-0.045
	(0.16)	(0.04)
mtaxr	-0.013**	0.015
	(0.00)	(0.01)
qmpol	-0.008	-0.007
	(0.12)	(0.01)
regulate	-0.160*	-0.009
	(0.09)	(0.03)
agric	0.174***	0.165***
	(0.05)	(0.05)
gsize	1.173***	
	(0.44)	
fiscal pol	-0.133**	-0.055***
	(0.72)	(0.02)
invr	-0.863**	
	(0.42)	
invs tpol	0.117*	0.019**
	(0.07)	(0.01)
open	0.950*	
	(0.53)	
trade pol	-0.121	-0.039**
	(0.203)	(0.02)
fdi	-0.062	
	(0.12)	
fdi pol	0.018**	0.013**
	(0.01)	(0.01)

Variable	With target variable	Without target variable
grvol	-0.017**	-0.018**
	(0.01)	(0.01)
lbfg	0.189***	0.186***
	(0.03)	(0.03)
popden	0.040	0.033
	(0.03)	(0.03)
urbr	0.249***	0.120
	(0.09)	(0.08)
Adjusted R-squared	0.551	0.521
F-statistic	7.377	7.969

Source: Authors' computation.

Labour market flexibility had significant positive impact on the elasticities, suggesting that more flexible markets would improve employment yields from output growth. These results are similar to the findings by Crivelli et al. (2012) and Bernal-Verdugo, Furceri and Guillaume (2012) who also found that flexibility of labour markets improved employment even for developing economies. The coefficient of government participation index was positive in the policy interactions result, but not significant in the result without policy interactions. Since higher values of the variable suggest less government participation, the result shows that policies that enforce reduction of direct government involvement in economic activities will lead to improvement in employment yields from each percentage increase in output growth for the region. In a study for advanced markets, Bassanini and Duval (2009) and Flaig and Rottmann (2007) found this to be true. Most African governments do not however possess the capacity to limit their activities in the labour markets to more passive roles owing to structural reasons. For instance, Cazes and Verick (2013) have demonstrated that in SSA, only Mauritius and South Africa had unemployment benefits schemes that aided more passive government participation in the labour market. The tendency therefore is for governments in SSA to perform more active roles in the labour market thereby further worsening employment conditions in the economies over time.

In general, the policy variables were more significant in the first result, which indicates that policies are more effective when applied to the relevant

sectors of the economy. In the same vein, legal system and property rights have only marginal effects on each employment elasticity. Essentially, "improved legal systems could encourage more focus on the poor and vulnerable and help generate growth patterns that lead to improvement in the access of these category of people to better jobs" (Anderson, 2015). The coefficient of marginal tax rates is significant and negative for the first equation. This shows that higher marginal taxation at both business and personal levels tends to reduce employment elasticity of growth. Apparently, when industrial/investment policies involve stable tax regimes with lower rates and clear administrative patterns, employment elasticity of growth would be boosted over time for SSA countries. The coefficient of overall level of regulation is also significant and negative, suggesting that policies that tend to "over regulate the economy" would lead to lower employment elasticities among SSA countries.

An interesting outcome for the results with policy interactions is that the signs of the coefficients change between the macroeconomic outcome or target variable and the policy interactions variable. For government size/fiscal policy and trade openness/trade policy, the sign was positive for the target variable, but it became negative when multiplied by the policy factor. This implies that policy-based spending patterns by government may actually lead to less employment elasticity. For instance, while government spending on targeted sectors like agriculture may give employment yields, large spendings that are more broad-based (including subsidized income) may actually hinder employment yields when output grows. Apparently, a macroeconomic framework that emphasizes a greater involvement of the public sector in production activities will only lead to growth without much employment benefits. The question then is, will growth based on fiscal stimulus guarantee increased employment yields? The results indicate that fiscal stimulus may be more pro-employment since it focuses on short-term output fluctuation and does not often involve direct government production.

For trade openness and trade policy (or liberalization), the results show that more trade tends to improve employment elasticity, but when such openness is intensified through more liberalization policies, employment losses may occur. Surprisingly, investment rates had a significant negative impact on employment elasticity, suggesting that market-led investment does not usually guarantee employment over time for SSA countries. This is probably because of the unique

nature of most SSA countries where the most attractive investments are in the extractive sectors which do not often possess high absorptive capacities for employment (Page and Shimeles, 2015; Pesche, Losch & Imbernon, 2016; Fox, Thomas & Haines, 2017). However, policy-led investment patterns (perhaps through adequate industrial policy) are shown to exert positive impacts on employment elasticities. When industrial policies are more tailored towards domestic needs, employment is often guaranteed. For instance, industrial policies that seek to direct production towards more labour-intensive sectors will lead to higher productive employment. This outcome is also true for the FDI and the policy-based variables. The FDI coefficient is not significant, but that of the policy interaction is positive and significant. Thus, when FDI inflows are planned based on policy dimensions, then foreign investment will be more employment yielding.

Both labour force growth and population density had positive impacts on employment elasticity, though only the labour force growth was significant. Thus, demographic factors tend to have positive impacts on ability of economic growth to create more employment. Since most employment created since the 1990s in most SSA countries have been informal and within the services sector, it can be seen that output growth only "encourages" more people to join employment rather than "create" productivity employment opportunities. Thus, a rising labour force would easily find their way into employment in the informal sector, and give the indication that the employment capacity of the sector has increased as output grew. The coefficient of urban population rate is greater than that of labour force growth, suggesting that it is movement into urban centres that guarantee employment yields. The coefficient of growth volatility in the result is negative for all the groups, which indicates that business cycles are effective factors in the determination of employment elasticities. In the same vein, output volatility had negative impacts on employment outcomes that are not related to informalities and vulnerability.

Table 8. Policy Dimensions and Employment Elasticity of Growth

Variable		1	2	3	4	5	6	7	8
constant	-1.25***	-1.46***	-1.20***	-1.69***	-1.25***	-1.36***	-1.24***	-1.26***	-1.29***
	(0.41)	(0.39)	(0.04)	(0.39)	(0.40)	(0.41)	(0.40)	(0.41)	(0.41)
gsize	0.149	0.153	0.165	0.309***	0.153	0.140	0.153	0.149	0.142
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
agric	0.179***	0.203***	0.161***	0.201***	0.185***	0.195***	0.178***	0.180***	0.188***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
invr	-0.075	-0.115**	-0.075	-0.107**	-0.081	-0.082	-0.083	-0.076	-0.080
	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
open	0.220*	0.249**	0.221*	0.211	0.224*	0.238**	0.248**	0.223*	0.227*
	(0.11)	(0.12)	(0.13)	(0.12)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
grvol	-0.017**	-0.016**	-0.019*	-0.012*	-0.016**	-0.016**	-0.015**	-0.016**	-0.015**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)
fdir	0.094***	0.082**	0.094***	0.081**	0.094***	0.080**	0.092***	0.093***	0.091***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)
lbfg	0.180***	0.185***	0.186***	0.172***	0.179***	0.181***	0.184***	0.181***	0.181***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
popden	0.069**	0.056**	0.072***	0.051**	0.070**	0.062**	0.067**	0.068**	0.064**
	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
urbr	0.082	0.108	0.086	0.101	0.064	0.077	0.076	0.082	0.078
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
lmr		0.027***							
		(0.01)							
lsyst			-0.016*						
			(0.08)						

Variable	1	2	3	4	5	6	7	8
gpart			0.053***					
			(0.01)					
gentpr				0.005				
				(0.01)				
intrade					0.017			
					(0.01)			
mtaxr						-0.009*		
						(0.00)		
qmpol							0.001	
							(0.01)	
regulate								0.009
bizreg								(0.02)
Adj. R-sq.	0.454	0.427	0.484	0.419	0.422	0.428	0.416	0.417
F-stat	10.15	9.19	11.31	8.96	9.05	9.15	8.82	8.87

Source: Authors' computation.

Finally, the results of the models are re-estimated with only the target variables. The policy dimension variables are also introduced in recursive form. The results clearly show that when taken individually, policies that influence labour markets, legal systems and property rights, government participation, and tax regimes are the most important in terms of directing employment. Less regulation, less government participation, and less taxation tend to improve employment, while more enforcement of property rights within the legal system tends to also improve employment elasticities. The positive coefficient of the share of the agricultural sector in value added output indicates that rising agricultural production actually increases employment elasticities among SSA countries. Again, investment rate is negative for each of the estimates, which indicates that investment that is market-led may actually reduce employment yields from output growth in many SSA countries. Indeed, when growth is spurred by a rising primary sector that is extractive in nature, such growth may lead to less employment for the countries. Moreover, trade openness and FDI inflows are seen to exert positive effects on employment elasticities among the countries. This shows that more external participation is good for employment growth among SSA countries. Again, both population density and labour force growth are significant in each of the estimates, with positive coefficients. This result suggests that labour markets in SSA countries always possess the capacity to absorb increased inflow of labour into the market, even though, like Harris and Todaro (1970) suggested, such employment may be highly informal, less productive and largely vulnerable. The coefficient of the growth volatility variable is negative and significant. Thus, output volatility is a persistent factor that drives down any benefits that can be derived from economic performances among SSA countries.

6. Policy Implications and Conclusions

6.1 Policy implications of the research

It is clear from the study that public sector characteristics in the form of economic policies and regulation, labour market participation, international trade and tax regimes, have significant effects on employment elasticities for the SSA region. The results of the foregoing empirical analyses are far reaching and applicable for quite a few policy directions. First, the results from the elasticities

analysis show that economic growth has significant positive impacts on employment in SSA countries. This implies that the starting point of any policy measure that will promote employment is therefore to ensure high and sustained economic growth in the region. Thus, results have shown that if economic growth is high enough, employment yields can be effectively guaranteed. However, given the substance of growth in SSA, sustainability of growth in the region must be anticipated with caution. Policies to sustain growth in the economy and reduce growth episodes should be pursued in order to consolidate long-term employment in the SSA region.

The results from the study give optimism about the effectiveness and the extent to which policy can guide non-vulnerable employment growth among SSA countries. This suggests that even if policy directions are not beamed on the entire labour market, urgent successes can be achieved with the most vulnerable sections in the market. There is therefore the need for regulations and appropriate policies to guide and facilitate ease of sectorial inter-linkages and overall adjustments during structural transformation, in order to achieve effective employment outcomes. Industrial policies that emphasize domestic labour input and focus on labour-intensive production techniques are appropriate in this direction. Policies aimed at promoting property rights, reducing marginal tax rates for smaller businesses and targeting individual sectors tend to increase labour-intensive production. This will guarantee better non-vulnerable employment yields from economic growth in the SSA region.

A cautious approach is needed in this direction. While there have been strong arguments about the distortionary effects of labour market policies in SSA countries and the push for more flexibility in the markets, evidence (including Adegboye et al., 2019) has shown that labour market 'flexibility'—both in terms of wages and employment conditions—has failed to deliver better labour market outcomes. Thus, the results from the study maintain that well-tailored policy reforms that meet individual local conditions and needs should be the focus. When labour market institutions are strong, they can play important roles in delivering better socio-economic outcomes, leading to improvement of market efficiency. Such labour market policies need to be broadened in SSA countries to cover more sectors other than the current focus on the formal sector alone.

Furthermore, policy coordination within the macroeconomic and trade framework is also needed to address the employment challenges. For instance,

the recent collapse of commodity prices has significantly affected the structural pattern of FDI flows to the SSA region, resulting in sharp declines in FDI flows to extractive industries. Aggregate sectorial shrinkage and job losses are the usual outcomes of these developments. To curb this cyclical employment boom-bust that is linked with FDI patterns, there is the need to apply policies that will deflect the focus of foreign investors on commodity and primary sectors as well as ensure that market developments in the primary sector do not seap sedulously and persistently into the economies.

6.2 Conclusion

In this study, the effects of economic policies and policy dimensions on employment elasticity of growth in SSA countries were examined. We estimated employment elasticities for three different sub-periods between 1991 and 2016, then examined how policies and policy interactions with changing macroeconomic factors (policy shifts) affected the elasticities. Apparently, growth-led employment strategies are essentially the most sustainable means of expanding the social dimensions of economic growth in developing countries. What some country-case studies seem to show is that policies for the promotion of economic growth are not enough to stimulate productive employment and structural change. Macroeconomic, industrial and public sector policies, as well as broad regulatory frameworks also matter for structural consolidation and demographic transition. This synergy forms the basic structure that determines labour market and employment circumstances in developing economies. The role of policy effectiveness was therefore highlighted as a basic requirement for SSA countries. The policy efforts were shown to be more effective if moved away from growth-focused, market-oriented policies aimed at tackling employment problems in the region. Indeed, the study showed that labour market flexibility tends to have well-defined positive effects that are robust, suggesting that when labour markets are more flexible, employment could be more responsive to output growth. Essentially, the manner in which policies are carried out may be crucial to their effectiveness as a labour market adjustment tool. Thus, macroeconomic and structural policies should be the main instruments for guiding the employment-growth relationship, while labour market policies should be made to play a supportive role. This way, there will

be less dominance of the public sector in labour markets and withdrawal will be more coordinated when the markets have been better established.

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