Short Research Article

Economic Growth elasticity of Employment in Kenya: Error Correction Model Analysis

ABSTRACT

Economic growth elasticity of employment refers to the change in economic growth that is associated with a 1% change in employment. The focus of this study is to establish how employment creation translates to economic growth in Kenya from 1997 to 2019. In addition, the study determines the directional relationship of growth employment and growth using Error Correction model (EC). This model is used to capture both the short-run and long-run relationship among variables. Economic growth and employment are measured using rate of per capita GDP and employment ratio respectively. The key findings of this study suggest that, a percentage change in employment is associated with growth of economy in the short-run and a decline of economic growth in the long-run. During the review period, increase in percentage of those employed did not lead to increase in Gross Domestic Product (GDP) per capita in the end.

Keywords: Economic growth, employment, economic growth elasticity, Error Correction Model.

1. Introduction

Employment creation contributes to economic growth through enhancing demand for goods and services. When many people get employed, demand for goods and services is intensified, hence firms have to increase their output thereby leading to growth of total output in the economy. When high level of unemployment exists, people will have little or no money to spend, demand is curtailed and the economy slackens. The effect of employment on growth also depends on the productivity of the work force. If the work force is highly productive, it means that there is efficiency in production and growth will be highly sensitive to employment.

Within the period under study, Kenya has gone through limited expansion of employment in the formal sector despite strong economic performance. The informal sector has however experienced steady development, contributing significantly to job creation. For that reason, this study seeks to find out how the economy responds to a unit rise in job creation. This is done by empirically establishing the economic growth linked to unit rise in employment rate. In addition, it will also provide directional relationship between employment and economic growth.

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2. Literature review

First and foremost, both employment and economic growth are effects of public spending. Economic growth can cause employment and employment can cause economic growth. Most of studies done so far have been premised on the idea that, economic growth is of paramount importance in enhancing employment creation. In his eminent work dubbed, 'Theory of Employment', Keynes propounded that, greater level of national income leads to greater level of employment and vice versa. Literature reviewed herein is on employment-rich growth and labour productivity of the workforce versus economic growth. The change in economic growth that accompanies a unit change in employment depends on both the productivity of the work force and on the absolute number of the workforce according to the studies that are reviewed. Increasing work force productivity lead to firms generating higher output for the same level of input, earn higher revenues and eventually generate higher economic growth.

Herman, (2011) conducted impact analysis of economic growth on employment in European economies from 2000 to 2010. Employment creation responded both positively and negatively to economic growth. The study discovered that, some countries were experiencing employment challenges alongside growing economy while in others, growth lead to increased job creation.

Leshoro, Temitope. (2014) analysed the response of growth to employment in Botswana using EC modelling. They found that, between 1980 to2011, Botswana experienced an employment elasticity of growth that was negative. On the same matter, Khan (2007) establishes that, 0.7% change in employment is associated with a one percentage point change in economic growth.

Kapsos (2005) analysed employment and growth to determine the elasticity of the former to the latter from 1991 to 2003. It was inferred that, there exist a direct relationship between the two. The intensity grew from 0.3 to 0.38 within the period.

ILO (2015) analyses how to strengthen the link between growth and employment in G20 countries. Results indicate that, though economic growth fluctuated among the countries, this was not accompanied by great variations in employment elasticities.

Seyfried (2011). Sought to find out how employment relates to economic growth in the ten largest states in United States using pooled regression. The tool for establishing the relationship was employment intensity. It ranged between 0.31 to 0.61.Economic growth was found to have short-lived impact on employment.

Zulu, Jack Jones and Banda, Benjamin Mattondo (2015) explains how labour productivity influences economic growth in Mauritius and South Africa. They put beyond doubt that skills development improves labour productivity and that employing quality workers aids in sustaining economic growth. One of the ways of improving the quality of the workforce is through investing in physical capital.

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A great deal of attention has therefore been paid on employment elasticity of growth leaving little insights on how job creation responds to economic growth and yet economic growth can be ascribed to employment. Thus, it is worthy to investigate the growth rate associated with 1% change in employment rate.

In closing, this study will be first of its kind to analyse how sensitive is economic growth to employment rate. It forms a basis for analysing the responsiveness of economic growth to unit change in employment rate in other regions of the world. It shall help to formulate policies geared towards enhancing employment rich in growth.

3. Methodology

This study intends to establish the responsiveness of economic performance to employment creation using time series from African Development Bank (AfDB) and United Nations Development Programme (UNDP) data bases in Kenya National Bureau of Statistics (KNBS) portal. In the process, it will lead to analysing the kind of directional relationship between economic growth and employment in holding inflation and poverty rate constant. It uses EC modelled in the form shown below.

$$\Delta Y_t = \beta_{oj} + \sum_{i=1}^{p} \delta_j \Delta Y_{t-i} + \sum_{i=0}^{q} \gamma_j \Delta X_{t-i} + \rho ECT_{t-1} + \varepsilon_{it}$$

Where;
p=lag order for dependent variable
q=lag order independent variables
δ_j, γ_j=short-run dynamic coefficients of the model's adjustment to long-run equilibrium
ECT=error correction term capturing long-run relationship
ρ=adjustment parameter
ε_{it}=error term

Estimation technique

With the data being time-series, stationarity state of the variables in logarithm form was determined using Augmented Dickey-Fuller test. Cointegration was then tested using the bounds test. Following the results of cointegration EC model was specified as follows:

$$\Delta \boldsymbol{lnGDP_t} = \boldsymbol{b_0} + \sum_{i=1}^{p} \boldsymbol{b_{1i}}\, \Delta \boldsymbol{lnGDP_{t-i}} + \sum_{i=1}^{q} \boldsymbol{b_{2i}} \Delta \boldsymbol{lnHDI_{t-i}} + \sum_{i=1}^{q} \boldsymbol{b_{3i}} \Delta \boldsymbol{lnCPI\_d1_{t-i}} + \sum_{i=1}^{q} \boldsymbol{b_{4i}}\, \Delta \boldsymbol{lnEMP_{t-i}} + \boldsymbol{\gamma ECT_{t-1}} + \boldsymbol{e_t}$$

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Where;
GDP= economic growth
HDI= poverty parameter
CPI= inflation index
EMP= employment ratio

The diagnostic tests subjected to the model are; endogeneity, autocorrelation, heteroscedasticity, normality and model stability tests.

4. Results and Interpretations

Unit root test

The variables were found to be integrated of different orders thereby prompting the construction of Autoregressive Distributed Lag model (ARDL).

Cointegration test

This was performed using bounds test. The F-statistic was greater compared to the critical value of the regressors. This implies presence of cointegration. As a result, an EC model was specified for estimation.

Estimation results

$D.lnGDP$	Adj	$Long-Run$			$Short-Run\ lnEmp$
	$ln\ GDP\ L1$	$lnEmp$	$lnHDI$	$LnCPI\_d1$	$D1.$
Coef.	−1.49499	−.6066811	23.7561	−.050418	1.716989
$Std.Error$	.3313676	.1965972	11.06685	.064937	.9686582
t	−4.51	−3.09	2.15	−0.78	1.77
P	0.000	0.008	0.050	0.450	0.098

Table 1.1: Error correction results using stata

From the results table 1.1 above, the adjustment parameter is negative and statistically significant at 1 percent level. The long-run and short-run relationships have therefore being reconciled. Also, the long-run and short-run coefficients are statistically significant. There is therefore long-run and short-run causality in the variables.

A percentage point growth in employment is associated approximately 1.7 percent point growth in economic growth in the short-run, ceteris paribus. In the long-run, a unit growth in employment is associated with decline in economic growth of approximately 0.6 percentage point, ceteris paribus.

Autocorrelation test

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This test was conducted using Breush-Godfrey test because the model contains lagged values of the regressand. According to the results, the variables are free of serial correlation.

Heteroscedasticity test

This was conducted using Breusch-Pagan test. The variance of the error term remained fixed.

The table below shows the probability values of the both autocorrelation and heteroscedasticity tests using the respective methods for testing. Both values are greater than 0.05 leading to the aforementioned conclusions.

Diagnostic test	Probability value
Autocorrelation	0.3729
Heteroscedasticity	0.3187

Table 1.2: Diagnostic tests

Model stability

The stability of the model was established using CUSUM and CUSUMSQ as shown in figure 1.1 below. All the points were within the critical bounds as shown below. The model is therefore very stable.

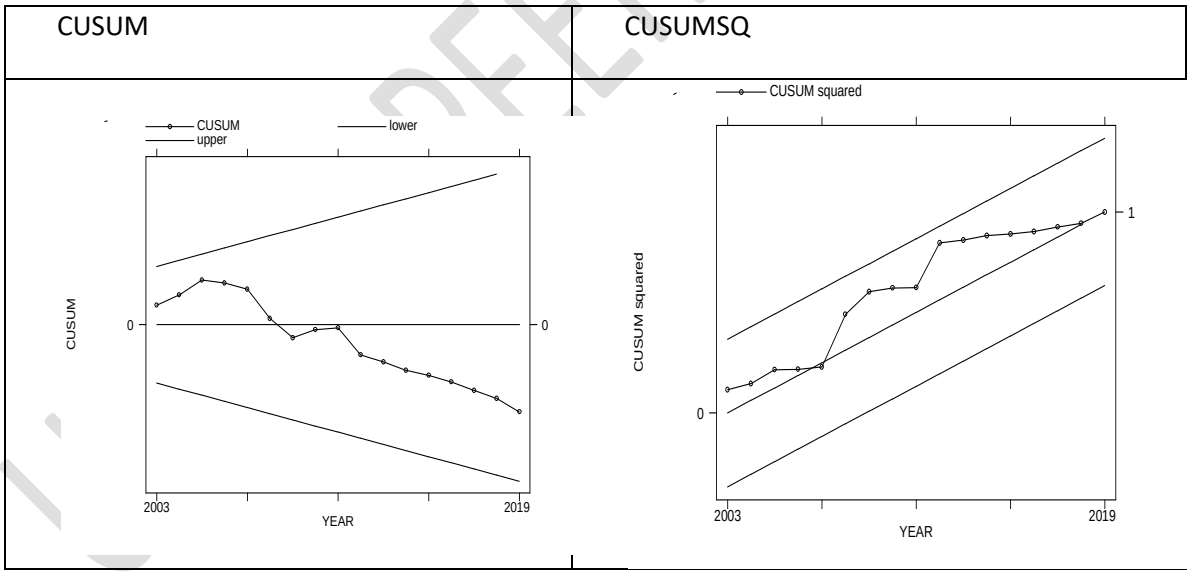

Figure 1.1: Plot of recursive and squared recursive residuals against breakpoints

5. Conclusion and Recommendations

During the study period, the employment rate in Kenya averaged above 60% .This has however failed to translate to rise in economic growth but instead contracted it eventually. Although jobs were being created, this did not ensure positive impact to growth in long term. This implies that, growth associated with a percentage point

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change in employment does not solely depend on the population of the workforce. When the labour productivity is low, the sensitivity of growth to employment creation is insignificant. The directional relationship is opposite. These findings resonate with those of the literature reviewed that an economic performance can drop with growth of employment and vice versa.

So, this study recommends adoption of policies that enhance labour productivity for the economic growth intensity of employment to be change positively. Such policies will form an integral part in reinforcing a positive economic growth elasticity of employment. These are the policies for developing human and physical capital .They do this by adding to human capital effectiveness, efficiency, creativity and innovativeness which in turn increases firms output (Marimuthu et al.,2009) .When the output of individual firms increases efficiently and there is rise in employment economic growth rich- in employment is guaranteed to prevail.

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