

## Macroeconomic Drivers of Economic Growth



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**ABSTRACT:** Kenya's GDP growth is hampered by high fiscal deficits, high interest rates, and volatile exchange rates. As a result, the economy has experienced sluggish cycles of low economic growth, prompting policymakers to revise their policies. Kenya's ability to address macroeconomic instability hinges on its ability to increase economic growth. Divergent perspectives on the relationship between selected macroeconomic variables and economic growth is revealed by additional evidence. The goal of this research was to see how certain macroeconomic drivers affected economic growth. The study was based on the theory of endogenous growth. The study, which was based on the philosophical paradigm of positivism, used an explanatory research design and secondary data from the Kenya Bureau of Statistics, which covered the years 1990 to 2020. In the empirical analysis, the study used the bound test to test for a long-run relationship and the Autoregressive Distributed Lag model (ARDL) to evaluate the relationship between the variables. The data was tested for stationarity using the Augmented Dickey Fuller method. The long run ARDL results showed that the coefficients of exchange rate 0.080 (p-value 0.033<0.05), lending interest rate -0.172 (p-value 0.011<0.05), and broad money supply 0.242 (p-value 0.001<0.05) all had a significant impact on economic growth. The results of this study will be useful in forming fiscal and monetary policy, as well as in informing the government about potential solutions to economic growth challenges. According to the study, CBK policymakers should pursue policies that ensure exchange rate stability, determine effective lending interest rates, and keep the fiscal deficit in line with Kenya's economic growth.

**KEY WORDS:** Economic growth, Broad money Supply Lending rates, Fiscal deficit, Exchange Rate, Macroeconomic Stability, Autoregressive Distributed Lag model (ARDL)and implement modern monetary policy frameworks

### BACKGROUND TO THE STUDY

In today's world, especially in developing countries, economic growth is a major concern. Kenya's overall economic performance has been underwhelming since its independence in 1964. Economists have been interested in determining the factors that influence long- and short-term economic growth in order to assess their impact. Every sovereign nation's goal is to improve its citizens' living standards by encouraging economic growth and development (Ismaila *et al.*, 2015). It is a prerequisite for economic development, which explains why it appears prominently in various government policy documents. Economic growth is linked to policies aimed at reforming and restructuring the real economy. However, a lack of domestic resources, savings, and capital to support and sustain the sectors is a major impediment to the country's economic development (Imimole *et al.*, 2014).

The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by all United Nations Members in 2015 as a universal call to action to end poverty, protect the environment, and ensure that all people live in peace and prosperity, according to Vision 2030. In this regard, economic growth is seen as the most important goal for reducing poverty and fostering hope for societal improvement (Ketema, 2006).

**Figure 1.1 depicts the representation of GDP growth since 1985:**



**Figure 1. 1: Annual GDP Growth Rate**

Source: Central Bank of Kenya, 2020

## Macroeconomic Drivers of Economic Growth

Economic growth and specific macroeconomic variables have become a common structural problem for many developing countries. Kenya has implemented reforms based on these variables in the hopes of spurring economic growth and putting the country back on track. However, the economy appears to be deteriorating in most parts of the country, with high unemployment rates, low living standards, and a poor road network (Kose *et al.*, 2020).

### ECONOMIC GROWTH AND FISCAL DEFICIT LEVEL IN KENYA

According to **Ojong *et al.* (2013)**, a fiscal deficit can have a significant impact on economic growth, though this is dependent on employment levels. Excessive deficits will cause macroeconomic imbalances in a situation of full employment. Large and persistent fiscal deficits typically contribute to macroeconomic instability, reducing output growth and raising inflationary pressures in the economy. This is due to the fact that it increases the reserve base of commercial and merchant banks, resulting in excess liquidity in the financial system.

### Interest Rates and Economic Growth

In recent years, there has been an increase in the volatility of bank lending rates. Acts of the Central Bank of Kenya (CBK) triggered this. When the CBK cut its base lending rates to commercial banks in 2010, commercial banks cut their lending rates to customers, and many people took out loans to take advantage of the low bank lending rates.

### Exchange Rates and Economic Growth

The local exchange rate versus the US dollar has been volatile, for example, between 2006, when the exchange rate averaged Ksh. 73, and 2019, when the exchange rate averaged Ksh. 102. Local currency appreciation contributes to a loss of export competitiveness, resulting in lower profitability. The effects of depreciation are inverse. Exchange rate fluctuations cause the local currency to appreciate or depreciate, affecting a country's balance of payments and, as a result, the variability of economic growth in Kenya (Otambo, 2016).

### Money Supply and Economic Growth

This macroeconomic indicator is governed by the Central Bank's monetary policy and reports issued during the bi-annual monetary policy reports under Kenya Act, CAP 491. The central bank influences the level of economic activity by controlling money supply through monetary policy instruments such as reserve requirements, discount rates, and open market operations in order to regulate economic growth. According to economic theory, an increase in the money supply eventually leads to an increase in aggregate demand, which raises economic growth through various channels.

## STATEMENT OF THE PROBLEM

Kenya's long-term development blueprint, Vision 2030, aims to transform the country into a middle-income country. To achieve this, the economy was expected to grow at a rate of 10% per year starting in 2012. The government has implemented policies and targeted specific sectors in order to propel the economy toward long-term growth, but growth rates have been inconsistent and have not resulted in a significant broadening of the economic base.

In order to achieve and maintain high growth rates of more than 10% per year, the government has pursued a variety of stabilization and structural adjustment policies. The main policy measures implemented to accelerate economic growth rates have been price decontrol, trade liberalization, domestic credit restrictions to avoid crowding out, adoption of a floating exchange rate to contain volatility, stringent fiscal policy measures, and interest rate regulation and deregulation. Despite these efforts, the rate of economic growth has been unsatisfactory, with low positive and negative rates of change in real GDP growth.

### Specific Objectives of the Study

The specific objectives of the study were;

- i. To determine the effect of fiscal deficit on economic growth in Kenya
- ii. To evaluate the effect of exchange rate on economic growth in Kenya
- iii. To analyze the effect of interest rate on economic growth in Kenya
- iv. To determine the effect of broad money supply on economic growth in Kenya

### Significance of the Study

Kenya aspires to be a newly industrialized, middle-income country with a good standard of living for all of its citizens in a clean and secure environment, according to Vision 2030. The vision is built on three pillars: economic, social, and environmental. The economic pillar aims for a ten percent annual sustainable economic growth rate. The social pillar aims to promote social justice and equitable development by guiding prudent macroeconomic policies with the use of selected macroeconomic indicators. The

## Macroeconomic Drivers of Economic Growth

study's political instability well captures the political pillar, which is aimed at issue-based politics, a democratic system of governance, and a citizen-centered system of governance. The majority of these pillars are based on prudent macroeconomic stability (Economic Survey, 2010). As a result, this research will be useful in developing policy guidelines to achieve this vision.

### LITERATURE REVIEW

#### Solow-Swan Model

The Solow – Swan model is a long-run economic growth model developed in the context of the neoclassical economics school of thought. It aids in the understanding of long-run economic growth by examining capital accumulation, labor or population growth, and increased productivity, which is referred to as technological advancement. Solow proposes a continuous function of production that connects output to interchangeable capital and labor inputs (Jhingan, 2011).

According to Ejigayehu (2013), the Solow growth model has attempted to answer one of the major economic growth mysteries, namely, why are rich countries so rich and poor countries so poor. The Cobb-Douglas type development function is used to construct the model;

$$Y = F(AK, L) = AK^\alpha L^{1-\alpha} \dots\dots\dots 2.1$$

Whereby

$Y$  = economic output  $K$  = Capital input  $L$  = Labor input,  $A$  is technology and  $\alpha, 1 - \alpha$ , are output elasticity's of capital and labor consistently.

According to North (1990), institutions create an economy's incentive system, and organizations form to take advantage of the opportunities that exist within that framework. In this case, monetary and fiscal policies are among the institutions that promote favorable economic policies. As a result, the modified model looks like this:

$$Y = FD, MS, LR, ER \dots\dots\dots 2.2$$

Whereby  $Y$  is total output,  $LR$  is the lending interest rate,  $ER$  is the exchange rate,  $FD$  is the fiscal deficit,  $MS$  is the money supply.

#### Fiscal Deficit and Economic Growth

Using the Johansen methodology, Ajisafe *et al.* (2015) investigated the fiscal deficit and economic growth nexus. The findings confirmed the existence of a long-term relationship between the variables in question and economic growth. The findings show that there is a significant negative relationship between fiscal deficit and economic growth in the long run, between 1950 and 2007, and that the two sets of variables are co-integrated. This was consistent with the earlier work of Bose *et al.* (2007).

Ahmad (2013) used time series data from 1971 to 2007 to conduct an empirical study on the impact of Pakistan's budget deficit on economic growth. The Granger causality test reveals that there is bi-directional causality between the budget deficit and GDP, as well as between GDP and the budget deficit. This contradicted the findings of Dao *et al.* (2016), who found that there was no long-term link between budget deficit and economic growth in Malaysia. However, the research was aided by a study conducted in Saudi Arabia by Maji *et al.* (2012). The work of Fatima *et al.* (2012) produced a contradictory study result. In Pakistan, the study finds a negative relationship between the budget deficit and economic growth. The findings of Roy *et al.* (2009) on the budget deficit and US economic growth backed up this conclusion. According to reports, an increase in budget deficits, *ceteris paribus*, slows the rate of growth of the US economy.

Murwirapachena *et al.* (2013) looked at the economic factors that influenced budget deficits in South Africa from 1980 to 2010. The study's specific goal was to determine whether South Africa's budget deficits are a result of the country's economic problems. Using the Error Correction Model, the impact of selected macroeconomic variables on budget deficits in South Africa was investigated (VECM). According to the findings, all of the determinants have a positive impact on budget deficits, with the exception of foreign debt.

#### Interest Rates and Economic Growth

Obamuyi (2009) used time series and annual data from 1970 to 2006 to examine the relationship between interest rates and economic growth in Nigeria. The long-run and short-run variable dynamics were captured using a co-integration and error correction model. Real lending rates have a significant impact on economic growth, according to the empirical findings.

Sambiri *et al.* (2014) did a study on lending rates and its impact on economic growth in Kenya.

In Kenya, Sambiri *et al.* (2014) conducted research on lending rates and their impact on economic growth. The study looked at international budget interest rates, the budget deficit, inflation, and their effects on economic growth as well as other factors that influence lending interest rates. According to the study's error correction model, Kenya's budget deficit, inflation, and interest rates have a positive and significant impact.

## Macroeconomic Drivers of Economic Growth

### Exchange Rate and Economic Growth

The study of Onyango (2014) on the impact of real exchange rate on Kenya's economic growth from 1980 to 2012, the results output using the ECM indicated that exchange rate volatility has got a positive but insignificant effect on economic growth .

The results of Onyango (2014) study on the impact of real exchange rates on Kenya's economic growth from 1980 to 2012 revealed that exchange rate volatility had a positive but insignificant

In their study of exchange rates and economic growth in Kenya, McPherson *et al.* (2001) found that there is no evidence of a robust direct relationship between changes in the exchange rate and economic growth in three different settings using a vector auto-regression model.

### Broad Money Supply and Economic Growth

According to a study by Ufoeze (2018) on the effect of monetary policy on economic growth in Nigeria, the variables have a long-term relationship. The study's main finding was that monetary policy rates, interest rates, and government spending had marginally positive effects on Nigerian economic development. Money supply, on the other hand, has a significant positive impact on Nigerian growth.

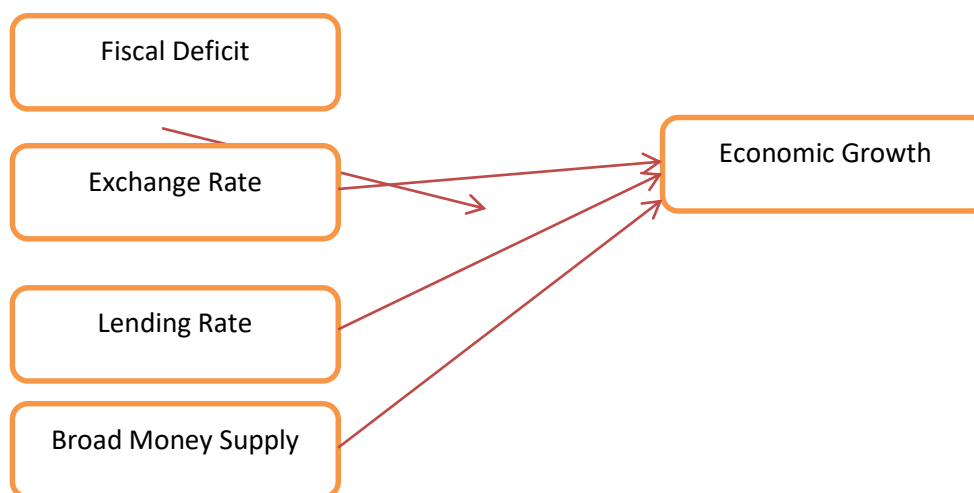
Gatawa *et al.* (2017) investigated the effects of money supply and inflation on Nigerian economic growth (1973-2013). The results of the ECM model show that broad money supply has a positive impact on growth, whereas inflation and interest rates have a negative impact on growth, particularly in the long run.

### Knowledge Gaps

The World Bank and the International Monetary Fund made a policy recommendation in 2015 that low-income countries should seek to implement modern monetary policy frameworks that better anchor inflation through monetary policy, increase control over short-term interest rates to regulate hot money supply, and so on, in order to develop, eliminate poverty, and maintain economic stability (Rey, 2015).

Despite the fact that several studies in Kenya have been conducted to identify major economic growth determinants, none of these studies have addressed the role of macroeconomic stability in achieving long-term economic expansion.

### Conceptual Framework



Source: Researcher, 2021

## RESEARCH METHODOLOGY

### Area of Study

Kenyan economy was the case study.

### Research Design

A research design is a comprehensive plan that lists the basic data collection and analysis methods and procedures to ensure that the information gathered allows the researcher to directly address the research questions. A data-gathering research strategy employs existing theory to generate hypotheses, which are then tested and confirmed, in whole or in part, or refuted, resulting in further development of the theory, which can then be tested through additional research (Rahi, 2017). The study used an explanatory approach.

## Macroeconomic Drivers of Economic Growth

### Model Specification

The study used a multivariate model that included endogenous macroeconomic variables that affect economic growth, such as the fiscal deficit, exchange rate, and lending interest rate, and thus the relationship between the variables was represented as a function, as shown below.

$$GDP_t = A_0 + A_1FD_t + A_2ER_t + A_5MS_t + A_6LR_t + \varepsilon_1 \dots$$

Whereby;

$GDP_t$  = Economic Growth,  $A_0$  = Constant  $A_1, A_2, \dots, A_6$  = variable parameters  $FD_t$  = Fiscal deficit,  $ER_t$  = Exchange rate,  $MS_t$  is Broad money Supply  $LR_t$  = lending interest rate and  $\varepsilon_1$  = error term.

An ARDL that was used in data analysis is given as;

$$\Delta y_t = v + \alpha\beta' y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta x_{t-i} + \varepsilon_t.$$

Where

$v$  = becomes  $K \times 1$  vector of parameters representing constants in the short-run.

$\alpha$  =  $K \times r$  matrix of adjustment parameters in the co-integrating equations i.e. the error correction term

$\beta$  =  $K \times r$  matrix of coefficient parameters of the long-run relationship in the  $r$  co-integrating equations

$\Gamma_i$  = Showing short-run coefficients of lagged variables.

$\Delta$  = First difference operator.

$r$  = The co-integrating rank which is  $1 \leq r \leq K-1$

### Measurement of Variables

GDP	Economic Growth	This is annual change in the real GDP		KNBS
FD	Fiscal Deficit	It was measured as a percentage of the Gross Domestic Product	Negative	KNBS
EXR	Exchange Rate	The price of the Kenyan currency in relation to the United States dollar measured by the annual average exchange rate was employed, Ksh/US \$	Negative	KNBS
Ms	Broad Money Supply	M3 is a collection of the money supply that includes M2 money with timely deposit with the financial institutions that includes large time deposits, larger liquid funds, institutional money market funds, and short-term repurchase agreements. Annual percentage change was used	Positive	KNBS
LR	Lending Interest Rate	This is the bank rate that usually meets the short- term funding needs of the private sector.	Negative	KNBS
$\mu_t$	is the stochastic error term	Factors that affect Economic stability but not captured in the model		

Source: Author's Conceptualization, 2021

### Data Analysis

#### Unit Root Test using Augmented Dickey-Fuller Test, ADF

To calculate the test statistic, we used the augmented Dickey-Fuller regression model.

$$\Delta y = \alpha + \beta y_{t-1} + \delta t + \sum_{j=1}^k \alpha_j \Delta y_{t-j} + e_t$$

e analysis.

## Macroeconomic Drivers of Economic Growth

### Co-integration Test

A time series variable is integrated of order  $d, I(d)$ , if stochastic trends / unit roots can be eliminated by differentiating a series  $d$  times and stochastic trend remains after differencing only  $d - 1$  times (Gujarati, 2009).

## DATA ANALYSIS AND PRESENTATION

### Unit Root Tests

The variables should be checked for stationarity before running an ARDL model. As a result, the researchers used Augmented Dickey Fuller to check for unit root or stationarity (Elliott, 1999). Table 4.2 shows the results of ADF.

The results show that all variables were non stationary at the 5% level of significance with  $p$  value  $> 0.005$  with the exception of GDP, which had a  $p$  value of 0.0497 and 0.0185 0.005. As a result, none of the tests were able to rule out the null hypothesis of a unit root. All variables became stationary after the initial differencing.

**Table 4. 2: Unit Root Tests**

ADF Unit Root Test at Level						
Variables	p-values	ADF Test Statistic	Critical Values			Remark
			1%	5%	10%	
GDP	0.0185	-3.227	-3.716	-2.986	-2.624	Stationary
FD	0.5900	-0.5620	-3.716	-2.986	-2.624	Unit root
ER	0.2600	-2.062	-3.716	-2.986	-2.624	Unit root
MS	0.1782	-2.281	-3.716	-2.986	-2.624	Unit root
LIR	0.7009	-1.135	-3.716	-2.986	-2.624	Unit root
Unit Root at First Difference						
GDP	0.0000	-6.338	-4.352	-3.588	-3.233	I (1)
FD	0.0001	-5.183	4.352	-3.588	-3.233	I (1)
ER	0.0001	-5.169	4.352	-3.588	-3.233	I (1)
MS	0.0000	-6.197	4.352	-3.588	-3.588	I (1)
LIR	0.0000	-5.410	4.352	-3.588	-3.233	I (1)

Source: Researcher Data, 2021

### Bounds Test

According to Pesaran *et al.* (2001), the null hypothesis is rejected when the calculated F statistic is greater than the upper bound critical value, indicating that the underlying variables in the study are co-integrated. The calculated F statistic of 4.88 exceeds the upper bounds at 10 percent, 5 percent, 2.5 percent, and 1 percent significance levels, indicating that there is a long run relationship between the variables, as shown in table 4.3.

**Table 4.3: Bounds Test**

Ho: no level relationship		F = 4.88, t = -4.730							
Critical Values		0.1		0.05		0.025		0.01	
[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]
L_1	L_1	L_05	L_05	L_025	L_025	L_01	L_01	L_01	L_01
k_6	2.12 3.23	2.45 3.61	2.75 3.99	3.15 4.43					
Accept if $F < \text{critical value for } I(0) \text{ regressors.}$									
Reject if $F > \text{critical value for } I(1) \text{ regressors.}$									
Critical Values		0.1		0.05		0.025		0.01	
[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]	[I_0]	[I_1]
L_1	L_1	L_05	L_05	L_025	L_025	L_01	L_01	L_01	L_01
k_4	-2.57 -4.04	-2.86 -4.38	-3.13 -4.66	-3.43 -4.73					

## Macroeconomic Drivers of Economic Growth

Accept if  $t > \text{critical value for } I(0) \text{ regressors.}$

Reject if  $t < \text{critical value for } I(1) \text{ regressors.}$

k: # of non – deterministic regressors in long – run relationship.

Source: Research Data, 2021

### Diagnostic Tests

**Table 4.6: ARDL with Error Correction Model**

		Number of observations = 31			
Sample 1990 – 2020		R-squared= 0.6486			
Log likelihood = -52.787505		Adj R-squared = 0.5213			
		Root MSE= 1.9510			
	D.GDP	Coef.	Std. Err	T	P >  t
ADJ	GDP				
	L1	-0.9985559	.2111284	-4.73	0.000
LR	FD	0.010315	0.023893	0.432	0.671
	ER	0.080460	0.035204	2.286	0.033
	LIR	-0.171520	0.060810	-2.821	0.011
	MS	0.242124	0.062711	3.861	0.001
	Cons	-18.4509	15.94865	-1.16	0.263

Source: Research Data, 2021

The R - squared is 64.86, implying that the fiscal deficit FD, exchange rate ER, lending interest rate LR, and money supply MS account for 64.86 percent of economic growth variations. The speed of adjustment to the long run equilibrium is negative and significant (p – value 0.000 0.05) with a coefficient of – 0.998, implying that short run shock corrections converge to equilibrium. According to a high significant coefficient of -0.998 (p value 0.000), approximately 99.8% of any disequilibrium caused by explanatory innovations is corrected annually.

The long run ARDL model shows that fiscal deficit has a positive effect on economic growth (p-value 0.671> 0.0500) and a coefficient of 0.01, but the results are not significant. An increase of one unit in fiscal defect leads to a 0.01 unit increase in economic growth. On the relationship between Pakistan's budget deficit and economic growth, this study agrees with Nayab (2015) The study found no evidence of a link between the budget deficit and economic growth.

The foreign exchange rate and economic growth, according to orthodox economists, have a positive relationship. Increases in foreign exchange rates increase net exportation volume, which boosts economic growth by increasing commodity demand.

Structural economists, on the other hand, argue that the exchange rate and economic growth are inversely related (Karahan, 2020) . The findings are in line with those of SELIMI *et al.* (2017), who looked into the impact of the Macedonian exchange rate on economic growth.

The long run results show that money supply has a significant positive effect on economic growth, with a coefficient of 0.242 (p-value 0.001 0.005), implying that a unit change in money supply leads to a 0.242 unit increase in economic growth. This is consistent with the majority of economic theories. Money supply has an impact on the economy's supply side. With an increase in money supply, business activities expand due to the availability of credit in both the public and private sectors of the economy, which increases economic growth through various monetary transmission mechanisms.

According to the findings, lending interest rates have a negative and significant relationship with economic growth (p-value 0.005 level of significance) with a coefficient of -0.17. This corresponds to the Keynesian theory of interest rates, which states that a unit decrease in lending rates contributes to an increase in economic growth of 0.17 units when all other factors remain constant. Because it sets the pace for both domestic and international investors, the interest rate is one of the most important economic drivers. Interest rate cuts encourage capital inflows, which strengthens the local currency (Boivin *et al.*, 2010).

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusion

The results of the ARDL regression showed that fiscal deficits boosted economic growth but were statistically insignificant in the long run. According to the study, any increase in Kenya's budget deficit has no impact on economic growth. This is due to the high fiscal deficit to GDP ratio, which was 4% during the study period, well above the recommended 3.7 percent.



## Macroeconomic Drivers of Economic Growth

According to the regression results, exchange rates have a positive and statistically significant impact on economic growth in Kenya. This backs up the traditional view that the foreign exchange rate and economic growth have a positive relationship. Increases in foreign exchange rates increase net exportation volume through devaluation, which boosts economic growth due to increased commodity demand.

The broad money supply was discovered to be the most important determinant of economic growth in the long run.

Interest rate cuts encourage capital inflows, which strengthens the local currency and attracts investors. According to the findings, lending interest rates have a significant impact on economic growth, with lower bank lending rates resulting in increased economic growth.

## Recommendations

Sequel to the ARDL model regression results, the study proffers the following recommendations;

Policymakers in CBK ought to adopt policies that maintain and keep stability in exchange rate to avoid fluctuations in order to foster economic growth this include imposition of high tariffs to discourage importation initiatives like “buy Kenya build Kenya” should be encouraged. Efforts too should be channeled toward export diversification. Exchange control policies should be put in place to determine optimal value of the exchange rate which in the long run helps to strengthening the currency through devaluation.

Control of inflation volatility should be a major objective of economic policy in Kenya. The government should look for avenues to expand the output. Structural changes should be implemented to boost domestic production by harnessing investment into import - substituting products to control increased prices of products in order to boost economic growth. Monetary policymakers should decide on optimum inflation targets to adopt to avoid detrimental effects of high inflation while reaping the growth benefits of low inflation.

Central Bank of Kenya should pay close attention to broad money supply as a major tool for monetary policy to foster economic growth at the same time controlling overall inflation within the limits. Monetary policies should be expansive and sustainable. Banks, non-banking financial institutions, and the government should all play key roles in putting the policy into action.

Low interest rates will increase credit availability in an economy that will drive economic growth. As a result, it is critical that the CBK of Kenya regulate, determine effective and stable lending interest rates.

Internet usage has failed to meet a large number of consumers who can benefit from network externalities, consequently contributing to economic growth rates. As a result, governments should promote technological innovations, the use of the Internet in e-learning, business transactions, and all types of interactions. Promotion of technological innovations aimed at addressing the obstacles that people face is welcomed. Due to the critical role of ICT and its contribution to ICT, governments should invest in the ICT sector, like Rwanda’s free wireless internet in Kigali city to boost investors. In order to capitalize on the positive effects of ICT on economic growth, policymakers should regulate the sector to make it more accessible and affordable

In order to improvement economic growth, the government should endeavor to improve political stability and promote good governance. This could be accomplished by gradually building institutions that uphold the rule of law and security, reducing ethnic polarization and political conflicts during electioneering period by enabling individuals to take personal responsibility, and improving accountability and transparency in government non- government institutions. This will make Kenya an investment hub in the horn of East Africa with a double digit growing economy.

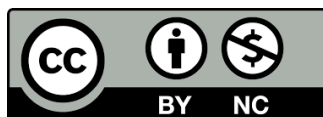
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