

Effect of Fiscal and Monetary Policy on Gross Domestic Savings in Kenya

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Abstract

Domestic savings is a vital source of investment funds, especially for developing economies. It is thus essential that internal savings capacity in these economies is increased to enhance investment financing and economic growth. Since increased reliance on external capital flows can result in economic instability, achieving a higher national saving rate is a critical macroeconomic objective for many developing countries. However, domestic savings remain low in many of them including Kenya, posing a serious development challenge. Fiscal and monetary policies have been a major focus by governments in trying to improve on gross domestic saving. The main purpose of this study was to analyze the role of fiscal and monetary policy on gross domestic savings in Kenya. This study was informed by the theory of Life cycle hypothesis. The study utilized explanatory research design. Yearly time series data was sourced from Economic surveys, World Bank reports and Statistical abstract of the period between 1990 and 2017. The time frame was viewed as the economic reform period; this was started in the country in the 1990s. Johannes co-integration methods were applied together with its vector error correction estimation approach to determine coefficients that define the relationship between variables under study and the gross domestic savings. Augmented Dickey Fuller test was applied for unit-root test. The results obtained from the regressions were spurious free. The regression result revealed that monetary and fiscal policy variables explained domestic savings in Kenya. The study recommends that monetary and fiscal policy implemented by the government should promote a favorable investment atmosphere through appropriate stabilization of lending rates, inflationary rates, and promoting income growth to ensure increase in national savings for economic sustainability in Kenya.

Keywords: Savings, Investments, Fiscal Policy, Monetary Policy, Life Cycle Hypothesis, Economy

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1. Introduction

Growth in output of an economy depends partly on accumulation of human and physical capital, which in turn depends fairly on available national savings. Savings is defined as 'postponed consumption' and therefore an important policy instrument critical to development and planning purposes. In development economics the most important parts are how to stimulate investment and how to bring about an increase in the level of savings to facilitate increased local investment and sustainable economic development (Diego, 2016).

In the case of increase in aggregate domestic savings it could reduce the country's dependency on foreign capital and foreign borrowing and loans which may lead to unsustainable foreign debts and hence result in balance of payment disequilibria (Ahmad et al., 2017). This enables countries to invest on huge local debts that have highly minimal burden on servicing as compared to the external sources of investment capital (Babu *et al.*, 2014).

According to the World Bank (2013), the standing of gross domestic saving rates for some selected countries as a percentage of GDP is as follows: China 50.4 %, United Kingdom 15.1 %, United States 16.3 %, India 18.4 %, Kenya 11 %, Nigeria 19.8 %, Ghana 10.8 %, Uganda 19.6 %, Tanzania 23 % and so on. On average, East Asia saves more than 30 % of gross national disposable income while Sub-Sahara Africa (SSA) saves less than 15 % Kenya inclusive due to inadequate financial services. Drastic increases in domestic savings in the East Asian countries were achieved through the institution of financial sector reforms and the fiscal discipline which facilitated sustainable economic growth rates (Sarah, 2012). According to the United Nations Development Program survey, the developing East Asian economies have put great emphasis on fiscal discipline and on building a strong, effectively supervised financial sector able to mobilize domestic savings and allocate them to efficient investment (Mah-Hui & Joseph, 2012). However, in most of the developing countries in Africa, foreign sources of investment funds have been constrained by the existing external debt and unpredictable foreign aid (Babu *et al.*, 2014). This has necessitated greater attention to the mobilization of domestic savings.

Revoltella (2018) noted that financial sectors in many African countries are heavily regulated, with much of their services geared towards servicing the public sector deficits, leading to a crowding out of the private sector. This, to greater extent explains the low gross domestic savings in most of African countries. In pursuit of a well-developed financial system, many sub-Saharan African countries have implemented far-reaching financial and public sector reforms. However, gross domestic savings rates in Kenya have remained generally very low (Kahangi & Muturi, 2013). According to the World Bank indicators, GDS as a percentage of GDP has been declining over the last decade (World Bank, 2013).

1.1 Overview of Savings in Kenya

Kenya's savings have not only declined but are also the lowest among most peer countries. In the 1980s, Kenya's average saving rate was higher than the saving rates in several peer countries. Since then, Kenya's saving rate has declined. Over the past decade, Ghana, Senegal, and Uganda, which had among the lowest saving rates in the 1980s, have surpassed Kenya in savings. Neighboring Tanzania has already passed the 20 percent mark (23 percent in 2012), although it's gross national income per capita is lower than Kenya's. Figure 1 presents Kenya's recent savings trend (World Bank, 2015).

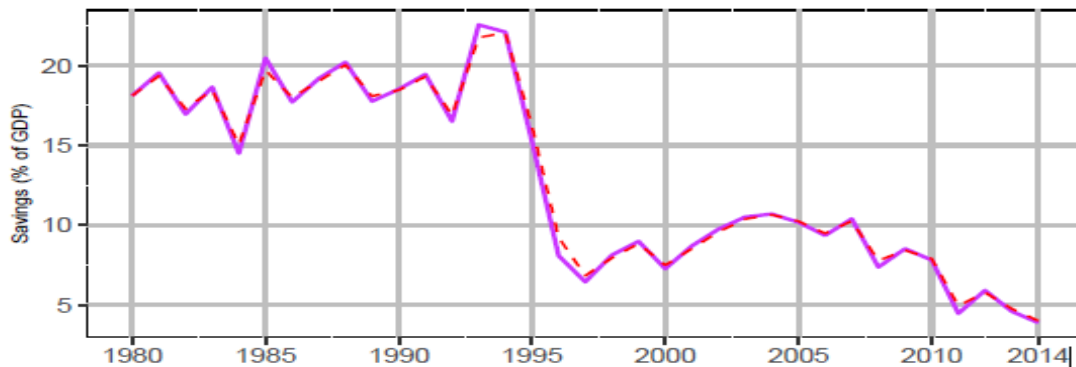


Figure 1: Kenya's Gross Domestic Savings.

Source: World Bank (2015).

1.2 Overview of Macroeconomic Trend in Kenya

The economic growth rate trend for Kenya has been volatile as shown in Figure 2 with the least growth rate of -0.80% reported in 1992 attributed to high inflation rate caused by excess liquidity from the 1992 elections (World Bank, 2013). The highest growth rate in Kenya between the periods 1980 to 2014 was 8.4% achieved in the year 2007. This was linked to the improvement in the performance of the general macroeconomic environment (Gisore, 2021). The economic growth rate was however at an average of only 3.73% through the period 1980 to 2014. The GDP annual growth was 4.5%, 5.7% and 5.3% in 2012, 2013 and 2014 respectively. Kenya's GDP was projected to grow at 6% in 2015, 6.6% in 2016 and 6.5% thereafter in 2017 (World Bank, 2015). The economic growth rate trend for Kenya has been volatile in 1980-2014 as shown in Figure 2.

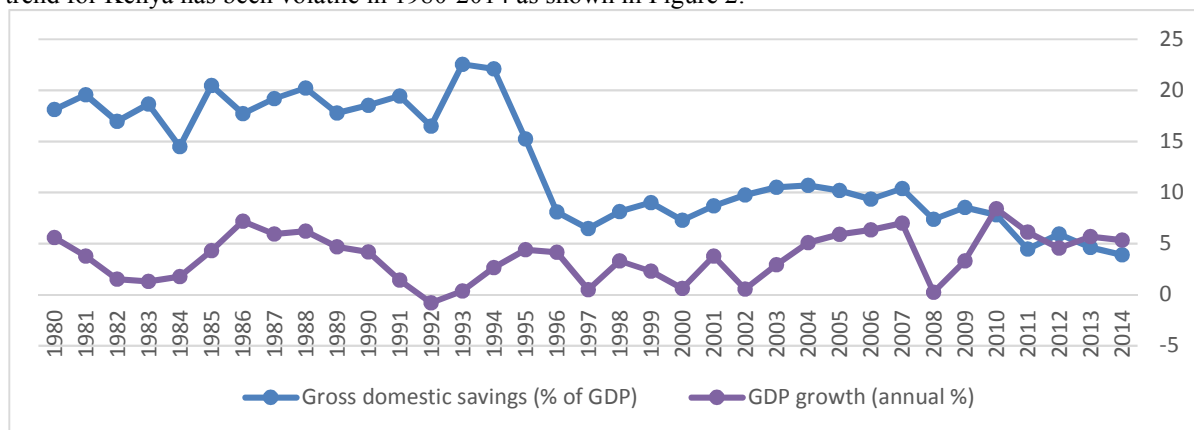


Figure 2: Kenya's Gross Domestic Savings and GDP (%).

Source: World Bank (2013).

The trend in Kenya's inflation rate and real deposit interest for the period 1980-2014 is shown in Figure 3. The country experienced price fluctuations over the period 1980 to 2014 with an average inflation rate of 12.61%, the highest inflation rate of 45.98% in the year 1993 and the lowest rate of 1.55% in the year 1995. Between 2013 and 2018, the Kenyan economy experienced relatively stable macroeconomic conditions with low (single-digit) level of inflation; the highest rate during that period was in 2017 at 8% (World Bank, 2013). The trend in Kenya's inflation rate and real deposit interest is shown in Figure 3.

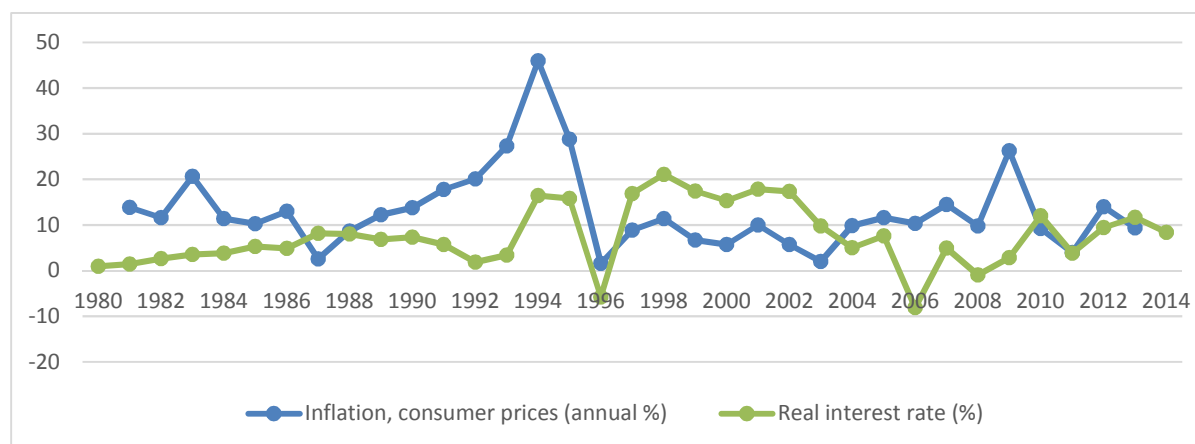


Figure 3: Kenya's Inflation Rate and Real Deposit Interest Rate

Source: World Bank (2013)

The Real Deposit Interest Rate (RIR) is the lending interest rate adjusted for inflation as measured by the GDP deflator. Over the period 1980-2014, the trend in RIR had also been erratic with an average rate of 7.5%, a maximum of 21.1% in the year 1998 and a minimum of -8.13% in the year 2006 (World Bank, 2015).

1.3 Problem Statement

Kenya's Vision 2030 is a long-term plan aimed at propelling the country to new heights of economic growth, with the principal target of making Kenya an upper middle-income country. The economy is expected to achieve a consistent annual economic growth rate of 10 per cent. To achieve this, the financial sector is expected to mobilize additional domestic savings to support higher investment rates of above 30 per cent of GDP. The country has however, continued to experience low rates of savings. The highest percentage Kenya has managed to attain being 17% of GDP investment rate even with lower rate of domestic savings and this was attributed to the higher inflows of external debts (World Bank, 2013). Such capital dependency from outside of the country is however a risk to various global economic shocks which can easily be imported.

1.4 Objective of the Study

The objective of the study was to analyze the effects of fiscal and monetary policy on gross domestic savings in Kenya.

2. Theoretical Literature

The permanent income hypothesis (PIH) suggests consumption patterns are formed from future expectations and consumption smoothing (Milton, 1957). The theory was developed by Milton Friedman (1957). Alimi (2013) found that in response to the empirical puzzle in the Alternate Income Hypothesis, Milton Friedman proposed his permanent income hypothesis which states that households spend a fixed fraction of their permanent income on consumption. The PIH highlighted the importance of not just the present but also the future. The PIH basically says that individuals want to maximize their lifetime well-being subject to the constraint that all their lifetime resources must be spent (Milton, 1957; Alimi, 2013). The Friedman's theory focused on distinguishing between consumption and current expenditure on the one hand, and income and current receipts on the other hand. This is because an individual economic agent is thought to plan his expenditures on both incomes received during the current period and income expected during his lifetime.

Therefore, consumers plan their expenditure on the grounds of a long-run view of the resources that will accrue to them in their lifetime. This means PIH postulated that income, Y , is made up of two components: a permanent component (Y_p) and transitory component (Y_t). Friedman argued that some of the factors that give rise to the transitory component of income were specific to particular consumer but that for any considerable group of consumers the transitory components tend to average out so that the mean of the transitory component is expected to be zero (Milton, 1957; Alimi, 2013).

The theory guides this study greatly especially on how interest rates play a major role to gross domestic savings as people try to engage in borrowing in their endeavor to smooth consumption throughout their life (Alimi, 2013).

2.1 Empirical Literature

Empirical research studies have produced inconclusive results. Most of the studies have been done on gross domestic savings in Kenya are not conclusive about the monetary and fiscal factors influencing national savings (Mwai & Muturi, 2015). Awan et al. (2010), Nyanzi and Kaberuka (2013), and Odhiambo (2006) have found

results that support effect of real interest rate, inflation rate and GDP per capita income as the main drivers of gross domestic savings. Moreover, majority of other studies on the effect of these factors on GDS in Kenya were conducted in the 1990s (Kariuki, 1995; Mwege *et al.*, 1990) all of which found a negative relationship. These are too distance from the present to be relied on. Additionally, a number of the studies made use of ordinary least squares (OLS) approach which is vulnerable to many econometrics disadvantages like multicolliniality and omitted variable bias. This study utilised vector error correction model estimation which addresses the econometric limitations. As a result of the above mentioned factors, the researcher found it necessary to devolve into the study so on fill the prevailing research gap.

2.2 Conceptual Framework

The research postulates that fiscal and monetary policy variables determine gross domestic savings in Kenyan economy. In between the dependent and independent variables are the intervening variables which aren't controlled for. This relationship is conceptualized in Figure 4.

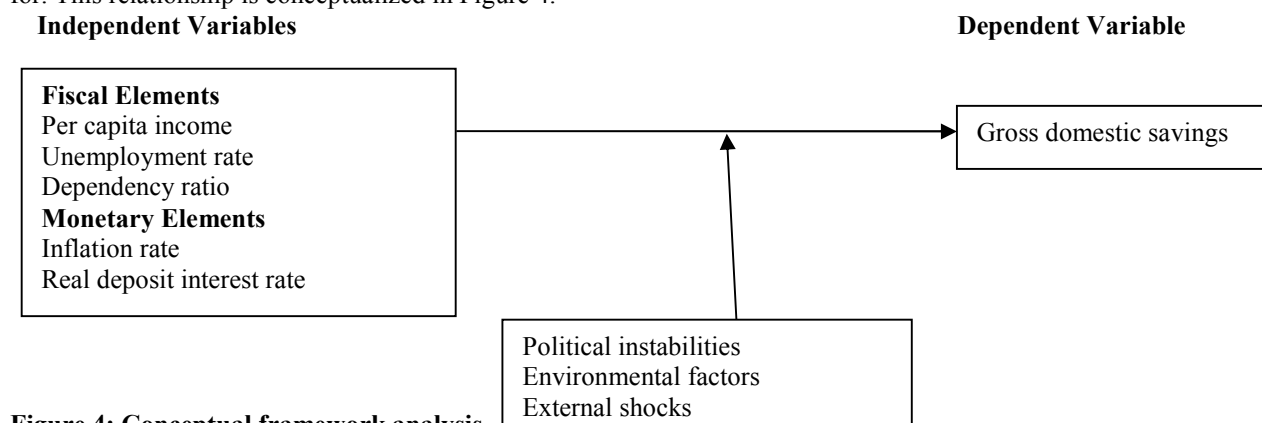


Figure 4: Conceptual framework analysis.

Source: Odhiambo (2006); Mwai and Muturi (2015).

3. Materials and Methods

The study applied explanatory research design that provides a framework for investigation of the variables with the aim of either supporting or refuting the contention that a cause and effect relationship exists between the study variables (Salkind, 2010). The annual data was sourced from the World Bank reports, Statistics abstracts and Economic survey reports.

This study was carried in Kenya. Kenya is located in the continent of Africa. Kenya lies across the equator and is found in the eastern coast part of Africa. Map of the World indicate that Kenya's latitude and longitude lie between 0.0236° S and 37.9062° E (Gisore, 2021; Gündüz & Agayi, 2021). Located in sub-Saharan Africa, Kenya's savings as a share of GDP have remained relatively low in the last decade at times fluctuating over time. Figure 5 below is an illustration of the location of the study area in African context.

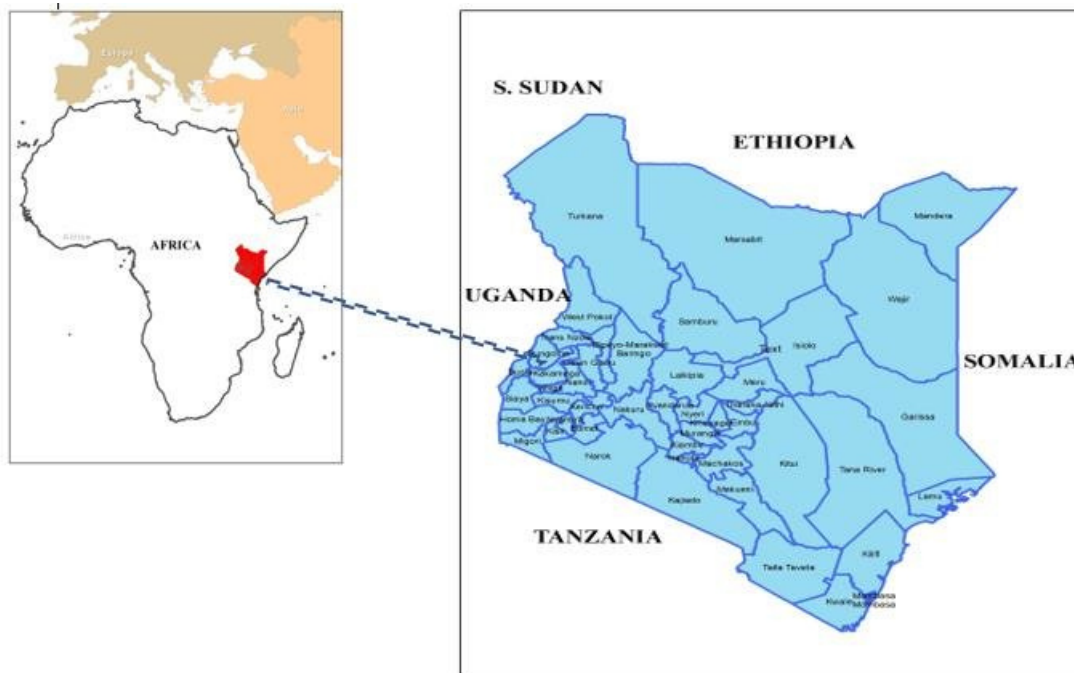


Figure 5: A map of Kenya showing the location of the Study Area.

Source: Gündüz & Agayi (2021).

3.1 Model Specification

$$GDS = f(PCI, INF, RIR, UNM, DRT) \dots\dots\dots 1$$

Where:

GDS= Gross Domestic Savings

PCI= per capita Income

INF= Inflation

RIR= Real Deposit Interest Rates

UNM = Unemployment rate

DRT= Dependency Ratio

The linear model was specified as:

$$\Delta y_t = v + \alpha \beta' y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + \varepsilon_t \dots\dots\dots 2$$

y_t = $K \times 1$ vector of variables which are: gross domestic savings, economic growth, inflation, real deposit interest rate, unemployment rate, dependency ratio.

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

α = $K \times r$ matrix of adjustment parameters in the co-integrating equations

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

Γ_i = showing short-run coefficients of lagged variables

Δ = first difference operator

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

ε_t = is a $K \times 1$ vector of disturbances

The time series data was collected from economic review reports, statistical abstracts and World Bank reports.

3.2 Data Analysis

Descriptive and inferential estimation were applied accordingly. The first step in analyzing the time series data is to perform unit root testing. It is important to determine the order of integration or non-stationarity of time series data. Regression of a time series variable on another time series variable may result to obtaining spurious results – one obtains a very high R^2 even though the variables do not have a significant relationship. If a vector y_t is integrated of order d , represented as $(y_t \sim I(d))$, then the variables in y_t needs to be differenced d times to induce stationarity.

Johansen’s co-integration test was applied in testing for the co-integration rank between the variables. The Johansen test is found in Johansen (1988) and Johansen and Juselius (1990). Johansen (1988) outlined a method, which was later expanded by Johansen and Juselius (1990) that allowed for the testing of more than one co-integrating vector in the data and for the calculation of maximum-likelihood estimates of these vectors.

Cointegration was performed under Johansen test and a vector error correction estimation approach was applied according to its result. Post-estimation diagnostic tests were administered during the study and corrected accordingly.

4. Empirical Results and Discussions

4.1 Unit Root Test Using ADF

To formally investigate the presence of unit root, the study employed Augmented Dickey and Fuller test (1979). The Augmented Dickey and Fuller (ADF) test for unit root was used because it is appropriate for small sample size. Accordingly, ADF result's reported in Table 1.

Table 1: Result for Unit Root Test Using ADF

VARIABLE	ADF level	P-Value	ADF 1 st Difference	P-Value	Order
Gross Domestic Savings	-1.851	0.3555	-4.786	0.0001	I(1)
Real Deposit Interest	-1.680	0.4415	-5.293	0.0000	I(1)
Unemployment Rate	-5.056	0.0000	-	-	I(0)
Inflation Rate	-3.968	0.0016	-	-	I(0)
Dependency Ratio	-1.909	0.3278	-4.203	0.0007	I(1)
Per Capita Income	2.270	0.9989	-3.796	0.0030	I(1)

ADF results in Table 1 shows that only unemployment rate and inflation were stationary at level. However other variables become stationary after differencing, implying that the variables are integrated of order one, I (1).

4.2 Regression Results

The number of lags to include must first be determined before testing for co-integration and fitting the co-integrating variables into a vector error correction model (Becketti, 2013). Optimum lag length of 4 was determined using Akaike information criterion (AIC). Table 2 indicates estimates of long-term parameters in the co-integration equations with their standard errors and confidence intervals.

Table 2 Results for Co-integration Analysis

beta Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
pci	1.471844	.6239772	2.36	0.018	.2488714 2.694817
Rir	-.6134436	.1748091	-3.51	0.000	-.9560632 -2.708241
Unm	-4.3701	.6511778	-6.71	0.000	-5.646385 -3.093814
inf	-.6994911	.0863164	-8.10	0.000	-.8686682 -.530314
drt	3.472276	2.202109	1.58	0.115	-.8437783 7.78833

The regression results showed that per capita income had a positive effect on gross domestic savings. This statistic is significant given that the P value of 0.018 is less than 0.05 rejecting the null hypothesis that PCI has no effect on GDS. This indicates that a 1% change in wealth accumulation translates to 1.47% positive change in GDS. The results are consistent with the findings of Mohamed (2014), Kidane (2010), Tesha (2013), Perihan *et al.* (2014), Elseoud (2016) and Regiane (2013). This is in agreement with empirical literature since higher individual earnings means higher incomes to households in the country. This will translate to increased domestic savings for all the economic sectors.

The results further showed that 1% change in real deposit interest rate of commercial banks in Kenya caused a 0.61% negative change on gross domestic savings. This statistical result is significant with a probability value of $0.000 < 0.05$ confidence level. The results are consistent with findings of Samuel and Nuriana (2015), Udoka and Anyingang (2012), Mwai and Muturi (2015), and Ndirangu and Muturi (2015). These results however contradict the findings of Nwachukwu and Odigie (2009) who conforms to widely held idea that deposit interest rates will encourage domestic savings in the country when they rise. This can indicate that the portion of savings from households is smallest compared to public and those from firms. High savings by households could cause less consumption and consequently fewer profits by firms and end up causing a general negative effect on GDS growth in Kenya.

The model output in Table 2 reveals that unemployment rate had a negative effect on gross domestic savings. This is significant given the P-value of 0.000 is < 0.05 thereby rejecting the null hypothesis that unemployment rate has zero effect on GDS. This indicates that a 1% change in UNM causes 4.37% negative change in GDS. The results are consistent with the findings of Apergis and Christou (2012) and Samantaraya and Patra (2014). This resonates with the existing situation on the ground as higher unemployment rates depletes households incomes leading less savings with similar effect on the national savings (Matundura, 2021).

Additionally, the long-run model revealed that 1% change in inflation causes a negative change of 0.69% change on GDS. These statistical values are significant with a p-value of 0.000 which is less than the 5%

confidence level. These results are consistent with those of Mwai and Muturi (2015), and Ayetuoma and Obrein (2014) and contradicted that of Demilie and Samson (2015) whose findings showed inflation does not significantly affect gross domestic savings. These results are supported with the theoretical opinions that higher inflations means higher consumptions and reduction in domestic savings. Finally dependency ration shows a statistically insignificant effect on GDS at any conventional level of significance as shown in Table 2. Overall, our findings support the view that changes in non-working population size has low impact in explaining the future path of the domestic savings rate in Kenya. This can be attributed to difference between life expectancy and old-age dependency. As far as life-cycle savings are concerned, an increase in the former increases the savings of middle-aged agents, whereas an increase in the latter increases dissavings of old age.

VECM short-run estimates reveals that gross domestic savings can correct any disequilibrium in the long-run relationship that exists between the variables in the system by decreasing at a speed 19.5% per year. This is significant at 5% confidence level with a probability value of $0.047 < 0.05$ confidence level. This means we reject the null hypothesis that the speed of adjustment is zero and accept the alternative that the speed is significant in the correction. Further the model output reveals a speed coefficient of 1.5%, 14% and 0.2% disequilibrium correction speeds from per capita income, real deposit interest and dependency ratio respectively.

The study used Breusch-Godfrey LM serial correlation test for autocorrelation in data. The study concludes that the model doesn't have first-order autocorrelation. From above result residual autocorrelation among the modeled variables isn't an issue.

5. Conclusions and Recommendations

5.1 Conclusions

Gross domestic savings in Kenya has been low for the last four decades. This has stimulated much concern to the policy makers bearing in mind that savings are a key variable influencing economic growth though investment buildup in a scenario where unsustainable external debts are unavoidable. Consistent with empirical and theoretical predictions, per capita income, interest rate, unemployment rate and inflation have significant influence in explaining trends of gross domestic savings in Kenya. Reducing interest rate, unemployment and inflation to sustain national savings could be a policy recommendation worth pursuing. In contrast, boosting per capita income can enhance its complementarities role with private investment and economic process to sustain growth in savings. The government should encourage domestic savings and move away from public debt as a source of investment and economic development. In keeping with the life cycle hypothesis, fiscal and monetary policy variables can contribute to growth of savings by creating conducive environment for the private sector development, repairs market failures and injecting purchasing and saving power into the economy.

5.2 Recommendations

Maintaining a non-inflationary stable economic growth has been the core mandate of macroeconomic policy makers in Kenya and other sub-Saharan countries. Monetary policies should be expansive and all inclusive. Banks, all non-banking financial institutions and the government should be key players in implementing the policy to be able to stabilize the monetary environment especially inflation rates and deposit interest rates for money lending institutions. CBK should also foresee reduction of interest on public and private loans but maintain interests paid to depositors, to avoid neutralization of policy by applying both money supply and interest rates policy simultaneously to be able to stabilize the rates. Strategic fiscal policy measures should be pursued to spur the economic growth to higher middle income hence increase per capita incomes. Such strategic measures may include leaner governments, implementation of research and extension findings, change of production methods into more labour intensive and encouragement of technological development to sustain the need for reduction of high unemployment rates in the country.

5.3 Limitation and Areas for Future Research

Given the small size of the sample, it is also important to extend the analysis to cover a wide region such as East African community in order to test the robustness of the results.

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