The effects of public debt on private investments in Kenya (1980-2013)

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Abstract

The Kenya Vision 2030 is divided into three pillars, namely, social, political and economic pillars. The economic pillar aims at achieving a 10 percent per annum growth rate in the economy. Investments are a major channel through which this objective can be met. Investments are required to be above 32 percent with private investments being above 24 percent for this level of growth to be achieved. The government has undertaken various public investments to fuel economic growth. However, for this to be even more effective, private investments should also be encouraged. The government has taken various measures to promote private investments. Despite these efforts, private investments in Kenya have remained low. This study aimed at finding out the effect public debt on the level of private investment in Kenya. The study used time series data from 1980 to 2013. Granger causality test was used to determine the direction of causality between public debt and private investments. Ordinary least squares estimation was used to estimate the model. Granger causality tests show the presence of unidirectional causality from debt to private investments. This shows that debt plays a huge role in determining the level of private investments. Debt was found to have a negative effect on private investments. The study therefore recommended that Kenya should reduce its level of borrowing so as to encourage private investments.

Keywords: Public debt, Private investment, Crowding out, Granger causality

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1. Introduction

1.1. Public debt in Kenya

The amount of public debt has been continually rising with the budget reaching a whopping 1.8 trillion in the 2014/2015 budget while the estimated national revenue stood at 1.026 trillion which is just slightly over half the total expenditure (Kerrow, 2014). Borrowing is one of the avenues through which Treasury can finance a deficit. The debt levels are set to go even higher with The National Assembly approving the raising of the external debt ceiling from 1.2 trillion to 2.5 trillion. This money is for financing the standard gauge railway, build roads and fund an electricity project that is set to produce 5000 megawatts of electricity (Gibendi, 2014).

Public debt has been on an upward trend, but the debt-GDP ratio has been erratic and going beyond 100 percent in 1993. According to Rother and Checherita (2010), there exists a concave relationship between public debt and the rate of economic growth with the turning point of debt being at around 90-100 percent of GDP. This implies that the higher the public debt-GDP ratio, the lower is the long-term growth rate above this point. Reinhart and Rogoff (2010) also found that when a debt-GDP ratio is below 90 percent, debt has a positive relationship with economic growth. Figure 1.1 shows the trend of debt-GDP ratio in Kenya between 1980 and 2013.
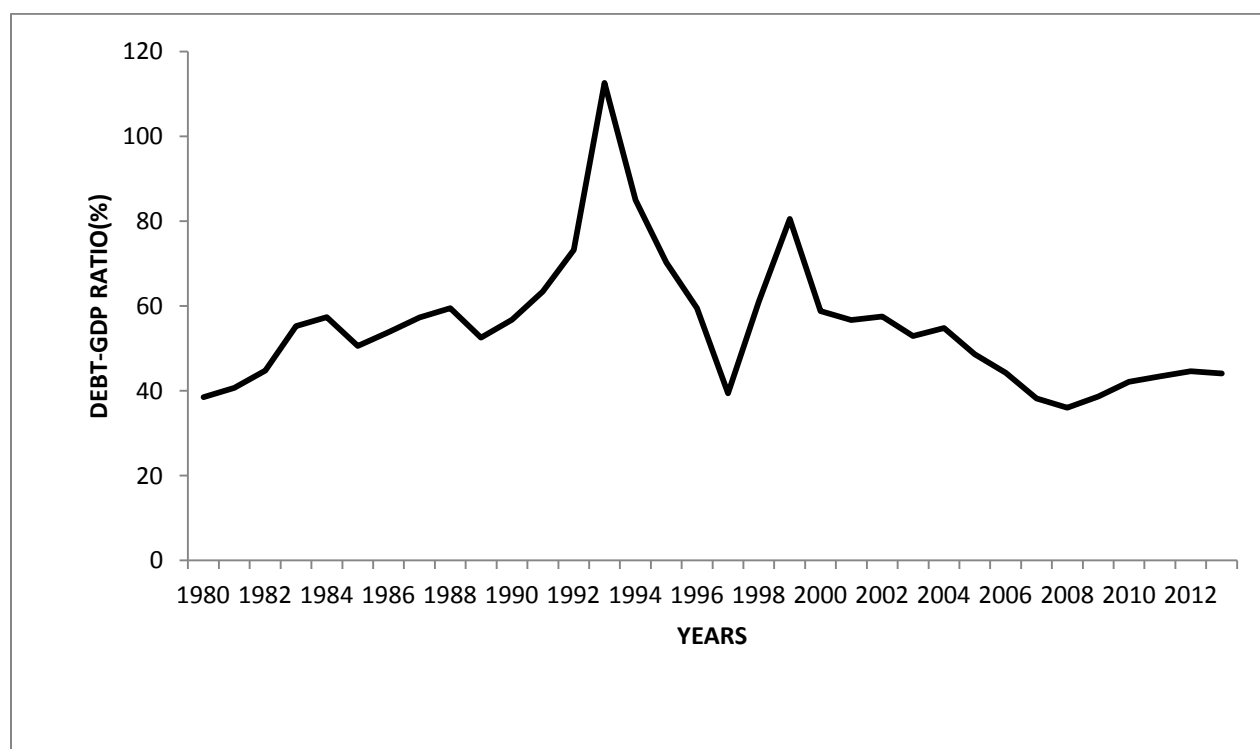
Figure 1.1. Debt-GDP ratio in Kenya from 1980 to 2013 (Source of Data: Economic Surveys and The World Bank)

Debt crisis in sub-Saharan Africa started in 1982 as a result of the countries being unable to pay the loans that they had borrowed during the 1973 and 1979 oil price shocks that had resulted in huge current account deficits for developing countries which did not produce oil (Were, 2001). The total public debt grew rapidly between 1980 and 1982 due to an increased need for the government to finance large balance of payment deficits with most of the growth in public debt being attributed to growth in external debt, which was at 29 percent of GDP as at 1982 (Republic of Kenya, 1983). Public debt in 1983 increased by 24 percent mainly due to the government borrowing to pay matured loans from previous years (Republic of Kenya, 1984). The Government reduced domestic borrowing from commercial banks by more than half in 1984 from Ksh 620 million to Ksh240 million so as to control credit creation and reduce inflation (Republic of Kenya, 1985).

In the early 1990s, the debt situation in Kenya became worse due to the end of the cold war, collapse of the Soviet Union and macroeconomic mismanagement such as the Goldenberg scandal that saw the country losing billions of shillings. Donor countries lost faith in the government and reduced the amount of money they were previously giving to the country.the government resorted to using domestic borrowing to finance its expenditures (Putunoi and Mutuku, 2013; KENDREN, 2009). Public debt between 1990 and 1992 grew by about 75 percent mainly due to the depreciation of the shilling against foreign currencies and suspension of foreign donor aid. Total outstanding public debt rose by 91 percent between 1992 and 1993. This was brought about by prolonged drought which caused the government to divert large amounts of funds to import food for famine relief efforts (Republic of Kenya, 1993,1994). In 1994, the government undertook various measures to address the economic problems that plagued the country among which they reduced domestic borrowing so as to free up resources for private investments (Republic of Kenya,1995).

The rise in 1997 was brought about by unplanned expenditures on civil servants, effects of the El Nino, extra expenditures on the 1997 general elections and the suspension of the enhanced structural adjustment facility (ESAF) by the International Monetary Fund. The ESAF is a facility created by the IMF to provide finance to poor countries in concessional terms after it emerged that the usual terms were too expensive for these countries to repay. 1997 also marked the beginning in the rise of domestic debt as a form of financing the budget. As at 2003, the domestic debt stood at 45 percent while external debt was at 55 percent of the total debt. This was in line with the government objective to rely more on external concessional borrowing rather than domestic debt to finance deficits (Republic of Kenya, 2004). Domestic debt between 2005 and 2009 remained below 45 percent of total debt. Substitution of external debt with domestic debt was not possible due to the risk of crowding out private investments (Republic of Kenya, 2010).

1.2. Private investments in Kenya

For the Kenya Vision 2030 growth objectives to be achieved, investment levels should be above 32 percent of GDP with public investments being above 9 percent of GDP and private investments being above 24 percent (Republic of Kenya, 2012). However, private investments in Kenya have consistently remained low. Figure 1.2 shows the trend of private investments in Kenya from 1980 to 2013.
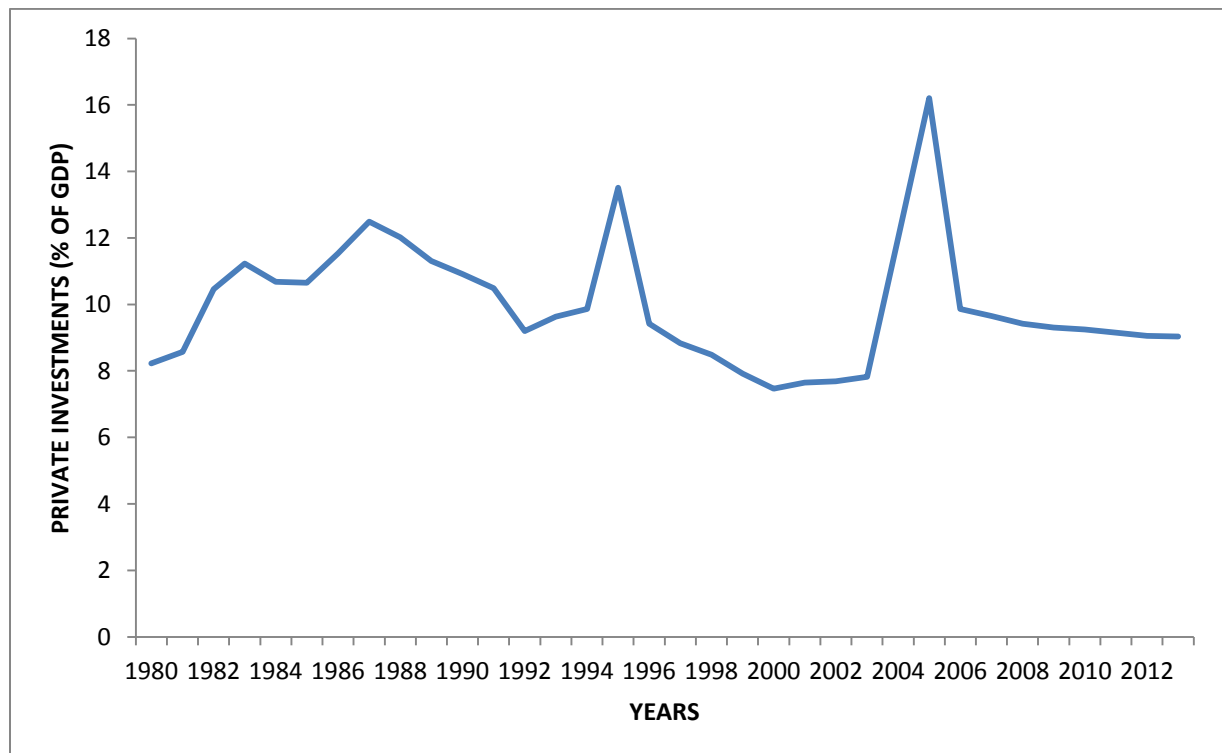
Figure 1.2. Private Investments in Kenya from 1980 to 2013 (Source of Data: The World Bank)

Private investments declined from the early to mid-1980s due to the onset of the debt crisis in 1982, severe drought conditions in 1984 and a sharp increase in interest rates which was mainly brought about by the debt crisis (Njuru et al., 2013). Structural adjustment programmes (SAPs) in the 1980s required that countries deflate their prices which led to a fall in GDP and a reduction in national income available for investment (Iyoha, 1999)

Private investments reduced in 1992 due to the push for political reforms, economic uncertainty especially toward the general election, Ethnic clashes and uncertainty in financial markets. This coupled with donor countries withholding foreign aid meant that Kenya had to borrow more internally leading to higher costs of capital and crowding out of private investments (Republic of Kenya, 1993). Macroeconomic reforms undertaken by the government in 1994 to correct the dismal performance of the 1992 -1993 period gave private investors confidence and may have contributed to the increase in private investments in 1995 (Njuru et al., 2013).

El Nino rains in 1997 destroyed critical infrastructure while violence before the elections forced some investors to relocate to areas which were much safer while at the same time discouraging potential investors. Investments also reduced in this period due to budgetary cuts, poor infrastructure, reduced donor funding and high interest rates, (Republic of Kenya, 1998). Private investments increased in 2003, but disagreements within the ruling coalition reduced the confidence that investors had. In 2007, the post-election violence in 2007 led to destruction of property, loss of life and displacement of thousands of people among whom were private investors, both domestic and foreign (Njuru et al., 2014).

1.3. Statement of the problem

Kenya's Vision 2030 is the country's development blueprint which aims at transforming Kenya into a newly industrializing middle-income country by the year 2030. The Vision 2030 is hinged on the economic, social and political pillars. The economic pillar aims at achieving an average economic growth rate of 10 percent per annum. Investment has been prioritized to ensure that this level of economic growth is achieved, (Republic of Kenya, 2007). The government has undertaken various projects so as to fuel economic growth such as the Thika Superhighway and will undertake construction of the standard gauge railway, construction of the LAPSSET corridor, irrigation projects and electricity generating projects. However, for this to be more effective, private investments must be promoted so as to accelerate economic growth further.

According to Sessional Paper No 10 of 2012 on Kenya Vision 2030, for the 10 percent per annum growth rate to be achieved, investments must be above 32 percent of GDP with private investments being above 24 percent. From theory, debt is a major determinant of private investments. According to El-Mahdy and Torayeh (2009) high levels of external debt lead to debt overhang problems which discourage new private investments while high demand for domestic funds by the government tends to push up interest rates which result in the cost of private credit going up and private investment demand reduces. This is also due to the government also using up private savings which would have been used by the private sector for investment (Hoag and Hoag, 2006).

The government has undertaken various steps and measures to promote the level of private investments in Kenya. This includes relying more on external concessional debt rather than domestic debt to avoid crowding out private investments (Republic of Kenya, 2004, 2010). However, despite government efforts to streamline borrowing, private investments have remained lower than is stipulated to achieve the 10 percent growth in the economy as shown in Figure 1.2.

The aim of this study was to find out the effects of public debt on private investments in Kenya. This study also aimed to find out the direction of granger causality between private investments and public debt in Kenya.

2. Research methodology

2.1. Theoretical model

According to Ghura and Hadjimichael (1996) endogenous growth models create a link between growth and public policies. The study used the endogenous growth model as presented in the study by Ghura and Hadjimichael (1996). Technological progress is taken as being endogenous. Assuming a Cobb-Douglas production function,

$$Y = A_0(A_k K)^{\alpha}(A_h H)^{\beta}(A_l L)^{1-\alpha-\beta} \text{.. (2.1)}$$

where Y is output, K is the capital stock, H is the human Capital, L is Labour, A_0 is the overall index for technology and efficiency in the economy, A_k is the physical capital augmenting technology, A_h is the human capital augmenting technology and A_l is the labour augmenting technology.

Labour and level of technology are also assumed to grow exogenously at rates n and g respectively.

$$L = L_0 e^{nt} \quad\text{.. (2.2)}$$

$$A = A_0 e^{gt+X\theta} \quad\text{.. (2.3)}$$

where X refers to policies that affect the level of technology and efficiency in the economy and θ is the vector of coefficients related to these policies.

Expressing equation 2.1 in terms of units of effective labour,

$$y = k^\alpha h^\beta \quad\text{.. (2.4)}$$

where k=K/AL is the level of physical capital per unit of effective labour, h=H/AL is the level of human capital per effective unit of labour and y=Y/AL is the output per unit of effective labour

Assuming s_k is the fraction of output invested on physical capital and s_h is the fraction of output invested on human capital and that both physical and human capital depreciates by rate δ, then the evolution of capital is determined by

$$\dot{k}(t) = s_k y - (n + g + \delta)k \quad\text{.. (2.5)}$$

$$\dot{h}(t) = s_h y - (n + g + \delta)h \quad\text{.. (2.6)}$$

Equations 2.5 and 2.6 imply that the economy converges to a steady state as defined k^* and h^* respectively.

$$k^* = \left(\frac{s_k^{1-\beta}.s_h^{\beta}}{n+g+\delta}\right)^{\frac{1}{1-\alpha-\beta}} \quad\text{... (2.7)}$$

$$h^* = \left(\frac{s_k^{\alpha}.s_h^{1-\alpha}}{n+g+\delta}\right)^{\frac{1}{1-\alpha-\beta}} \quad\text{... (2.8)}$$

substituting equations 2.7 and 2.8 into equation 2.1 and taking the natural logarithm,

$$\ln y = lnA_0 + g_t + X\theta + \frac{\alpha}{1-\alpha-\beta}lns_k + \frac{\beta}{1-\alpha-\beta}lns_h - \frac{\alpha+\beta}{1-\alpha-\beta}\ln(n+g+\delta)................. (2.9)$$

Therefore from equation 2.9, steady state per capita output depends on level of technology, level of technological progress, government policies, accumulation of capital and the level of population growth. In this study government policies were represented by the effect of public debt on private investments.

2.2. Data type and sources

The study used secondary data. Data for private investments, GDP growth, openness to trade, real interest rates, debt servicing, domestic credit to the private sector, enrolment, inflation rates, real exchange rates, investment and population growth was obtained from The World Bank databank. Data for internal debt and external debt will be obtained from the Kenya Economic Surveys for the years 1980 to 2013.

2.3. Results

The results for the analysis on private investments are presented in Tables 2.1 and 2.2.

Table 2.1. Granger Causality Tests Results

Pair-wise Granger Causality Tests			
Sample: 1 34			
Lags: 10			
Null Hypothesis:	Obs	F-Statistic	Prob.
Private investments does not Granger cause Debt-GDP ratio	25	0.98193	0.5296
Debt-GDP ratio does not Granger Cause Private investments		3.12799	0.0893*
*significant at 10 percent level of significance			

Source: Computed from study data

Table 2.2. Private Investments Regression Results

Dependent Variable: Private Investments				
Independent Variable	Coefficient	Std. Error	t-Statistic	Probability
Private Investments (1st lag)	0.791949***	0.203123	3.898858	0.0018
Debt-GDP Ratio	-0.051654**	0.017503	-2.951210	0.0112
Domestic Credit to Private Sector	0.334858***	0.097762	3.425244	0.0045
GDP Growth	0.193783	0.121287	1.597721	0.1341
Trade	0.110124**	0.040519	2.717834	0.0176
Inflation Rates	-0.013912	0.057536	-0.241798	0.8127
Real Interest Rates	-0.288419***	0.060958	-4.731479	0.0004
Debt Service	-0.412096	0.277882	-1.482988	0.1619
Constant	3.691851	4.664223	0.791525	0.4428
R^2: 0.881986				
Adjusted R^2: 0.736738				
F- Statistic 6.07227				
Probability(F-Statistic: 0.001073				
*** significant at 1 percent level of significance				
** significant at 5 percent level of significance				

Source: Constructed from study data

2.4. Discussion

2.4.1. Granger causality test results

At a 1, 5 and 10 percent level of significance, the null hypothesis of private investments does not granger cause debt-GDP ratio was not rejected. The null hypothesis that debt-GDP ratio does not Granger cause private investments was ejected at a 10 percent level of significance. This implies the existence of unidirectional granger causality between debt-GDP ratio and private investments. Debt –GDP ratio therefore plays an important role in predicting the level of private investments in Kenya but the reverse does not apply.

2.4.2. Private investments regression results

At a 5 percent level of significance, the coefficient for the debt-GDP ratio was found to be negative and significant. The coefficient implies that holding all factors constant, an increase in the current debt-GDP ratio by 1 percent leads to a reduction in the level of private investments by 0.05 percent This results are similar to the findings by Sasaki (2009), Akram (2011) and Balassone et al. (2011) who found that increase in current debt stock has a negative effect on investments in Indonesia, Pakistan and Italy respectively. The increase in debt means that the government will incur more interest payments for the debt. This discourages private investors from investing since they fear that the government will tax them more so as to pay for these interest payments. This is referred to as the debt crowding out effect.

The coefficient for domestic credit to the private sector was positive and significant at a 1 percent level of significance. If the domestic credit to the private sector increases by 1 percent, private investments will go up by 0.33 percent, holding all factors constant. A negative and significant relationship was found to exist between real interest rates and private investments at a 1 percent level of significance as shown by the coefficient. An increase in real interest rates by 1 percent reduces private investments by 0.29 percent, ceteris paribus. This is attributed to the crowding out effect. This result is similar to findings by Were (2001), Maji et al. (2013) and Barik (2013) in Kenya, Nigeria and India, respectively.

Private investments lagged once were found to have a positive and significant coefficient at a 1 percent level of significance. Ceteris paribus, a 1 percent increase in the previous year's level of private investments increase the current year's level of private investments by 0.79 percent. The coefficient for trade was positive and significant at a 5 percent level of significance. Ceteris paribus, private investments go up by 0.11 percent when trade goes up by 1 percent. Barik (2013) also found that openness to trade has a positive effect on investments in India. The coefficients for inflation, GDP growth, debt service and the constant were found to have a statistically insignificant relationship to private investments.

The p-value of the F-statistic for is lower than 0.05 indicating that at least one or more of the coefficients estimated in the model are not equal to zero. The adjusted R^2 for the private investments equation indicates that 73.67 percent of the changes in private investments are explained by the variables in the model.

3. Summary, conclusions and policy implications

3.1. Summary

This study was informed by the consistent rising of the public debt levels while the private investments have remained lower than what is stipulated to make Kenya a newly industrializing middle-income economy by the year 2030. This is despite various measures being undertaken to regulate the debt levels and promote private investments. This study was therefore carried out to find out the effect of public debt on private investments and economic growth in Kenya.

Data for all the variables were collected for the years 1980 to 2013. The data was obtained from the Kenya economic surveys and The World Bank publications. Granger-causality analysis was used determine the existence and direction of granger causality between public debt and private investments. The study used ordinary least squares estimation to find out the effect of public debt on private investments.

After estimation, the coefficients for debt-GDP ratio and real interest rates were found to have a negative and significant relationship to private investments. Domestic credit to private sector, private investments lagged once and trade were found to have a positive and significant relationship with private investment as indicated by their coefficients.

3.2. Conclusions

Debt plays a crucial role in the determination of the level of private as shown by the presence of unidirectional granger causality between debt-GDP ratio and private investments. Debt-GDP ratio granger causes private investments meaning that public debt levels have predictive power on the level of private investments.

Debt has a negative effect on private investments. This implies that when public debt is high, the level of private investment goes down. When public debt is used for productive purposes, it leads to growth in GDP as shown by the positive coefficient. Domestic credit to private sector, private investments lagged once and trade were also found to play a pivotal role in promoting private investments while debt-GDP ratio and real interest rates were found to cause a decline in private investments.

3.3. Policy implications

The study shows that debt-GDP growth granger causes private investments implying that debt plays a great role in determining the amount of investments undertaken by the private sector in Kenya.

Debt-GDP ratio was found to have a negative effect on private investments. This shows the existence of debt overhang effects. An increase in government borrowing leads to a reduction of the resources available to the private sector. This also means that the private sector will be taxed more to pay for interest payments on debt thus discouraging private investments. The government should therefore decrease their level of borrowing in order to promote private investments.

The government however cannot completely refrain from borrowing. Therefore, an optimal debt-GDP ratio should be determined that is not detrimental to the growth of private investment levels while at the same time increasing public investments and fuelling economic growth. According to Rother and Checherita (2010), a debt-GDP ratio that is below 90-100% has a positive impact on economic growth if the debt is used to finance public investments. This result however was relevant for 12 countries sampled in the Euro area. An optimal debt level for should therefore be determined for Kenya to ensure that it does not affect private investments negatively.

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