Do Budget Deficit Crowds Out Private Investment: A Case of Tanzanian Economy

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Abstract

The existing high budget deficit in Tanzanian economy has created an immense concern among economic policy analysts. The study inspects whether budget deficits crowd out or crowd in private investment in Tanzania, using annual data for the period from 1970 to 2012. Using the Johansen cointegration test advocates there is at least one cointegration vector among these variables. Given such condition, the application vector error correction model (VEC) became inevitable as it presents additional and superior information in relation to other data production processes. The results indicate a close long–term connection between private investment, and other variables included in the study. Results suggest that budget deficits considerably crowds out private investment. The study advocates that government should readdress its fiscal policy that would support the private investors. The government should discourage high government expenditures and maintaining a low fiscal deficit also capital market should be used to finance budget deficit.

Keywords: budget deficits, cointegration, private investment, VECM

1. Introduction

Tanzania is among the world's deprived countries in terms of gross national product in relation to population; however, it has recently attained high growth mainly on mining industry and tourist activities. The Tanzania economy relies entirely on agriculture that accounts for more than one-quarter of GDP, provides 85% of goods send overseas, and provides work for about 80% of the workforce. The country also embarked on financial sector reforms which have assisted in fostering private-sector growth and investment in the country (Economic Survey, 2012).

Persistent government budget deficits and swelling debt has become the foremost subject matter in both developed and developing countries. The situation has compelled the development of more theoretical and empirical literature that examines the association linking budget deficit and macroeconomic variables (Saleh, 2003).

Among others includes Premchand (1984), who assert that funding the budget deficit by making use of loan from the public entails a boost up on the supply of government bonds. In attracting the buyers of these government bonds, the government presents them at a relative cheaper price thus leading to the rise in the level of interest rates. The rise in interest rates dampens the issue of private bonds, private investment, and private spending. Generally, the government option contributes to the financial crowding out of the private sector.

Economists have a common belief that budget deficits are harmful for the total functioning of the economy. Easterly and Rebelo (1993) argues that fiscal deficits have been held responsible for the diversity of scrape that weighed down developing and industrial countries. These scrape include over indebtedness, high inflation and meagre investment and low level of economic growth. The dynamic force behind economic policymaking falls within the scope of macroeconomic objectives (Chowdhury & Hossain, 1998).

There is, however, quite a remarkable difference between the modern theory of investment and the models that have been chosen for developing countries. This difference is the result of a multiplicity of causes, both analytical and pragmatic. It includes causes such as institutional and structural factors that exist in most developing countries such as the nonexistence of well-performing financial markets, the reasonably involvement of the government in the capital formation, deformations produced by foreign exchange restrictions, and extra

market deficiencies/imperfections.

Most developing countries are characterized by undeveloped capital markets as a result the funding of private investment being confined to the use of retained profits, bank credit, and overseas loans. Hence, the flows of bank credit towards the private sector have quantitatively been the most imperative source of funding the private sector. Therefore, resulting to the rise in actual credit to the private sector which generally encourages actual private investment and rolling over bank credits that adequately extend the maturity of the debt.

There is a well-accepted proposition that in developing countries private and public investment are interrelated though there is considerable vagueness about whether, on balance, public sector investment lifts up or down private investment. The main inspiration in the proposition is that public sector investment dampens the other sector when exploits scant physical and financial resources which would have been obtainable to the private sector, or if it creates goods and services which tend to be substitute of the outputs by the private sector.

Moreover, the funding of public sector investment-whether through government revenue, issuance of debt, or inflation will deteriorate the resources accessible to the private sector and consequently slowing down private investment activity. Public investment that is linked to transport and communication, and the provision of public goods do clearly creates conducive environment to private investment, such investment enhances the expansion private investment.

1.1 Private Investment Trends in Tanzania

The government of Tanzania has created an enabling policy environment that has been more conducive for private sector growth and sustainable economic development in the recent years. The nation has moved from its earlier dependence on direct mechanisms (ujamaa policies) to primarily market-oriented settings, mainly with respect to investment, the external sector, monetary management and agricultural marketing arrangements. The foreign exchange system has been entirely liberalized for payments and transfers for current worldwide commerce or business (URT, 1996).

Remarkable improvement has been made with the progress on a more market-oriented financial system with the liberalization of interest rates. A significant number of both internal and external banks and non-banking organization have been set up so as to offer short, medium and long term loans to investors. Local and overseas investors are attracted to launch development banks for venture capital and lease financing so as to match and enable the country's current speed with regard to investment and output efficiency. Moreover, in enhancing conducive environment for private investment, the tax regime is being reviewed with the view to make it more rational, simple and equitable (URT, 1996).

Consistent with ongoing transformation, the government of Tanzania has redefined the role of the state to that of policy maker. Nevertheless, the government has identified its responsibility of enabling the private sector and other economic agents by vigorously and efficiently investing in productive and commercial activities. The Government executes this mainly through setting in position supportive policies and provision of attractive atmosphere for domestic and foreign investment as supported by OECD report (OECD, 2013).

The National Investment Promotion Policy of 1996 opened almost all sectors to foreign and private participation. The Tanzania Investment Act of 1997 provides the backbone of the legal investment regime by making provisions that enables attractive environment conditions. It includes separate legislation for investment in mining and petroleum and also the introduction of Export Processing and Special Economic Zones (EPZs and SEZs). The 1997 Act also establishes the Tanzania Investment Centre (TIC) as a 'one-stop' office for investors. TIC provides information about the land acquisition, taxes, and investment incentives in priority sectors and spearheads investment promotion and facilitation efforts in the country (OECD, 2013).

Furthermore, the private sector itself has developed institutional mechanisms of interactions and consultations with the government through umbrella organisation such as the National Investment Steering Committee (NISC, established in 2000 under chairmanship of the President), and the Tanzania National Business Council. TNBC was set up in 2001 as the highest consultative organ between the private sector and the government (OECD, 2013).

Nonetheless, country's present plans for economic reform put into greater emphasis the significance of attracting private involvement in the economy. The importance of private sector is stressed out in the Second National Strategy for Growth and Reduction in Poverty (NSGRP adopted 2010) or MKUKUTA II (for the mainland), presents an equipped framework for attaining the MDGs and Tanzania's Development Vision 2025 which aspires to transform Tanzania to a middle-income nation. It stresses the recognition of the role of private sector in enhancing economic growth and spots agriculture as one of the fundamental engine for sustainable economic

growth along with others (Economic Survey, 2012).

In attaining the millennium development goals, since 2011 MKUKUTA works in parallel with the National Five Year Development Plan I (FYDP 2011/12 – 2015/16), the first of a series of three five-year plans that will take effort to address MKUKUTA implementation challenges. The key function of FYDP I among other include boosting up the position of the private sector in economic growth, through improvement of the business environment as well as investing in human resource and infrastructure development (Economic Survey, 2012).

A feasible private sector is essential as an economic agent towards economic growth. The public sector must provide at a controllable economic outlay, the needed transport and communication, and the general setting favorable to remarkable private investment is essential. Exclusion of government role, the private sector is unexpected to create its complete role to growth. With existence of unproductive government, or one with policies that considerably deform private sector investment interest, such a government will worsen both the private and public sector as argued in Kilindo and Moshi (1999).

Most developing countries such as Tanzania have immature capital market thus the funding of private sector investment depends entirely on retained profits, bank credit, and foreign sources. Among the three, bank credit creates an important source of fund for financing the private sector, Mjema (1994). Also, the study by Mjema (1994), and Lipumba and Noni (1993) among others, emphasize the contribution of foreign resources in the home investment in particularly.

Surveillance on development of credit to the private sector shows that the composition of private investment decreased as the credit to this sector was restricted. For example, between 1967 and 1975 the share of bank credit (National Bank of Commerce) to the private sector decreased from 95.4% to 11.7%, creating a decrease by 83.1%. Studies points out the existence direct relationship between credit to private and expansion of private as well the growth of the economy (Kilindo & Moshi, 1999).

1.2 Budget Deficits Trends in Tanzania

The country experience tremendous budget particularly during the war with Idd Amin of Uganda in 1978/79 took a financial and social toll in Tanzania economy. The war is estimated to cost about USD 500 million, this led to high budget deficit of over 10 percent in 1980's (Kilindo, 1993). Fiscal deficits went up sharply in the 1970s from less than 10 percent to 15.3 percent in 1981 it was largely contributed by government expenditure which averaged above 30 percent of GDP between 1975 and 1985.

Moreover in 1980s, most developing countries especially those of Africa started with large fiscal imbalances from fluctuations in GDP, high government spending with declining trade tax revenue because of the collapse of commodity prices during the period. These economic problems lead to increased budget deficit and public debt levels. Moreover, the two oil price shocks in the mid-1970s and 1980s made the economies of the non-oil exporting countries suffer much with the rise in oil prices.

The budget of the government of Tanzania has always been accompanied with deficit (deficit-driven). For example in the five-year period ending on 30th June 1995, the government budget deficit ranged from 17% to 34 % of total government expenditure (IMF, 1996). The condition is essentially greatly poor when the calculation of the budget deficit does not include grants as part of government revenue.

According to the central bank (Bank of Tanzania), the government has been constantly pursuing an expansionary fiscal policy with exclusion of the year's 1997, 1998 and 2000. The key reason for the expansionary fiscal stance was increasing force from the public looking for faster economic growth. The government reacted by increasing its spending on development projects and infrastructure improvements. However, the resulting macroeconomic instability (high inflation rate and high-interest rates) tight fiscal discipline came into action.

The fiscal deficit has continued to rise in 2000s while revenue does not increase significantly; both public spending and financial deficit have also continued to expand. The fiscal deficit (after grants) reached 1939624 million TZS in 2009/10 from 38757 million TZS in 2001/02 (URT, 2011) as a result of excessive expenditure due to the implementation of the objectives of the National Development Vision 2025 and reduction of poverty (NSGRP). In addition, expansion of fiscal deficit resulted from the economic distress of the recent global financial crisis (2008) that led to a slower growth in taxable production activities in the economy as indicated in the economic survey, 2012.

2. Literature Review

2.1 Theoretical Framework

Budget Deficits, Crowding in and Crowding out Effects: Schools of Thoughts

There exist opposing theoretical links in explaining the relationship between budget deficits and private investment that include various distinctive schools of thought; include Neoclassical, Keynesian, and Ricardian equivalence.

The Neoclassical school believes individuals planning their consumption over their entire life cycle. By shifting taxes to future generations, budget deficits increase current consumption. The Neoclassical school argues that increased consumption implies a decrease in saving. Interest rates must rise to bring equilibrium in the capital markets. Thus, the rise in interest leads to a decline in private investment (Saleh, 2003).

Also, there are Keynesians who provide a counter argument to the crowd in effect by making reference to the expansionary effects of budget deficits. They argue that usually budget deficits result in an increase in domestic production, which makes private investors more optimistic about the future course of the economy resulting in them were investing more. The rise in private investment due expansionary budget deficit is known as the "crowding in" effect (Saleh, 2003).

Ricardian equivalence approach advanced by Barro (1989) who argues that an increase in budget deficits, say due to an increase in government spending, must be paid for either now or later, with the total present value of receipts fixed by the total present value of spending. Thus, a cut in today's taxes must be matched by an increase in future taxes, leaving interest rates, and thus private investment, unchanged (Saleh, 2003).

Given the notable attribute by every scholar mentioned above, one can choose any of the school of thought as all explore certain reality pertain the role/impact of deficit in an economy.

2.2 Empirical Literature

The study by Blejar and Khan (1984) in Ivory Coast, Thailand and Argentina complements the results of other scholars. The study findings revealed that public deficit contain a contrary outcome on private investment in all the nations mentioned. However, the effect appeared to be stronger in Thailand but weak in Ivory Coast, the study also found that deficit financing have a strong depressing outcome in Argentina. The study concluded that public expenditure or consumption in the above countries crowds out private investment.

Other studies include Cebula (1987), who investigated the relationship between federal deficits and real rate of interest in the United States using instrumental variables. The findings revealed that budget deficits forces interest rates to go up as a result discourages the levels (crowding out) of private investment.

Moreover, Karras (1994) the study explores the outcome of budget deficits on money growth, inflation, investment, and real output growth. The study points out that deficit do not lead to price increase through financial growth. Deficits are not positively associated with the rate of expansion of real amount produced also increased deficits appeared to slow down investment regularly after one or two years.

Furthermore, Bahmani (1999) examined the long-run association between U.S. federal real budget deficits and real fixed investment employing quarterly data over the 1947-1999 periods. The practical outcome showed that real budget deficits crowds in real investment. The result supports the Keynesian school of thought who argues that for the expansionary results of budget deficits, by increasing the size of domestic production opportunities, "crowd- in" private investment.

The study by Moshi and Kilindo (1999), investigated the impacts of state's policy on macroeconomic variables particularly on private investment in Tanzania. The results obtained concluded that public expenditure especially on transport and communication exerts a positive and considerable effect on private investment. Furthermore, the study affirmed that foreign exchange availability positively affects private investment.

The study by Knot and de Haan (1999) in Germany and Modeste (2000) in Jamaica, on the correlation involving budget deficit and interest rate, both studies supports their positive relationship. Despite the distinct methods that were employed in their study and the economic levels of the respective countries. The most important inference of these studies is that, the extent that deficit pushes up interest rates can result "crowding out" of private investment.

Lastly and Biza et al. (2013) investigated the effect budget deficits on private investment in South Africa, employing quarterly data that include the period 1994 to 2009. The study used a pragmatic representation that linked private investment to the variables that indicated connection to it and also used to evaluate the quantitative outcome of deficits on private investment. The outcome advocates that deficits considerably slow down private investment as confirmed by the earlier studies.

The studies reviewed demonstrate that the link between budget deficits and investment is vague. However, the writings have pointed out a number of considerable variables that are indispensable to investigate the association

between budget deficits and private investment in the Tanzanian economy. According to review made, economic variables such as budget deficit, interest rates, change in real gross domestic product and inflation are appropriate and significant to be included in the investigation.

3. Methodology

The study works out to investigate whether the budget deficit has harmful effects on private investment. The study uses the regression analysis to assess the correlation between deficit financing and private sector investment.

3.1 Model Specification

The study has taken on a model developed by Blanchard and Perotti (2002) with slight modification on independent variables. For analytical suitability, some variables are expressed either in ratio or percentage. The model is specified as follows:

$$PI=f\{BD,\ Rate,\ Y\ (GDP),\ INF,\ EXCH\} \tag{1}$$

Where: PI is private investment, BD is budget deficits, Rate is interest rates, Y(GDP) is the growth rate of GDP, EXCH is exchange rate, and INFL is inflation. For analytical convenience, the variables are all expressed natural logarithm form. It takes the following function form, equation (1) becomes:

$$PI_t = \beta_0 + \beta_1 BD_t + \beta_2 Rate_t + \beta_3 Y(GDP)_t + \beta_4 INF_t + \beta_5 EXCH_t + \varepsilon_t \tag{2}$$

β_o is the constant term, "t" is the time trend, and "ε" is the random error term.

3.2 Data Sources

The study employs secondary data from various institutions; the data collected include; private investment, inflation, budget deficit, exchange rate, interest rate and changes in GDP growth rates. The data collected ranges from the year 1970 to 2012; the study does not involve sampling since it involves the use of secondary data. Data are collected from Ministry of Finance and Economic Affairs of Tanzania, Economic survey of various years published by National Bureau of Statistics (NBS), World Economic Outlook database and Bank of Tanzania Economic Bulletins and various reports. The analysis involves the following stages;

3.3 Unit Root Test

Unit root test encompasses tracing the order of integration of the individual series under investigation. There are some processes that have been developed for the tracing of the order of integration. The Augmented Dickey-Fuller (ADF) test of 1981 and the Phillips and Perron (1988) are the highly accepted. Augmented Dickey-Fuller test works by relying on not accepting a null hypothesis of the unit root (the series are non-stationary) in support of the alternative hypotheses of stationarity. The Augmented Dickey-Fuller (ADF) Test takes the subsequent formulation; with a drift and trend model specification representation;

$$\Delta P_t = \alpha_o + \gamma P_{t-1} + \alpha_2 t + \sum_{i=1}^{n} \beta_i \Delta P_{t-1} + \varepsilon_t \tag{3}$$

Where, α_o is drift component, and $\alpha_2 t$ is trend component.

β_i Is a measure of lag length and γ is a measure of unit root

The Phillips and Perron test takes the following formulation;

$$\Delta P_t = \alpha_o + \alpha_t P_{t-1} + \varepsilon_t \tag{4}$$

3.4 Cointegration Test

Cointegration test includes tracing the existence or absence of cointegration between the progressions of the identical order of integration in the course of making a cointegration equation. The fundamental notion following cointegration is that if, in the long-run, two or more sequence moves together jointly, despite the fact that the sequence themselves are trended, the variation involved is invariable. The absence of cointegration implies that such variables do not contain long-run relationship which signifies that the variables drift randomly distant away apart each other (Dickey et al., 1991). Also, the study employs the maximum likelihood test processes launched by Johansen and Juselius (1990) and Johansen (1991).

To find out the number of co-integrating vectors, Johansen (1988, 1989) and Johansen and Juselius (1990) recommended two statistic tests, the first one is the trace test (trace). It checks the null hypothesis that the amount of the distinctive co-integrating vector is less than or equal to q versus a general unrestricted alternatives q = r.

The Second statistical test is the Maximum Eigen value test; it deals with a check of the null hypothesis that

there is r of co-integrating vectors versus the alternative that r + 1 co-integrating vector.

3.5 The Error Correction Model

The existence of cointegration of the variables under consideration, the next step necessitates the structuring of error correction mechanism to dynamic model correlation. The rationale of the error correction model is to specify the pace of alteration from the short-run equilibrium to the long-run equilibrium condition. When the regression results provides the greater the coefficient of the parameter, the high the pace of alteration of the model from the short-run to the long-run and the opposite is correct.

The error correction model (ECM) takes the following formulation:

$$\Delta P_t = \alpha_o + \sum_{i=1}^{n} \alpha_{1i} \Delta R_{t-i} + \sum_{i=1}^{n} \alpha_{2i} \Delta bd_{t-i} + \sum_{i=1}^{n} \alpha_{3i} \Delta Y(GDP)_{t-i} + \sum_{i=1}^{n} \alpha_{4i} \Delta Inf_{t-i} + \sum_{i=1}^{n} \alpha_{5i} \Delta Exch_{t-1} + \theta_i \hat{\varepsilon}_{t-1} + U_t \quad (5)$$

Δ is the difference operator

θ_i is called the adjustment parameters, measures the speed of how fast the equation will go back to the equilibrium, and usually take the negative value ($-1 < \theta_i \leq 0$). It is negative since disequilibrium declines overtime. ε_t is a white noise error term, and $\hat{\varepsilon}_{t-1}$ is the lagged value of the error term. A significant coefficient entails that past equilibrium errors determines the current outcomes.

4. Estimation and Interpretation of Results

4.1 Unit Root Test

The result in Table 1 indicates that every variable in the model were not stationary in their levels. The presence of unit root has been traced by relating the observed values of both the ADF and PP test statistics with the critical values of the test statistics at the 1%, 5% and 10% level of significance. The regression output as of the Table 1 presents well-built confirmation of the existence of nonstationarity of the variables at their levels in trend and intercept.

Every variable has been differenced once using the ADF and PP test; the results are as shown in Table 1. The outcome indicated every variable being tested is stationary after being differenced once. Hence, the results propose that our variables are integrated of order one *I(1)*.

Table 1. Presents unit root test results

VARIABLES	At Levels		At First Difference	
	ADF	PP	ADF	PP
BD	-0.051(0.9541)	0.754(0.9909)	-6.361(0.0000)	-6.585(0.0000)
Rate	-1.450(0.5583)	-1.659(0.4522)	-3.738(0.0036)	-3.637(0.0051)
INFL.	-2.287(0.1763)	-2.201(0.2060)	-8.277(0.0000)	-8.413(0.0000)
EXCH	2.389(0.9990)	2.800(1.0000)	-6.247(0.0000)	-6.300(0.0000)
(Y)GDP	-2.896(0.0458)	-2.763(0.0637)	-8.857(0.0000)	-10.465(0.0000)
PRIV	0.481(0.9843)	1.562(0.9977)	-9.425(0.0000)	-9.928(0.0000)

Critical values at levels are; -3.634 at 1%, -2.952 at 5% and -2.610 at 10%. Critical values at first difference are; -3.641 at 1%, -2.955 at 5% and -2.611 at 10%. The bracket indicates their respective probabilities.

4.2 Cointegration Rank Test

After confirming the presence stationarity of the variables at *I(1),* the study continues to investigate the existence or absence of cointegration between the variables. The occurrence of a cointegration association implies that variables in the model have a common trend and long-run equilibrium as recommended theoretically.

Table 2 shows that trace statistic point out (1) cointegration and maximum Eigen value statistic point out (2) cointegration at the 5 percent level of significance. These results suggest the existence of long-run association among the variables analyzed.

Table 2a. Presents Johansen test results for cointegration

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.668908	134.5456	107.3466	0.0003
At most 1 *	0.610767	89.22588	79.34145	0.0074
At most 2	0.434182	50.53924	55.24578	0.1219
At most 3	0.326297	27.19047	35.01090	0.2668
At most 4	0.157366	10.99685	18.39771	0.3894
At most 5 *	0.092438	3.976740	3.841466	0.0461

Max-Eigen value test indicates 2 cointegratingeqn(s) at the 0.05 level.

* denotes rejection of the hypothesis at the 0.05 level.

**MacKinnon-Haug-Michelis (1999) p-values.

Table 2b. Presents Johansen test results for cointegration

Unrestricted Cointegration Rank Test (Maximum Eigen Value)				
Hypothesized No. Of CE(S)	Eigen Value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.668908	45.31973	43.41977	0.0307
At Most 1 *	0.610767	38.68664	37.16359	0.0332
At Most 2	0.434182	23.34877	30.81507	0.3082
At Most 3	0.326297	16.19362	24.25202	0.3978
At Most 4	0.157366	7.020110	17.14769	0.7108
At Most 5 *	0.092438	3.976740	3.841466	0.0461

Max-Eigen value test indicates 2 cointegratingeqn(s) at the 0.05 level.

* denotes rejection of the hypothesis at the 0.05 level.

**MacKinnon-Haug-Michelis (1999) p-values.

4.3 Error Correction Results Analysis

The result from error correction analysis gives an error correction term that demonstrates a statistically significant coefficient with the correct negative sign as requisite for dynamic steadiness. The results accord greatly with the soundness of an equilibrium association among the variables in the cointegrating equation. The error correction term (ECT-1) has expected a negative sign and significant at 1 percent level of significance. Its magnitude reports the speed for adjustment of around 48.4 percent, which is relatively high. The result implies that, about 48.4 percent of the deviations from the long-run equilibrium are corrected in one period (Table 3). The significance of error correction term substantiates the presence of cointegration between the dependent variable and the explanatory variables. The mechanism drives the variables to their long-run equilibrium relationship (Verbeek, 2008). The application of error correction mechanism drives the short-run dynamics of the series. The mechanism generates a force that pulls the equilibrium error back towards zero; the error correction model does this exactly.

Table 3. Presents error correction mechanism results

Included variable: Dependent variable: Priv.				
Variable	Coefficient	Standard error	t-statistic	Probability
ECT(-1)	-.4820095	.1334514	-3.61	0.001
ΔBd(-1)	-.0305764	.1723458	-0.18	0.860
ΔRate(-1)	.026107	.0707759	0.37	0.715
Δ (Y)GDP(-1)	.11537	.1270694	0.91	0.370
ΔInfl.(-1)	.0030376	.0368624	0.08	0.935
ΔExch(-1)	-.003173	.0041706	-0.76	0.452
Constant	.5906276	.285389	2.07	0.046

4.4 Vector Error Correction Analysis

The vector error correction (VEC) model is a special case of the vector autoregression (VAR) for variables that are stationary in their differencing (i.e. I(1)). VEC takes into consideration any cointegrating relationships among the variables. VEC requirement limits the long-run manners of the explained variables to join to their cointegrating association at the same time permitting a broad variation of short-run dynamics (Wooldridge, 2000).

Table 5 shows that equation one is significant at 5 percent and coefficient of Error Correction Term (ECT) is negative as required, indicating the existence of dynamic stability. The negative and statistically significant values of the coefficients of the error correction terms from the analysis indicate the presence of long-run causality.

Vector Error Correction Estimates Results

Cointegration equation:

$$Priv = 4.061067 - 0.0991Bd - 0.3070Rate + 0.0171Exch + 0.1289Infl. + 0.372437 Y(GDP)$$

| | (0.01735) | (0.08717) | (0.00063) | (0.01504) | (0.05326) |
| | [5.71271] | [3.52135] | [-27.3070] | [-8.57285] | [-6.99263] |

Table 5. Presents vector error correction estimates

Error Correction	D(PRIV)	D(BD)	D(RATE)	D(EXCH)	D(INFL)	D(YGDP)
CointEq1		-0.680579	-0.659367	-24.26980	1.508397	0.187418
	-0.095936	(0.10864)	(0.76834)	(10.1784)	(1.88060)	(0.41491)
	(0.25688)					
D(PRIV(-1))		0.795103	0.484535	16.80945	-0.592676	-0.238765
	-0.676789	(0.08537)	(0.60377)	(7.99832)	(1.47780)	(0.32604)
	(0.20186)					
D(PRIV(-2))		0.869142	0.317560	28.89649	-0.854203	-0.079832
	-0.728899	(0.08884)	(0.62832)	(8.32355)	(1.53789)	(0.33930)
	(0.21006)					
D(PRIV(-3))	-0.509982	0.753337	-0.173835	-1.432342	-1.464055	0.114160
	(0.20124)	(0.08511)	(0.60192)	(7.97381)	(1.47327)	(0.32504)
D(BD(-1))	0.103774	-0.142347	-0.158737	1.430532	0.657244	-0.152980
	(0.23957)	(0.10132)	(0.71658)	(9.49268)	(1.75390)	(0.38696)
D(BD(-2))	-0.607494	-0.243263	0.531165	1.445456	1.015098	-0.301705
	(0.17177)	(0.07265)	(0.51380)	(6.80637)	(1.25757)	(0.27745)
D(BD(-3))	0.186025	-0.242075	-0.331733	-17.86533	1.226065	-0.076592
	(0.26334)	(0.11138)	(0.78769)	(10.4348)	(1.92796)	(0.42536)
D(RATE(-1))	0.054478	0.022103	0.554100	-0.162462	0.137625	0.227744
	(0.07915)	(0.03347)	(0.23673)	(3.13605)	(0.57943)	(0.12784)
D(RATE(-2))	-0.137883	-0.002565	-0.118311	5.004398	-0.271299	-0.299505
	(0.09531)	(0.04031)	(0.28507)	(3.77645)	(0.69775)	(0.15394)
D(RATE(-3))	0.037892	0.037577	-0.226449	-3.166942	0.256895	0.185822
	(0.07411)	(0.03135)	(0.22168)	(2.93668)	(0.54259)	(0.11971)

D(EXCH(-1))	0.020320	-0.010265	-0.007358	-0.592328	0.059472	0.002575
	(0.00890)	(0.00377)	(0.02663)	(0.35275)	(0.06518)	(0.01438)
D(EXCH(-2))	0.006232	-0.012592	-0.008864	0.021639	-0.010312	0.012953
	(0.00620)	(0.00262)	(0.01854)	(0.24558)	(0.04537)	(0.01001)
D(EXCH(-3))	0.016881	-0.014437	-0.031922	-0.269792	-0.014228	0.010156
	(0.00566)	(0.00240)	(0.01694)	(0.22441)	(0.04146)	(0.00915)
D(INFL(-1))	0.005443	-0.036616	-0.001975	-4.069083	-0.240407	0.090377
	(0.03820)	(0.01616)	(0.11426)	(1.51369)	(0.27968)	(0.06170)
D(INFL(-2))	0.004031	-0.013309	-0.067411	-2.953962	-0.020753	-0.024775
	(0.03861)	(0.01633)	(0.11549)	(1.52995)	(0.28268)	(0.06237)
D(INFL(-3))	0.028051	-0.013664	0.010746	-1.869389	0.090583	0.064183
	(0.03736)	(0.01580)	(0.11175)	(1.48040)	(0.27352)	(0.06035)
D(YGDP(-1))	0.016708	-0.341414	-0.257894	-11.29102	0.120595	-0.105260
	(0.18201)	(0.07698)	(0.54440)	(7.21183)	(1.33248)	(0.29398)
D(YGDP(-2))	-0.029491	-0.207320	-0.338049	-6.917529	-0.195835	-0.402173
	(0.14563)	(0.06159)	(0.43559)	(5.77031)	(1.06614)	(0.23522)
D(YGDP(-3))	0.024816	-0.207221	-0.136238	-3.690237	-0.621233	0.007776
	(0.13223)	(0.05592)	(0.39550)	(5.23933)	(0.96804)	(0.21357)
C	-0.101078	0.698109	1.532434	55.54750	-0.790252	-0.598405
	(0.41657)	(0.17618)	(1.24600)	(16.5060)	(3.04971)	(0.67284)
R-squared	0.781113	0.947675	0.560625	0.714176	0.339670	0.534533
Adj. R-squared	0.562227	0.895351	0.121250	0.428352	-0.320661	0.069067
S.E. equation	1.091394	0.461586	3.264480	43.24532	7.990161	1.762838
F-statistic	3.568575	18.11149	1.275959	2.498658	0.514394	1.148381
Akaike AIC	3.319306	1.598223	5.510596	10.67817	7.300817	4.278245
Schwarz SC	4.172415	2.451332	6.363705	11.53128	8.153926	5.131353

Akaike information criterion	31.30197
Schwarz criterion	36.67655

Standard error is in ( ).

5. Conclusion and Recommendations

The study has examined if budget deficits crowd out private investments in the economy of Tanzania for the time under consideration, 1970 to 2012. All the variables present a long-run correlation against private investment. Augmented budget deficit and interest lending rate pares down (depresses) private investments in the long-run. On contrary other variables like GDP growth rates, inflation rates and exchange rates positively impacts on private investment as estimated from cointegration equation and ordinary least square.

The results entail that when the economy constantly exhibits fiscal deficits, private investment declines, thus leading to crowding out. It trails as of the results that private investment is mostly explained together by real and nominal variables in the long-run. Hence, most part of the result concurs with hypothetical forecasting and

empirical conclusions that assert fiscal deficits resulting from public spending crowds out private investment.

The result advocates the capability of the monetary authority to persuade the variation in private investment. The central bank may stabilize the economy by utilizing strict monetary policies that supports the attraction as well the survival of private investment also working upon other essentials. However, the harmonization of monetary and fiscal policies is imperative for efficient policy reaction to the crowding out effect as escalating interest rates would also lead to increased pressure on expenditure. Moreover, GDP growth rates and exchange rates contribute to strong economic performance whereby government policies should be redirected in their favor.

The government should involve in mobilizing local savings and establishing the environment which promotes higher turn up of local and foreign private investments that are eventually significant component for economic growth. Indeed, an increased level of local private investment contributes to catching the attention of extra foreign investment too. However, the level of international investment to developing countries has risen considerably in the preceding 20 years, despite the size of local investment (World Bank, 2004).

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