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Fiscal Policy Effects on Private Investment In Zimbabwe

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Abstract

The paper examined the effects of fiscal policy on private investment in Zimbabwe. In particular the paper investigated the components of fiscal policy that could have effected growth in private investment. By estimating a modified accelerator investment model to establish the relationship between private investment and fiscal policy variables. Secondary data, time series, was collected from World Bank, IMF and RBZ data banks. The Johansen Cointegration tests was employed to analyze data for the existence of a long-run relationship between private investment and fiscal policy variables. The Vector Error Correction Model (VECM) was performed to determine the economic relationship between the variables. The findings revealed that value added tax has a positive effect on private investment. Budget deficit, development government expenditure and excise duty and import tax proved to have an adverse relationship with private investment. The study recommended expansion of government spending on capital, reduction of budget deficits and encouragement of public private partnerships.

Key words: Fiscal Policy, Private Investment, VECM, Zimbabwe

1. Introduction

In recent years, most governments in developing nations pursued Investment as a key driver for economic growth. Agu (2015) described investment as an outlay of money for future use. It is through investment that an economy improves the lively-hoods of its citizens. Investment provides capacity to employment creation, capital accumulation and output growth. Economists and policy makers noted, the importance of investment in achieving growth. Investment can take place in the form of public or private investments. Frimpong and Marbuah (2010) explained the key focal point for growth as private investment. Private investment is that part of economic resources owned and utilized by the private individuals and groups to attain private economic gain though market-based decision making (Central Bank of Lesotho, 2009). Private investment ensure efficient allocation of resources and employment of more productive ways in the production of goods and services. As noted by Njuru (2012) in Kenya, developing economies like Zimbabwe need to encourage private investment to reach sustainable growth and development. The European

Commission (2014) supported the idea of efficient utilization of economic resources through private sector investment to meet growth.

The available economic literature on what policy to implement to attain sustainable growth and influence investment is much more confusing as economists do not to reach a consensus. Other economists supports increased government expenditure to achieve growth whist others believe in supply side policies. Therefore, in low developed nations a substantial amount of fiscal deficits are incurred in a bid to stimulate economic activities. In the case of Zimbabwe, the relapse of macroeconomic instability since 2013 result in a rise in domestic debt. According to ZIMSTAT (2019) report show that economic growth rate reduced from 10.6% to 0.8% in 2012-2016 period and later rose to 4.8% in 2018. Fiscal deficit rose from 7.8% in 2016 to 13.41% of GDP in 2017. The Zimbabwean government in 2016 started borrowing in the public sector to finance recurrent expenditure requirements. Borrowing by the government in the public sector mopped out large sums of funds that could have been made available by banks to the private investment as loanable capital. Thus, there is a crowding out effect on private investment by the government borrowing locally.

However, this poses the questions on what effects are brought by government fiscal actions on private investment and growth of the economy. If policymakers in Zimbabwe develop policies that supports private investment, investment tends to have a greater multiplier effect on economy due to presence of idle mineral and land resources. Thus a little attention has been put forward when analyzing movements in private investment in a response to macroeconomic developments. Nyarota et al (2015) investigated various policies fostered by the Zimbabwean government to reach sustainable growth and found out that the policies were not efficient without targeting private investment. Thus, the Zimbabwean government need focus on measures that put much attention on private investment to revive the Zimbabwean economy. Only investment can provide the long-run development of an economy.

The main purpose of this paper is to examine the effects of fiscal policy on private investment in Zimbabwe for a period 2005 to 2018. Excluding the introduction given in the section above, the paper is organized as follows: Section 2 gives the empirical and theoretical literature on fiscal policy and private investment. Section 3 presents methodology, data sources and description of variables. Section 4 presents the findings and interpretation of the results. Conclusions and recommendations are given in the final section.

2. Literature Review

Looking at the recommendations given by the IMF and the World Bank on fiscal policy to developing nations through Structural adjustment programmes in the 1980s, we see the importance of private investment to meet growth. The programmes were developed with the aim to reduce government deficits to stimulate private investments. Furthermore, other studies explained that fiscal policy can achieve changes in economic growth by influencing private investments.

2.1 Theoretical Literature

Hermes and Lensink (2001) described theoretical literature on fiscal policy and private investment as well explained by the evolution of modern endogenous growth models by Barro (1990), Barro and Sala-i-Martin (1992), King and

Rebelo (1990) and Rebelo (1991). The endogenous growth approach diverge from the neoclassical growth models that assume diminishing returns to capital. The new approach deals with non-decreasing rate of return to the k-factor to encourage accumulation of k-factor that lead to sustainable growth. The k-factor represents labour used to produce goods and services.

The Ak model was developed by Rebelo (1991) to explain growth driven by human capital. The model express growth as a linear production function: y = Ak. The k-factor in the production function represent human capital plus physical capital. The model assume physical capital to be constant and the only variable factor is human capital noted as the x-factor. If the amount of human capital is increased to constant quantity of physical capital the real rate of return to capital is constant measured by A. This implies that the economy always grow at a steady-state growth rate.

The endogenous growth model by Romer (1986) describe growth as driven by human capital with spillover effects. The spillovers of knowledge in the model are measured as x-factor, an approximation of the amount of average capital stock. The production function for growth is given by y = Ak and x=k is the steady state. Returns are expressed as r = (1-α)A the long-run growth rate is y=[(I-α)A-p]/σ. However growth in this model is undermined by failure of private producers to consider positive spillovers of knowledge that can encourage to accumulate more capital.

In other models, the production function for growth is given by y=Ak, the quantity of public services allocation for individual producers is measured by the x-factor. The real rate of return to k-factor is given by $r=(1-\alpha)A(x/k)^{\alpha}$. If the amount of x (public services) increases at a same rate as the accumulation of k-factor, there are incentives for the private producers to accumulate the k-factor leading to sustained growth.

A model by Barro and Sala-I-Martin (1992a) explained growth as driven by public infrastructure. In their model they argued that government services in form of public goods are congested. Given that the production function for growth is expressed as y = Ak. This model define k as capital for an individual producer and K as the total amount of capital in the economy. Additionally, G is the total amount of public infrastructure provided by the government. Each individual producer consumes the amount of public infrastructure as (k/K)G, a proportional amount of his share of capital in the total capital base of the economy. This is the variable factor (x-factor) of the model. If an individual producer choose to increase his capital stock, it result in a reduction in the amount of public infrastructure that can be made available for other producers. The real rate of return to capital is given by $r_t = (I-\alpha)A(G_t/K_t)$. However, if the government increase the total amount of public infrastructure G_T at the same rate as then accumulation of total capital in the economy. Private investors are encouraged to widen their capital and lead to sustained growth.

Another endogenous growth theory explain growth as driven by innovation. The theory focus on development of new products and technology that leads to growth. The model specify that producers consider return to knowledge as external and the accumulation of knowledge as a by-product to accumulation of other factors that provide internal returns to them. Therefore in the endogenous growth driven by innovation, internal returns are the ones that give incentives to producers to innovate.

Therefore the endogenous model of growth concludes that fiscal policy can achieve the macroeconomic objective of growth if the policies target to influence in the stock of capital. Thus the new models of growth establish the theoretical

link between fiscal policy and private investment. In an economy where financial resources are limited and cannot meet the financial requirements by both public and private investments, a policy of domestic borrowing by the government will crowd out private investment.

Government tax policy can exhibit positive or negative effects on private investment. Tax holidays given by the government on investment on certain goods has a positive influence, it encourages private investors to invest in such goods. In contrast, increased income and profit gained taxes tends to discourage private investment by reduced profits on investment.

Budget deficits hinders growth by effecting on private investment. If the government finance its deficits by borrowing locally this push upward the real interests rates that reflects increased costs of capital and reduced gains from investment. Thus deficits discourage investment in the private sector where investment take place with a profit motive.

Overall, the endogenous growth models shows how fiscal policy can attain growth by causing changes in the private sector investment. As the number of models are numerous there is no single paten on which fiscal policy actions can cause developments in private investment.

Empirical Literature

Jecheche (2011) estimated an unrestricted Error Correction Model (ECM) to examine the determinants of private investment in Zimbabwe. His findings show that terms of trade, credit and government investment crowd out private investment in tandem to real income and inflow of foreign aid that positively affect private investment. The findings match the conclusions drawn by Muyambiri et al (2012) who employed the Vector Error Correction Model to examine the existence of a linear relationship between private and government investments in Zimbabwe and found the crowding out effects of government spending.

Marratin and Salotti (2010) in their study found a positive relationship between government spending and private sector investment. They studied specific components of fiscal policy for 14 European countries and concluded that government spending on remuneration has a higher degree of influence on private investment as compared to government investment.

Bayai and Nyangara (2013) estimated multiple regression on the determinants of private investment in Zimbabwe during dollarization period. Their findings show that political factors were much more significant in impacting private investment than the effects of gross domestic product, debt servicing, interest rates and terms of trade. A study by Ayeni (2014) who employed the Autoregressive Distributed Lag model to investigate the determinants of private investment, revealed that credit, interest rates and real exchange rates were ineffective to stimulate private investment in Nigeria.

Jude (2014) conducted a survey sample of 10 Central and Eastern European Countries to test the hypothesis of capital accumulation through foreign direct investment. The results show crowding out effects of foreign direct investment

on domestic investment. He concluded that in the long-run foreign direct investment complements domestic investments but mergers and acquisitions are insignificant.

Traum and Yang (2010) analysed the relationship between fiscal policy variables private investment and noticed that the crowding out effect of fiscal deficit depends on the type of fiscal policy implemented by the government. Increased government spending crowd out private sector investment whist a reduction in distortionary taxes such as income and profit gained tax encourages investment by the private as this reflects increased profits thus crowding in private investment. In Nigeria, a research by Isah (2012) supported the crowding out effects of fiscal deficit and government spending on private investment. Additionally, a marked number of studies support the findings for example Atoyebi et al (2012), Kibet (2013), Ifeachukwu et al (2013) and Ezeabasili et al (2013).

In Malawi, Maganga and Edriss (2012) estimated the error correction models and performed the cointegration tests examine relationship between macroeconomic and private investment. The findings show that decisions to invest by the private sector depends on credit availability and real interest rates in the short period and however, depend on growth rates of gross domestic product and real exchange rates in the long-run.

Sineviciene and Vasiliauskaite (2012) examined the relationship between fiscal policy and private investment in Baltic States. Their finding can be grouped into two parts of analysis: the revenue side and the expenditure side. Looking at the revenue side, the results showed a significant strong relationship between income tax, wealth and private investment whilst the expenditure side of analysis revealed a strong relationship between public and private investment in Estonia, Latvia and Lithuania. In his study Twumasi (2012) concluded that government spending and transfer payments have a positive long-run effect on growth whilst taxes and government expenditure have a negative impact.

A research by Kehinde et al (2012) performed the Philip-Peron test on time series data and used the Johansen approach to examine existence of long-run relationship between private investment and explanatory variables. The results reveled the significant effects of political influence on private sector decisions to invest. In Ghana, a similar study done by Frimpong and marbuah (2010) employed the Autoregressive Distributed Lag models on the determinants of private investment. They concluded the existence of significant short-run effects of inflation, real interest rates, public investment and open trade and real exchange rates on private investment.

Karagoz (2010) used the Autoregressive Distributed Lag model technique during a study on the determinants of private investment. His complemented the findings of Lawanson (2012) and Naa-Idar et al (2012) who established that in the long-run macroeconomic factors has a stable relationship with private investment.

3. Methodology

The above discussions on the review of theoretical and empirical literature on fiscal policy and private investment does not give the direct relationship of fiscal policy variables and private sector investment. Therefore in this section we shall derive a simple investment model that denote the behavior of fiscal policy and private investment in Zimbabwe.

3.1 Model Specification

The model estimated in this empirical work was adapted from Njuru (2012). A few modifications of the model were done to meet the purpose of this study. The model treats investment as an endogenous variable explained by fiscal variables and output. This paper take explanatory variables including value added tax, import tax and excise duty, debt as a ratio of GDP, government recurrent expenditure, budget deficit and development government expenditure. The vector error correction approach and Johansen cointegration techniques were employed to verify the short-run and long-run causal relationship amongst the variables in the model In general, the form of the model is expressed as:

$$I = f(Y, MT, VAT, INT, DX, RX, BD, D)$$

Where I is the private investment, Y is total national output, MT is the sum of import tax and excise duty, VAT is value added tax, INT is income tax, DX is government development expenditure, RX is government recurrent expenditure, BD is budget deficit and D is government debt.

3.2 Description and classification of variables

Endogenous variables

Private Investment (I) is a measurement of total capital accumulation by the private sector of the economy to expand production. The value is calculated by subtracting the amount of government investment from gross fixed capital formation.

Exogenous variables

Total National Product (Y) is the total value of goods and services produced in a country in a period of one year. The value is also known as gross domestic product.

Import Taxes and Excise Duties (IMT): the value are an aggregate of domestic taxes and import taxes levied by customs authorizes on production and imports of goods in a country for a certain period of time.

Value Added Tax (VAT) is a tax imposed on goods and services by the government in a country. It is an aggregate of all taxes paid by economic agents on value added across the chain of production.

Income Tax (INT) is the amount of tax imposed by the government on income of individuals and corporations. The values are calculated as aggregates of taxes of this nature.

Government Development Expenditure (DX) is government spending on capital accumulation. It is calculated by deducting government recurrent expenditure from government total expenditure.

Government Recurrent Expenditure (RX) is the current government spending on goods and services. It is measured as recurrent spending on labour costs, and other goods and services.

Budget Deficit (BD): it is the difference between total government revenue and total expenditure. A deficit means the government is spending more than the amount of revenues available thus the government finance it's spending through borrowing. The values are calculated by subtracting total expenditure from total revenues.

Government Debt (D): it is the total borrowing by the government on domestic financial institutions and individuals and foreign markets. It is the sum of domestic debt and foreign debt. The values are calculated by aggregating amounts of domestic debt service and foreign debt service expressed as a ratio of gross domestic product (GDP).

3.3 Data sources

The paper used annual time series data for the period 2005 to 2018 collected from the World Bank Development Indicators, International Monetary Fund (IMF) reports and ZIMSTAT publications. Lack of data for Zimbabwe with respect to fiscal policy variables in for a number of years of the study may undermine the ability of the paper to come out with better results. Data from World Bank and IMF were used to supplement shortage of data.

4.0 Empirical Analysis

4.1 Stationarity analysis

The paper tested the time series process for the presence of a unit root using the Augmented Dickey-Fuller test. The results from the ADF test show that private investment, budget deficit, import tax and excise duty, development government expenditure and value added tax are integrated of order 1, thus were stationary at first differencing of the variables. Income tax, debt and national output were stationery at levels implying that were integrated of order zero. Only recurrent government expenditure was stationary at second differencing of the variable

4.2 Test for Cointegration

Since the stationarity test revealed that the series is mixture of variables integrated of different orders. It is necessary to perform the cointegration tests on variables that are integrated of order 1 to examine the existence of a long-run relationship between the variables. Variables integrated of order 0 and 2 will be added to the error correction term as exogenous variables. The Johansen cointegration test was employed to test for cointegration of the variables in the model.

Table 1: Results for the long-run relationship of the variables.

	Trace Test			Maximum Eigen Value		
Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical value	Probability	Max-Eigen value	0.05 Critical value	Probability
None*	87.29477	69.81889	0.0011**	32.04607	33.87687	0.0814
At most 1*	55.24871	47.85613	0.0087**	31.34677	27.58434	0.0156

Source: Author's Calculations.

From the results shown in table 1 above, the Trace test statistic value of 47.85613 is statistically significant at 5% level. We reject the null hypothesis of no cointegration and conclude that there are 2 cointegration equations. The Maximum-Eigen test statistic of 31.34677 is statistically significant at 5% level to indicate the existence of 2 cointegration equation. Therefore we can express the cointegration vectors as follows:

Coint.eq1 = I - 0.376777DX + 0.098485IMT – 1.30530VAT

Coint.eq.2 = BD + 0.067797 – 0.329718IMT + 1.516870VAT

In this case we choose the first cointegration equation that include private investment in the long-run relationship amongst the variables. The coefficients of DX and VAT are negative in the first equation reflecting that development government expenditure and value added tax adversely impact on investment. Conversely, import taxes and excise duties work to promote private investment indicated by the positive coefficient value.

4.3 Short-run Dynamics (Error Correction Model)

We employed the VECM to determine movements from long-run equilibrium as a result of short-run dynamics in the model.

Table2. The results of Vector Error Correction Model (VECM)

ECT variables	**Coefficients**	**Std. error**	**t-statistic**	**Probability *****
D(I)	-0.061075	0.17840	-0.34235	
D(BD)	-1.023999	0.34805	-2.94207	
D(DX)	-0.300756	0.25233	-1.19192	
D(IMT)	1.222594	0.85653	1.42738	
D(VAT)	-1.059139	0.28200	-3.75576	

Source: Author's calculations.

The error correction term (ECT) in the model measure the speed within which the model adjust back to the long-run equilibrium in case of short-run shocks. The adjustment coefficients of ECT with I, BD, DX and VAT are negative and statistically significant indicating the ability of the model to adjust back to long-run equilibrium by 6.1%, 102.4%,

30.1% and 105.9% respectively. This reflects fast speed of adjustment. The adjustment coefficient of ECT with IMT is positive show that the model diverge away from long-run equilibrium with a fast speed of 122.3% in case of short-run changes of the variables.

4.4 Long-run Model

Table3. OLS estimation results

	Coefficient	Std. Error	t-statistic	Prob.
C(1)	-0.061075	0.178397	-0.342353	0.7353
I	-0.445891	0.185516	-2.403513	0.0251
BD	-0.020921	0.114099	-0.183355	0.8562
DX	-0.071764	0.168028	-0.427091	0.6735
IMT	-0.065662	0.036625	-1.792826	0.0868
VAT	0.100941	0.131599	0.767031	0.4512
Intercept (C)	0.186361	0.161390	1.154722	0.2606

Source: Author's calculations

The long-run coefficient C(1) is negative as expected but not significant, thus there is no strong evidence to justify the existence of a long-run relationship among private investment, budget deficit, development government expenditure, import tax and excise duty and value added tax. The negative sign implies the ability of the model to bounce back to long-run equilibrium. The coefficients of BD, DX and IMT are negative but not statistically significant this means that increase in import taxes and excise duties, development government expenditure and accumulation of budget deficits are not important in explaining a reduction in private investment in Zimbabwe. Only changes in private investment itself matters in this model.

4.5 Diagnostic checks of VECMs

Test	Null Hypothesis	F-statistic	Probability
Jarque-Bera	There is a normal distribution	0.2798	0.8694
ARCH	No conditional Heteroscedasticity	0.3024	0.5871
Breusch-Godfrey	No serial correlation	4.3389	0.0252

Source: Author's calculations.

The residuals of the model are normally distributed as shown by the probability of the Jarque-Bera test and the ARCH test statistic provides evidence that the model is not suffering from heteroscedasticity problems. The probability of Breusch-Godfrey LM test is less than 0.1 this implies existence of serial correlation problem in the residuals, hence we relate the problem as caused by including variables that are integrated of order o and 2 as exogenous variables in the estimation of residuals.

5.0 Conclusion and Recommendations

The main purpose of this paper was to examine the effects of fiscal policy actions on private investment in Zimbabwe for the period 1990 to 2020 using the Vector Error correction Model and Johansen Cointegration techniques. The paper made some significant contribution to the literature on this issue by bridging the gap since many studies mainly focus on determinants of private investment in the case of Zimbabwe.

The empirical findings show that the accumulation of budget deficits in Zimbabwe adversely affect private investment. The decision by the government to finance budgets deficits financed by borrowing funds in the domestic financial institutions affects investment in the private sector of the economy. The government mop larger amounts of funds in banking sector leaving a little available as credit for private investment, credit shortages will rise and push interest rates upwards and discourage investment activities.

Development government expenditure have a negative impact on private investment. The paper revealed that as the government increases spending on development of public infrastructure it out compete private investment in areas where there are higher costs to start a new business. For example the introduction of Zimbabwe United Passenger Company (ZUPCO) train buses in high density suburb and areas surrounding has out competed private buses that were operational in those places due to low fares charged by the train buses and the private cannot utilize the designated infrastructure only for ZUPCO.

The import tax and excise duty has proved to have an adverse relationship with private investment. The tax charged on imports is distortionary to private investments that imports raw materials and inputs abroad. Thus costs to import inputs are raised by the size of import tax in conjunction with the size of excise duty charged on domestically produced goods discourages investment growth in the private sector of the economy. However, value added taxes are non-distortionary, the tax has a positive influence on private investment. This is related to the low effectiveness of the tax system which limit the distortionary effect of indirect taxes in Zimbabwe.

Generally, an increase in national output stimulates private investments in Zimbabwe. Increased output means more supply of goods and services forcing prices to go down thus lead to increased demand. Private investors to make more profits have to sell more goods at lower prices, therefore they need to expand their production.

The paper based on its findings recommends the government to develop and implement policies that put more attention on private investment to benefit from the multiplier effect of private investment in the economy. Secondly, the government need to reduce budget deficits and know the combination of public spending and revenue that yield positive growth and well-being of the economy. Finally, expenditure on capital needs to be raised and encourage public private partnerships to utilize idle resources.

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