

An Analysis on the Impact of Government Budget Deficits on Economic Performance. A Zimbabwean Perspective (1980-2018)

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Abstract

This research analyses impact of budget deficits on economic performance of Zimbabwe. The study employs the ARDL confines testing method to co-integration and long-run estimation using time series data from 1980-2018. The Augmented Dick Fuller (ADF) and the Granger approach were used to test for stationarity and causality among the factors. Co-integration test results affirm a long term association amid GDP development rate and descriptive factors. Causality test results show unidirectional connection from budget shortfall to GDP development and bi-directional causality amid debt and budget deficit. This study also found unidirectional causality from debt to GDP growth rate. ARDL estimates indicate a significantly positive long term and significantly negative short term impact of budget shortfall on GDP. This suggests that budget deficits have a short-run growth retarding effect and a long-run growth-inducing effect. The long-run results follow the Keynesian theory, that posit that fiscal deficits result in increase in GDP growth. Short-run outcomes follow the neoclassical theory. In light of these findings, the government is recommended to minimize financing of recurrent expenditure using budget deficit. To achieve sustainable growth and development, the government needs to spend an absorbable budget deficit focusing on capital projects such as development of human capital and infrastructure.

Keywords: ARDL, budget deficit, economic performance, long run, short run.

1. Introduction

The need for sustainable development calls for a balance between expenditure and revenue in Africa (Gyas, 2020). Rightly so, sustainability has been the focal point of the renewed interest on the fiscal expenditure-growth nexus. Different factors of production that stimulate economic performance have been suggested in literature. Among these, fiscal expenditure and budget deficits play a critical duty in spurring development and growth in developing countries.

Wuyah (2015) defines fiscal deficit as an economic outcome in which the government's total expenditure exceeds the revenue collected. Hence this discrepancy amid the nation's total expenditure and receipts notify the government of the total borrowing requirements. A budget deficit is a fiscal time frame where the nation's entire revenue is lower than expenditure (Chimobi & Igwe, 2010). The budget deficit and fiscal deficit are assumed to mean the same, likewise they will be treated the same in this study.

Literature has given three different perceptions on effect of budget shortfalls on an economy's performance. Firstly, Keynesians are of the view that budget deficit confirms a positive effect

because budget deficit is an expansionary policy which increases consumption, investment, employment, and economic growth. When higher spending is on transport infrastructure, for instance, supply-side capacity improves, promoting long run growth (Onwioduokit and Bassey, 2014). As the government spends more, it boosts demand through public investment and more employment of labour which also increases demand through private consumption. Thus, aggregate demand increases. This may induce production, resulting in increased economic performance. Secondly, Neoclassical argument relates to the crowding out outcome of national borrowing which posit a negative effect. If, as is usually the case, the government finances the fiscal deficit through domestic borrowing, it discourages private investment due to consequential high interest rates (Asogwa and Chetachukwu, 2013). Thirdly, the Ricardian equivalence points out that the budget deficit is neutral. It neither improves nor deteriorates the nation's economic performance as economic agents are rational (Barro, 1988). A budget deficit is essential for the country's development since it is a form of borrowing that allows financing activities that available resources could not finance. Its impact on an economy's performance depends on the structure and purpose of government expenditure. The impact is likely to be positive if the deficit is appropriately used as it helps finance current expenditure, which may start to contribute to the country's development. This is true if the deficit is mainly used to finance capital expenditure as compared to recurrent expenditure.

Zimbabwe, once an exciting and varied country a solid optimism for Africa's upcoming, was on the edge of downfall was sustained by the multi-currency scheme following the creation of unity government. Zimbabwe experienced budget deficit post 1990 along with hyperinflation, adverse economic progress, and high joblessness. Standard of living dropped till multiple currencies came into play in February 2009. Introduction of the multi-currency system has witnessed stable economic progress along with reduced budget deficit and improvement in revenue collection.

The Government of Zimbabwe has, over the years, been submerged in the credence ways to discourse societal imbalances and its challenges is by increasing government spending. The governments thus act as an extended hand for the people in carrying out their mandate of providing education, adequate health services, employment, infrastructure, and security (Amwe, 2015). On the verge of undertaking its obligations, the revenue demanded may outstrip its availability. Thus the recourse to deficit financing in order to close the shortfall of expenditure needs to revenue availability. Conventionally, this financing of fiscal debts has since time immemorial been considered as an out and out instrument for necessitating economic growth, particularly in the less developed economies (Eyiuche, 2000). High budget shortfalls has been the main focal point of macro-economic stabilization and modification programs in emerging nations from the 1980s (Raheem, 2001). It has become a well-appreciated circumstance that future prosperity revolves around a vigorous financial stance. Zimbabwean economy has faced the real challenge of simultaneous existence of fiscal and current account deficits. The simultaneous presence of fiscal and current account deficits has also given rise to unsustainable government debt levels, which menace macroeconomic and political stability.

Fiscal deficits have been finger pointed for the hodge-podge of ills that plagued Zimbabwe for the past decades. Therefore, the macroeconomic glitches the nation is experiencing include high inflation rate, low employment rate, high balance of trade deficit, and heavy debt burden, among other things, are all allied to fiscal deficit. According to the Parliamentary Budget Office of

Zimbabwe (2018) report, Zimbabwe enjoyed budget surpluses from 2009 to 2011, and from 2012 to 2018 (see fig A2 on appendix), the country has been experiencing fiscal deficits, which became more pronounced from 2016 (Ministry of Finance and Economic Development, 2018).

Zimbabwe's fiscal deficits generally have been a consequence of fiscal indiscipline, which saw government spending skyrocketing (Zhou and Zvoushe, 2012). Budget discrepancy in emerging nations is profoundly inclined to political volatility and public finance deliberations with no outward direct outcome on elections (Anyanwu, 1997; Robini, 1991). The government of Zimbabwe ran substantial budget shortfalls in 2000 of 22% of GDP and resort to money printing but created another challenge of runaway inflation (Zhou and Zvoushe, 2012). The government could withstand such enormous public spending in the early 2000s because of the windfall gains from metal products such as diamonds, gold, and platinum which it enjoyed during this period (Ndlovu, 2012).

However, the enthusiasm that prompted the central government's massive intervention in many sectors of the economy began to fade in the late 2000s when corporate governance failed, inflation skyrocketed. Zimbabwe borders become closed for business resulting in a drastic reduction in government foreign exchange earnings. Zimbabwe's national disbursements increased from 2016 levels by 25% whereas nominal GDP only increased by 7% and the growth of national disbursements has been lopsided on regular expenditure, that constitute over 90% of national expenditure amid 2011 and 2016 (Ministry of Finance and Economic Development, 2018). Public outflows as a percentage of GDP also improved in 2011 by 26% then rise to 29% by 2013, before stagnating at 27% in 2015 (ZIMSTATS, 2016).

Considerable efforts and policies have all been put in place by the government of Zimbabwe aimed to overcome fiscal deficit problems, which continued to undermine the economic performance. However, fiscal deficits have persisted in the country's economy, with negative consequences on essential macroeconomic variables. The Zimbabwe 2019 budget targeted both fiscal and current accounts, that have been abused in the past. The Zimbabwean economy has been characterized by poor regulation, dilapidating infrastructure, fall in prices of minerals, unconducive business environment, enormous foreign and domestic debt and high wage bill. As a result, the country failed to attain fiscal balance. The persistent and rising budget deficit in Zimbabwe threatens macroeconomic stability. When shortfalls decrease investment, the capital stock raises more sluggishly (Mashakada, 2013). When deficits endure for over a decade they may meaningfully reduce the nation's ability to manufacture products (Mashakada, 2013). Therefore, budget deficit lessen capital build up and output development.

As noted, Zimbabwe has gone through fiscal discrepancies during the study period and lately low economic performance. Worldwide economic catastrophe has resulted in serious considerations for macroeconomic administration. There is a need to carry out this study to find out if the budget deficit has any statistically substantial effect on financial performance of Zimbabwe, given the changing macroeconomic environment. Numerous empirical researches exist on the connection amid fiscal shortfall and economic performance in established and emerging nations. Though the literature is awash in relation to conclusions, some studies (Nayab, 2015; Umaru and Gatawa, 2014; Umeora, 2013; Maji and Achegbulu, 2012) show a positive connection amid fiscal shortfall and economic growth, however, others (Aero and Ogundipe (2018); Zuze, 2016; Fatima, Ahmed and Rehman, 2012) show a negative relationship. This study is different from those in the literature in that it focuses on a more recent period of 1980 to 2018 characterised by different operating

environments. This study is also different because it uses the ARDL bounce test, a different econometric analysis tool that gives comprehensive results on the relationship and causality of important variables.

It is hence, the core research issue for this paper to research on budget deficit and economic performance in the Zimbabwean context using more current statistics. Explicit objectives are: (i) to assess if there is a long-run association amid budget deficit and economic performance; (ii) to assess the impact of budget deficit on economic performance and (iii) to establish the causal connection amid budget deficit and economic performance in Zimbabwe.

1.1. Statement of hypothesis

H₁: There is a statistically significant long-run relationship between budget deficit and economic performance.

H₂: Budget deficit has a statistically significant long-run impact on economic performance.

H₃: There is a causal relationship between budget deficit and economic performance.

The study is unique since it brings together the examination of the relationship, impact, and causality of budget deficit on economic performance. Short and long term impacts of budget deficit is discussed as well.

2. Literature review

2.1. Theoretical review

2.1.1. The Keynesian view of budget deficits

Keynesians economics, national spending is a critical component of aggregate demand (AD). When aggregate demand is low, the central authorities may upsurge its spending, that increases aggregate demand, and as a result, arouse the economy. Keynes (1933) asserted that fiscal program is an essential instrument of demand administration and a concrete positive association amid budget deficits and macroeconomic factors exist. In Keynesians view, public investment is corresponding to private venture and that demand as a result of deficits improves optimism of high profits to investors (Erceg et al., 2005). It is argued that budget deficits lead to upsurge of local production, upsurges AD, lead to growth in savings and private venture. Under Keynesian model, raising budget deficit result in increase in production to inflate the inverse of marginal propensity to save. Eisner (2003) proposed that amplified AD alters the viability of private investment and result in increased investment at any interest rate. Therefore, deficits can arouse total saving and investment even if interest rates increases.

2.1.2. The Neoclassical "Crowding out effect"

The Neoclassical opinion reflects fiscal deficits as unfavorable to investment and growth since they crowd out private investment. It is the epistemological explanation of the adverse association that occurs amid fiscal deficit and economic growth. The Neoclassical opinion has three essential conventions on economic effects of budget deficits (Bernheim, 1989). Firstly, individual spending is regarded as answer to inter-temporal optimization challenge in flawless capital markets. Secondly, people have restricted life durations, such that consumption is planned throughout the entire life. Finally, market clearance is presumed on all stages, meaning the country constantly seeks to attain full utilization of resources. Consequently, deficits affect growth via capital accumulation rate. So a perpetual upsurge in national consumption succeeding a perpetual upsurge

in the budget deficit increases interest rates, plummeting private investment (Barry Devereux, 1992; Diamond, 1965; Noveski, 2018).

2.1.3. The Ricardian view of budget deficits

Ricardian equivalence view claims that fiscal deficit does not kindle the economy. Households are presumed to be normal and they foresee that increased deficit suggests forthcoming taxes. Accordingly, they presume deficits as non-existent, that implies that customers and investors disregard the incentive. Ricardian viewpoint is that a deficit-financed cut in present taxes for government expenditure results in higher forthcoming taxes that is equivalent to current of the original cut. Regarding tax-financed national spending, transferring taxes to forthcoming age group result in fiscal deficits growing present consumption (Bernheim, 1989). The central administration budget restriction equates total expenditure. National expenditure must be paid for today or in future, together with the accumulated current value of revenues hinged on the accumulated current worth of spending. Hereafter, fixing the route of national spending and revenue other than tax, a reduction in current taxes should be equated to an equivalent upsurge in the current value of forthcoming taxes. It is concluded that budget deficit has little consequence on savings, investment and general growth (Binh, 2013).

2.2. Empirical Literature

Numerous empirical works have been carried out on budget deficit and economic performance, especially in developing countries via diverse econometric models or statistical tools. Empirical evidence shows that different studies are carried out in different countries that include Nigeria, Pakistan, Vietnam, India, Malaysia and Zimbabwe. Different analysis methods like Ordinary Least Squares (OLS), Autoregressive Distributed Lagged (ARDL), Threshold Autoregressive Model (TAM), Vector Autoregression (VAR) analysis, Johansen co-integration technique and granger causality test were used, obtaining different results. While some studies show significant positive (Nayab, 2015; Umeora, 2013, Maji and Acegbulu, 2012) or negative (Aero and Ogundipe, 2018); Zuze, 2016) relationships, others show insignificant (Dao and Bui, 2016); Bhoir and Dayre, 2015; Rahman, 2012; Binh and Hai, 2013; Wosowei, 2013) relationships. Thus, budget deficit yields an unclear effect on economic performance (Benos, 2009).

Focusing on the Zimbabwean studies identified, it has been noted that the different studies used different timeframes and approaches in carrying out the studies. Zuze (2016) focused on the 1980-2015 period using the VAR model along with discrepancy disintegration and impulse response functions to examine the association. Kavila (2021) focused on 1980-2018 but used a descriptive approach which does not give the numerical impact of the variable. Mashakada (2013) conducted a qualitative and comparative research of Zimbabwe, Botswana, Ghana, Morocco and Zambia using data from 1980 to 2008.

Therefore, it is important to carry out this study to come up with empirical evidence on the influence of budget deficit on economic performance in Zimbabwe between 1980 and 2018. This helps to make an informed decision based on more current statistics to boost economic performance. It can be concluded that no one methodology can be utilized to carry out such studies. Thus this study utilizes the ARDL approach to analyse the short and long run impacts of fiscal deficits on the performance of the economy.

3. Data, estimation technique and empirical analysis

3.1. Data

The research data was collected from Reserve Bank of Zimbabwe (RBZ), Zimbabwe Statistical Agency (ZIMSTAT), Ministry of Finance, and World Bank database covering 1980 to 2018. The data show significant variability in terms of positive and negative figures. This data were transformed into logarithm such that a log-log model is estimated. To avoid difficulties in using the negative numbers, the data was converted into a ratio. The logarithmic transformation helps to obtain the normal distribution of data (Noveski, 2018). The use of log-form estimated coefficient makes interpretation of results easy as they portray unit-free elasticities (Ibid). As such, the coefficients measure the effect of a 1% alteration in the descriptive variable on the dependent variable irrespective of the elements of the variable.

3.2. Estimation technique

This paper made use of an expo-facto research design to empirically analyze the associations and active connections amid variables. The current research adopts a model by Maji and Achegbulu (2012) from Nigeria on their work on fiscal deficits and economic growth. Unlike their study, which used the OLS estimation technique, this paper employs Auto-Regressive Distributed Lag (ARDL) bounce test within the Keynesian framework as used by Onwioduokit and Bassey (2014).

The advantages of the ARDL bounce test method are many. It allows a researcher to mix variables of different integration (both I(0) and I(1), which makes it impossible to use VAR or Vector Error Correction Model (VECM) methods. Furthermore, it estimates both short-term and long-term effects simultaneously (Pesaran et al., 2001). ARDL co-integration technique is also superior since no pretests are required and is robust on a small sample on solitary term association compared to other methods. ARDL process is suitable on endogenous explanatory variables and is adequate to concurrently correct for residual serial correlation (Tang, 2006). The technique allows short-term and long-term limits to be assessed simultaneously, remaining consistent and unbiased. ARDL bounds technique could permit the general-to-precise modeling framework by repeatedly changing the number of intervals. The technique has been increasingly used in recent empirical researches (see Thabane and Lebina, 2016; Odhiambo, 2015; Nindi and Odhiambo, 2014; among others).

3.3. Specification of the Theoretical Framework

As previously stated, the research assumes the contribution of Onwioduokit and Bassey (2014), that emanates from Keynesian context. The Keynesian context assume that the anticipated AD association in goods market as shown below:

$$Y = C + I + G + (X - M) \quad (1)$$

$$C = \alpha + \beta Y^d \quad \beta > 0$$

$$Y^d = Y - T$$

$$I = \hat{\delta} + \gamma i \quad \gamma < 0$$

$$G = G^*$$

$$X = s + \delta e \quad \delta > 0$$

$$M = m + \phi Y^d \quad \phi > 0$$

where: Y = output, C = Consumption, Y^d = Disposable income, T = Tax revenue, I = Investment, $\hat{\delta}$ = exogenous investments, i = interest, G = exogenous government expenditure (G^*), X = exports,

s = exogenous exports, e = exchange, M = Imports, m = exogenous imports and β , δ , ϕ and γ are coefficients.

Replacing the behavioral equivalences into comparison 1, it gives the outcome at equilibrium as equation 2:

$$Y^* = \frac{A}{\theta} + \frac{1}{\theta}(\gamma + \delta e + G - (\beta - \phi)T) \quad (2)$$

where $\theta = 1 - \beta + \phi$, and $A = \alpha + \delta + s - m$

On equation two, if taxes are increased, the output declines. If national expenditure increases, production would grow.

The budget deficit (BD) is specified as in equation 3;

$$BD = G - T = G - (\beta - \phi)T \quad (3)$$

A budget shortfall is a gap amid a country's proceeds and disbursements. Assuming that the country's entire revenue is resultant from taxes, then $G - T$ is equivalent to the deficit. The total revenue generated from consumption expenditure is given by: $(\beta - \phi)T$ the assumption that people save part of their proceeds. The fiscal balance is obtained by subtracting this equation from government expenditure.

Substituting equation (3) into (2) results into;

$$Y^* = \frac{A}{\theta} + \frac{1}{\theta}(\gamma + \delta e + BD) \quad (4)$$

Assumed that Zimbabwe is a small but open economy and has no capability whatsoever to effect prices in the international market, the model includes the money market and external sector through the balance of payments schedule and terms of trade.

In an open economy, the money market is characterized by the subsequent equation;

$$\text{Money Demand Function: } \frac{MD}{P} = kY + \lambda i \quad k > 0, \lambda < 0 \quad (5)$$

$$\text{Money Supply Function: } \frac{MS}{P} = m_1 \frac{B}{P} + m_2 i \quad m_1, m_2 > 0 \quad (6)$$

When at equilibrium $MD = MS$

Where B = international reserves, P = general price level, k and λ , are coefficients.

From the equations (5) and (6) in the money market, equilibrium is obtained through the LM schedule specified as follows;

At equilibrium: $M^s = M^D$

$$kY + \lambda i = m_1 \frac{B}{P} + m_2 i \quad (7)$$

$$\text{LM Schedule; } i = \psi \frac{B}{P} + \phi Y \quad \psi < 0, \phi > 0 \quad (8)$$

The external sector effects are merged over balance of payment list assumed as in equation 9;

$$B = A_2 - \theta_0 Y + \theta_1 e + \theta_2 i \quad \theta_{0,1,2} > 0 \quad (9)$$

where A_2 = exogenous net export function and $\theta_{0,1,2}$ are coefficients.

Fill in for equation (8) into (4) gives;

$$Y^* = A_2 + B_1 \frac{B}{P} + B_2 Y + \delta e + BD \quad (10)$$

where $B_1 = \frac{\psi Y}{\phi}$ and $B_2 = \frac{\phi Y}{\phi}$

Substituting equation (9) into (10) we obtain

$$Y^* = A_2 + B_1 \frac{B}{P} (A_2 Y + \theta_1 e + \theta_2 i) + B_2 Y + \delta e + BD \quad (11)$$

Rearranging of equation (11) gives;

$$Y^* = C + \frac{1}{P} (\alpha_1 e + \alpha_2 i) + \alpha_3 e + \alpha_4 BD \quad (12)$$

where $1 + B\theta_0 - B_2 = \phi$

$$C = \frac{A_1 + B_2 A_2}{\phi}, \alpha_1 = \frac{B_1 + \theta_1}{\psi}, \alpha_2 = \frac{B_1 \theta_1}{\psi}, \alpha_3 = \frac{\delta}{\psi}, \alpha_4 = \frac{1}{\psi}$$

Equilibrium output in equation (12) is absolutely linked to the budget shortfall. But since productivity is inclined to its own previous levels in time sequences data, equation (12) may be denoted as;

$$Y^* = C + \varpi Y_{t-1} + \frac{1}{P} (\alpha_1 e + \alpha_2 i) + \alpha_3 e + \alpha_4 BD \quad (13)$$

Recasting the equation gives;

$$Y_t = C + \delta_1 i_t + \delta_2 e_t + \delta_3 BD_t + \delta_4 \pi \quad (14)$$

where $Y_t = Y_t - Y_{t-1}$ is the change in GDP and $\delta_1, \delta_4 < 0$

Equation (14) implies that the budget discrepancy is certainly connected to the development of any economy as postulated by the Keynesian framework.

3.4. Specification of the Empirical Model

Through empirical examination of the association and active relations amid variables, the current research assumes a model by Maji and Achegbulu (2012) utilising the OLS multiple method of econometric technique. Their model contained GDP and the explanatory variables as follows:

GDP=f (Government Budget Deficits, Broad Money Supply)

However, improving upon the expanded theoretical, the model is modified to a new model following the broad objective of this study. The variables used in the study include; gdpr as a proxy for economic performance, government expenditure as a ratio to GDP (gexp); total national debt to GDP ratio (debt), government deficit as a proportion to GDP (gdef), GFCF as a proportion of GDP (inv). Equation 15 is the model that is tested:

$$gdpr_t = \beta_0 + \beta_1 debt_t + \beta_2 gdef_t + \beta_3 inv_t + \beta_4 gexp_t + \varepsilon_t \quad (15)$$

Taking natural logs of equation (15) for linearity gives equation (16).

$$Ingdpr_t = \beta_0 + \beta_1 Indebt_t + \beta_2 Ingdef_t + \beta_3 Ininv_t + \beta_4 Ingexp_t + \varepsilon_t \quad (16)$$

Differencing equation (3), the growth equation is finally given as;

$$\Delta Ingdpr_t = \beta_0 + \beta_1 \Delta Indebt_t + \beta_2 \Delta Ingdef_t + \beta_3 \Delta Ininv_t + \beta_4 \Delta Ingexp_t + \varepsilon_t \quad (17)$$

where: gdpr = Gross Domestic Product Growth Rate (a proxy for economic performance)

$gexp$ = Government Expenditure as a ratio to GDP

$debt$ = Nation's Debt to GDP ratio

$gdef$ = Government Deficit as a proportion to GDP

inv = GFCF as a proportion of GDP

where \ln is the natural logarithmic operator and Δ is the difference operator. β_0 is the constant $\beta_1, \beta_2, \beta_3$ and β_4 are the separate constants of the self-determining variables, ε_t is the error term, and t is the time movement throughout the investigation. Investment, government expenditure, and liability are the regulator variables.

3.5. Granger Causality Test

In this study a Granger causality test was done to establish if once off series is useful in predicting another. In this paper, the test looks at the causality amid national budget deficit and economic performance and the other economic variables used in the study. The stout argument has necessitated this test in an economic sphere that, in some instances, an upsurge in one variable can result in upsurge of another. However, there can be no causation connection amid them.

A variable that granger influence the other variable when previous and current values of that variable may assist forecast values of the other variable (Granger, 1969). The old Granger (1969) causation test use the basic F-test statistic hence used in many researches. With the optimal interval established, Granger causality tests may be expressed as:

H_0 : Budget deficit (def) Granger influence GDP growth rate (gdpr).

H_1 : GDP growth rate (gdpr) Granger influence a budget deficit (def).

When the likelihood value is lower than the chosen significance level, a variable granger causes the other.

4. Results and discussion

4.1. Stationarity Test results

On Table 1 below is a stationarity tests and revealed that some variables (government expenditure (Ingexp) and gdp growth rate (Ingdpr) are stationary in level. In contrast, some variables (fixed capital formation (inv), total debt (Indebt), and fiscal deficit (Indef) are fixed after primary differencing. Results show variables unified of order zero and one with no evidence of variables unified of second-order hence the use of the ARDL bounce test technique. In this case, it is not possible to use VAR or VECM since they require data that are integrated of the same order.

Table 1: Stationarity Test Results

Variable	ADF statistic	P-value	Critical Value 1%	Critical Value 5%	Critical Value 10%	Order of integration	Decision
Ingdpr	-3.770	0.0032	-3.675	-2.969	-2.616	1(0)	Stationary
Ingexp	-2.942	0.0406	-3.668	-2.966	-2.616	1(0)	Stationary
Ininv	-4.578	0.0000	-3.675	-2.969	-2.616	1(1)	Stationary
Indebt	-4.248	0.0000	-3.675	-2.969	-2.616	1(1)	Stationary
Indef	-5.373	0.0001	-3.675	-2.969	-2.616	1(1)	Stationary

Source: Authors' computation from Stata 14 output

4.2. Co-integration Test results

A co-integration test was done to study the long-term association amongst the variables. The F-statistic calculated within the Unrestricted Error Correction Model framework was equated with bottom and top critical values (Pesaran et al., 2001). The bounds test results for the model is shown on Table 2.

Table 2: F-statistics for Testing the Existence of Long-run Co-integration

Significant level	10%		5%		1%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Case 3	2.45	3.52	2.86	4.01	3.25	4.49
	k = 4,		n = 36		F-statistic = 11.103	

Source: Authors' computation from Stata 14 output

The critical values on table 2 are derived from Pesaran et al. (2001) case 3: unrestricted intercept and no trend. The F-statistic of 11.103 shown in Table 2 surpasses the top critical limit at 1% significance level. Hence null hypothesis which reflect no levels association amid the variables is excluded, signifying the presence of a long-term association amid economic performance and the explanatory variables. Given that co-integration is recognized, the ARDL model below is projected to get the long-term and short-term coefficients.

$$Ingdpr_t = \beta_0 + \alpha Ingdpr_{t-1} + \beta_1 Indebt_t + \beta_2 Ingdef_t + \beta_3 Ininv_t + \beta_4 Ingexp_t + \sum_{i=1}^{\rho} \phi_i Ingdpr_{t-i} + \sum_{i=1}^{\rho} \phi_{1i} \beta_1 Indebt_{t-i} + \sum_{i=1}^{\rho} \phi_{2i} \beta_2 Ingdef_{t-i} + \sum_{i=1}^{\rho} \phi_{3i} \beta_3 Ininv_{t-i} + \sum_{i=1}^{\rho} \phi_{4i} \beta_4 Ingexp_{t-i} + \mu_t$$

Where ρ is the lag order nominated by the aikake information criterion (AIC).

4.3. Long-run and Short-run Model results

ARDL bounce test outline was therefore estimated and shown on Table 3.

Table 3: Estimated Long and Short-run Model Results

Variable	Coefficient	St Error	T statistics	Prob.
Long run				
Ect	-3.0054	0.4472	-6.72	0.000
Lninv	-0.0044	0.0056	-0.80	0.431
Lndebt	0.0352	0.0230	1.53	0.142
Lndef	0.2202	0.0863	2.55	0.019
Ingexp	-0.0135	0.0080	-1.68	0.108
C	-0.0984	0.0624	-1.58	0.131
Short-run				
Ingdpr				
LD ¹	0.9433	0.3216	2.92	0.008
L2D	0.1369	0.1945	0.70	0.490
L3D	-0.1540	0.0678	-2.27	0.034
Indef				
D1	-0.4170	0.1997	-2.09	0.050
Ingexp				
D1	0.3355	0.0233	14.40	0.000
LD	0.3979	0.0738	5.39	0.000
L2D	0.2901	0.0647	4.49	0.000
L3D	0.1253	0.0542	2.32	0.032
C	0.0984	0.0624	1.58	0.131

Source: Authors computation using Stata 14 ARDL (4,0,0,1,4) regression

R-squared = 0.9745 Adj R-squared = 0.9579 Log likelihood = 72.982338

The high coefficient of determination show that the model is well specified given that 95% (adjusted r-squared) of the disparity in economic performance is enlightened by the included factors.

Results presented in table 3 show evidence of a quick adjustment in economic performance when there is some shock in the explanatory variables as shown by a negative and highly significant adjustment (ect) coefficient (-3.005) at a 1% significance level. Around 300 percent yearly imbalances of the prior year's tremors unite in the long-term balance in the present year. The results also show a long term positive and significant connection amid budget deficit and economic performance. Hence 1% upsurge in the budget deficit, in the long term, may result in to a 0.22% increase in the GDP growth rate, ceteris paribus. The results show that expansionary national policies that resulted in budget deficit implemented during the study period are effective and can stimulate growth in the long term. These results support the Keynesian system, that assume that a rise in budget deficit result in rise in real GDP hence better economic performance.

¹D1, LD, L2D, and L3D are variable lags

This result is consistent with Umeora (2013) and Maji and Acegbulu (2012), who in Nigeria found a substantial and positive association amid economic growth and national deficit. Positive results were also found by Nayab (2015) in Pakistan. In the Zimbabwean context, the findings diverge with Jenkins (1997) and Mashakada (2013), who settled that collective fiscal shortfalls in Zimbabwe triggered macroeconomic volatility and fiscal uncertainty. These studies used a descriptive approach that may focus on the short run rather than the econometric approach, including the long-run analysis. The results contrast with Zuze (2016), who used the VAR model and a distinct adverse connection amid fiscal deficit and economic development. A combination of differences in study period and methods of analysis could be the probable explanation of the differences in results from previous studies.

In the long term, total government expenditure shows adverse yet insignificant association with economic performance on one hand. Total government debt in the long term conveys a positive and insignificant co-efficient. Fixed capital formation has shown an insignificant negative relationship to economic performance. This might be due to variation in policy making and implementation by the government as evidenced by policies and programs such as ESAP, ZIMPREST, NEDPP, ZEDS, STERP and the indigenization act which all were brought to a halt before the set tenure ended.

The short-run model results shown in Table 3 also indicate that first and third lags of economic performance, budget deficit and national spending significantly influence economic performance. The budget deficit negatively impacted economic performance, while total government expenditure exhibited a positive impact. A 1% rise in budget shortfall results in a 0.41% fall in GDP in the short run. This could indicate that the government is short of resources to meet its expenses. As such more share is used to finance recurrent expenditure; thus, policies have a undesirable effect in the short term period. This finding agrees with those of Zuze (2016). The short-run result conforms to the neo-classical philosophy, that assume that budget deficits result in decline in GDP growth rate thus low economic performance.

Overall national spending hails a substantial positive influence on GDP growth rate in short term period. A 1 percent rise in total government expenditure results in a 0.34 percent rise in gdp growth rate. As the years move further away from the current period, the strength of the impact of government expenditure becomes less, as shown by falling coefficients of the lagged values of total government expenditure from 0.39%-LD, 0.29%-L2D to 0.12%-L3D.

In conclusion, budget deficit and total government expenditure have proven to be significant variables that significantly influence economic performance in the short and long term. However, they show a higher effect in the short run. All variables and their lags are noteworthy in the short term except for the second lag of economic performance (Ingdpr) and the constant. A positive impact on economic performance has been recorded on all variables except for budget deficit (Indef) in the short term.

4.4. Granger Causality

Estimated regression model shows a long-term association amongst economic performance and budget deficit. For the results to be more useful, it has been found necessary to check if causality exists among the variables and use the model for forecasting. Table 4 shows the Granger causality test results utilised to estimate the causal connection amid fiscal deficit and economic performance in Zimbabwe.

Table 4: Granger Causality Test results

Cause	Effect	Test Statistic	Probability	Inference form →
Ingdpr	Ingexp	6.3856	0.094	Ingdpr→ Ingexp
Ingdpr	Ininv	13.027	0.005	Ingdpr→Ininv
Ingdpr	Indebt	1.8074	0.613	
Ingdpr	Indef	1.6789	0.642	
Ingdpr	ALL	26.303	0.010	
Intge	Ingdpr	3.1811	0.365	
Intge	Ininv	17.086	0.001	Ingexp→Ininv
Intge	Indebt	0.53226	0.912	
Intge	Indef	0.14364	0.986	
Intge	ALL	23.717	0.022	
Indebt	Ingdpr	9.9861	0.019	Indebt→Ingdpr
Indebt	Ingexp	6.2425	0.100	
Indebt	Ininv	1.2115	0.750	
Indebt	Indef	24.722	0.000	Indebt → Indef
Indebt	ALL	70.714	0.000	
Indef	Ingdpr	19.767	0.000	Indef → Ingdpr
Indef	Ingexp	23.052	0.000	Indef → Ingexp
Indef	Ininv	1.479	0.687	
Indef	Indebt	17.016	0.001	Indef → Indebt
Indef	ALL	105.16	0.000	

Source: Authors' computation from Stata 14 output

Table 4 indicates evidence of unidirectional causation successively from budget deficit to economic performance (Ingdpr). For debt and gdpr, a unidirectional underlying relationship from debt to economic performance (Ingdpr). Economic performance (Ingdpr) and government expenditure (Ingexp) granger cause investment. Results also reveal a bi-directional causality amid debt and fiscal deficit (Indef). Furthermore, findings show no causality in either direction between total government expenditure and economic performance. It can be concluded that debt granger causes both economic performance and budget deficit; budget deficit granger influence economic performance, government expenditure and debt, while economic performance granger causes government expenditure and investment.

5. Summary and conclusion

The study's main purpose was assessing the influence of fiscal deficit on economic performance in Zimbabwe utilising data from 1980 to 2018. ARDL bounds test was employed to approximate the constants of the factors in analyzing the impact of fiscal deficit on economic performance. The calculated F-statistic (11.103) for the limits test surpasses the top bound (4.10) at the 1% significance level. These results confirm refusal of the proposition of no long-term association amid budget deficit and economic performance in Zimbabwe. Also excluded is the proposition that fiscal deficit has no significant effect on economic performance. The long-term regression outcomes indicate that fiscal deficit have a positive and statistically substantial effect on economic performance. Through the granger causality test, the hypothesis of no causal association amid budget deficit and economic performance is also rejected, given the evidence of a unidirectional causality moving from fiscal deficit to economic performance.

While long-term regression results agree with the Keynesian theory, the short-term association among fiscal deficit and economic performance is in accordance with neoclassical view, which is evidenced by short-run estimates, which show a significant negative influence of fiscal deficit on economic growth. The explanation for the positive long-term and negative short-run results could be that most of the policies and programmes undertaken during the study period were slow to kick-off, thus affecting the short-term results but materialize in the long term. Another explanation could be that the government expenditure towards research and development and human capital development is more effective, which improves productivity in the long run, resulting in positive economic performance.

The results probably show that government policies sponsored by the budget deficit and implemented during the study period are effective and can stimulate development in the long term. The short-run negative impact follows the business cycle and could result from policy changes and inconsistencies that have a short-run effect. This could indicate that in the short run, the government is concentrating on recurrent expenditure and has become short of resources for capital projects and the implementation of policies and programmes, leading to an adverse effect. In the long term, the government could have gathered enough resources and fully implemented the policies and programmes. As such, they indicate a positive impact.

Total government debt in the long and short term show an insignificant connection though some indication of causality relationship between debt and economic performance exist. Total government expenditure, in the long run, shows an insignificant relationship. And it is significant in the short term, but indication of causation in any path between total government expenditure and economic performance is invisible. The findings reflect bi-directional causality amid debt and fiscal deficit and unidirectional causality from debt to economic performance.

6. Recommendations

The findings indicate that fiscal deficit has a positive and substantial influence on economic performance in Zimbabwe in the long term. In contrast, it has an adverse influence in the short term. To avoid the short-term negative influence of fiscal deficit on economic performance, the government is recommended to minimize recurrent expenditure with deficit financing. Therefore, the authorities are recommended to concentrate more on a supportable and acceptable budget deficit pitched on capital schemes that are in line with infrastructure and human resource

advancement to attain justifiable economic performance and progress. Spending must be re-focused from the non-industrious areas to spending in more industrious and money-making segments that increase production and enhance economic performance in the long term.

The Government of Zimbabwe (GoZ) is recommended to implement economic administration activities which target lessening over dependence and reduce monetary shortfalls which lead to transfer imbursement and additional budgetary expenditures of disputed feasibility. The authorities must warrant inexcusable spending suggestions that are rejected. Authorities in charge should monitor shortfalls to ensure maintainable economic development. So, policies must be in place that focus on increasing productivity of a nation.

The study also recommends the government to look for methods that guarantee income generation dimensions, through widening the tax base to support spending sufficiently and assist upsurge of the multiplier which additionally creates production, that is, positive economic performance.

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Appendix

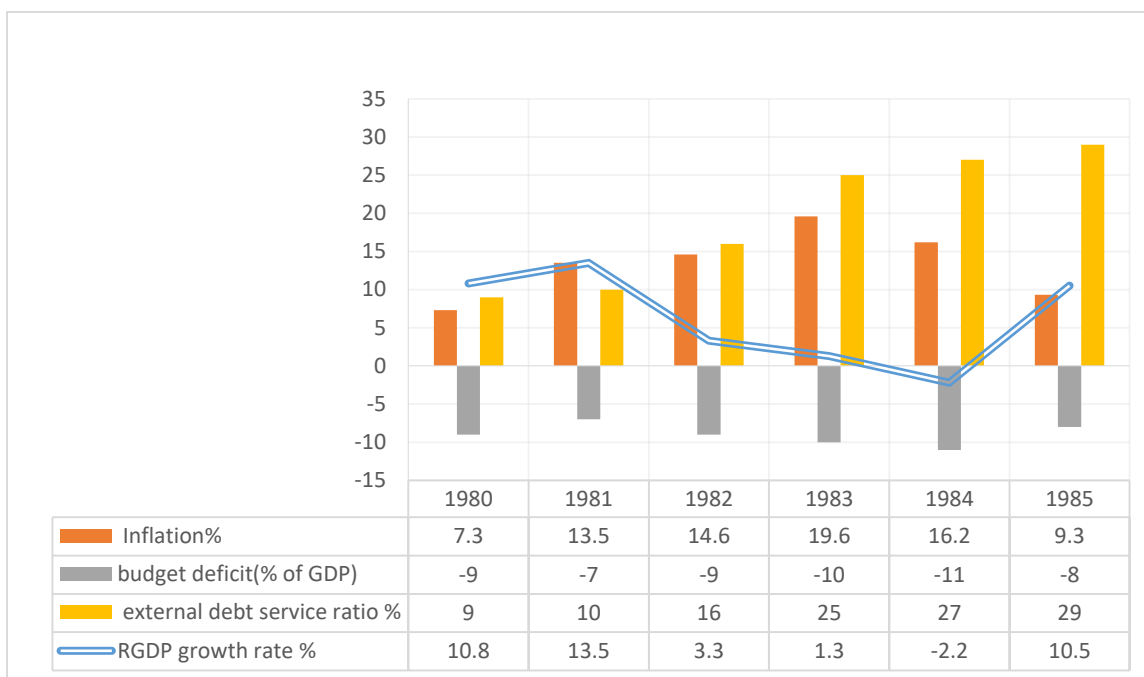


Fig A1: Performance of selected economic variables (1980 – 1985)

Source: Reserve Bank of Zimbabwe and Central Statistical Office (2016)

Table A1: Selected economic performance variables 1991 - 1995

Years	RGDP Growth rate	Inflation Rate	Budget GDEFicit % of GDP	External DEBT service ratio %	Current A/C GDEFicit % of GDP
1991	5	30.2	-13.03	24	-5.3
1992	-4.8	46.4	-13.05	30	-8.9
1993	2.9	18.6	-14.49	30	-2.1
1994	4.2	21.3	-14.48	25	-2
1995	-0.2	25.8	-15.54	20	-5

Source: Reserve Bank of Zimbabwe and Central Statistical Office (2016)

Source: Ministry of Finance (MoF), 2009-2018 budgets.

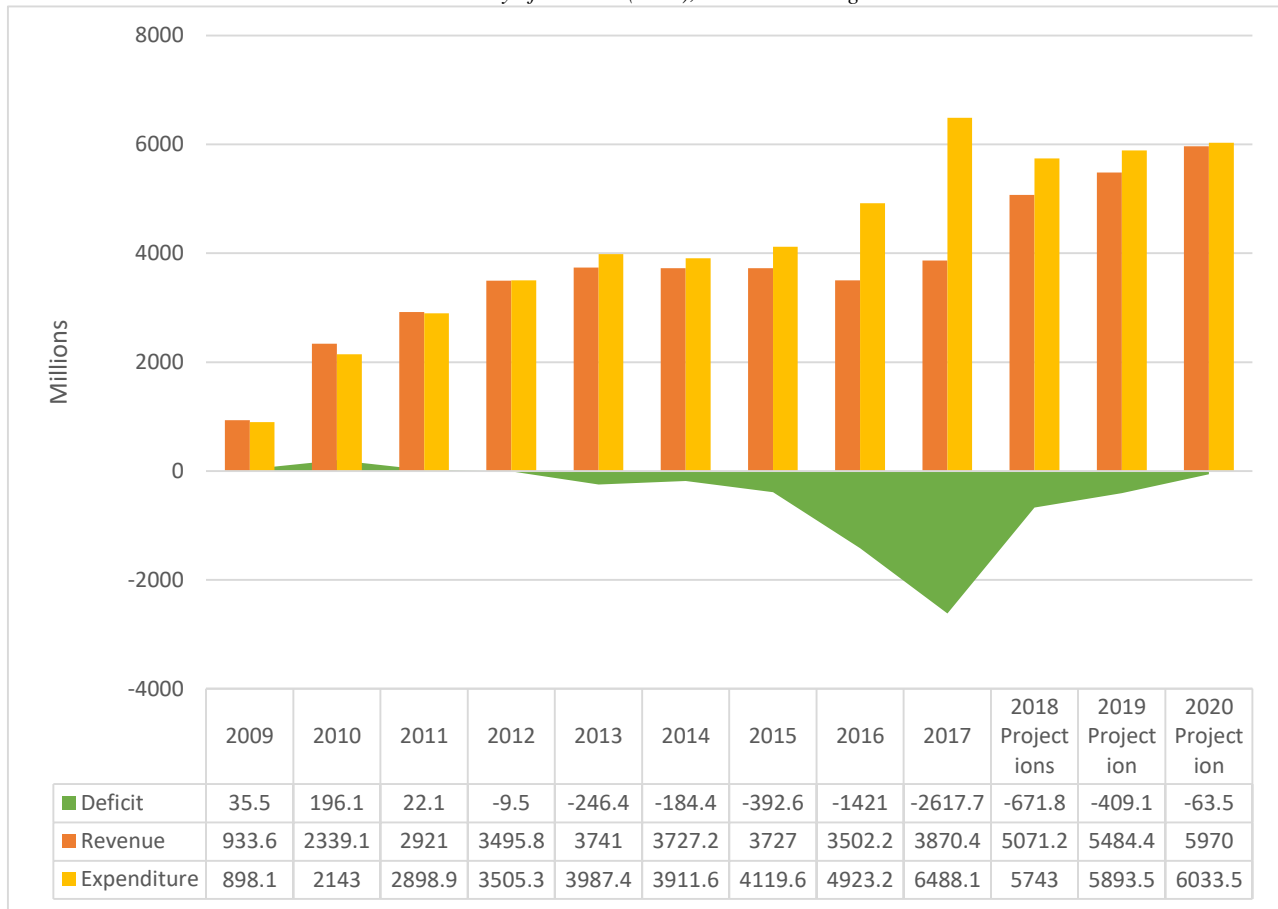


Fig A2: Revenue and expenditure for Zimbabwe 2009 - 2020