

Growth-Debt Nexus: An Examination of Public Debt Levels and Debt Crisis in Zimbabwe

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Abstract: Government debt is an indirect debt of the taxpayers, and can be classified as internal or external. Debt crisis is the general term for a proliferation of massive public debt relative to tax revenues. Public debt enables governments to invest in critical areas of the economy where the capacity of tax revenue to undertake these projects may be limited or in situations where printing additional money will disrupt the stability of the economy. Government borrows in order to defer difficult but necessary reforms such as the imposition of taxes which might be necessary to generate revenue for development. Countries with high public debt tend to grow slowly. The study examines the origin of debt crisis in Zimbabwe, debt nature, causes, consequences and possible ways of reducing the debt. The study uses 1980-2013 data to run an OLS model on economic growth using STATA Econometric Software, in an effort to explore the effect of external debt. The regression results show that public debt has a negative effect on economic growth in Zimbabwe, which has varying theories prevailing. The study concludes by encouraging the government not to borrow unnecessarily, and to use borrowed funds for investment projects, rather than on consumption expenditure.

Key words: Public debt, Economic Growth, Budget Deficit, GDP, Debt Crisis

JEL Classification: H63, O40, E62, E43

I. Introduction

Do high levels of public debt reduce economic growth? This is an important policy question. Most policymakers do seem to think that debt reduces growth. Correlation, however, does not imply causation. The link between debt and growth could be driven by the fact that it is low economic growth that leads to high levels of public debt (Krugman 2010). According to Panizza and Presbitero (2012), it may be that slow growth causes high debt. This implies that countries that are failing to grow end up borrowing more and usually they find it hard to pay back the loan. However, as Furth (2013) indicated, when government debt grows, private investment shrinks, lowering future growth and future wages. This typically works in many developing nations, and Zimbabwe is not an exception.

Public debt is the debt owed by a central government. By contrast, the annual government deficit is the difference between government receipts and spending in a single year, that is, the increase of debt over a particular year, Arkoh (2013). For Zimbabwe, government debt rose considerably over the past two decades to reach extremely high levels including recurring expenditure. As indicated by Checherita and Rother (2010), the manner in which debt builds up can be important from the perspective of its economic impact, as well as of the subsequent exit strategy.

Debt is not always bad. Sovereign debt can help developing countries. It enables governments to facilitate growth take-offs by investing in a critical mass of infrastructural projects and social sectors of the economy where taxation capacity may be limited, or when the alternative would be to print money and compromise macroeconomic stability. Debt also facilitates tax smoothing and counter-cyclical fiscal policies, essential for reducing output volatility; and it permits an equitable alignment of benefits and costs for long-gestation projects by shifting taxation away from current generations (Gill and Pinto 2005). Reinhart and Rogoff (2010) argue that war debts may be less problematic for future growth partly because the high war-time government spending comes to a halt as peace returns, while peacetime debt explosions may persist for longer periods of time.

Because debt plays such an integral part of economic progress, it must be measured appropriately to convey the long-term impacts it presents, Troy (2015). Hence, public debt has important influence over the economy both in the short run and the long run. According to Kumar and Woo (2010), the conventional view is that debt (reflecting deficit financing) can stimulate aggregate demand and output in the short run (assuming no non-Keynesian effects), but crowds out capital and reduces output in the long run. However, as Troy (2015) indicated, evaluating the country's national debt in relation to the country's gross domestic product (GDP) is not the best approach.

This short paper seeks to explore the nature of public debt in Zimbabwe, debt history, debt growth, debt effects, and solutions to reduce rising debt levels. Literature is scanty on the relationship between domestic debt and economic growth with most researchers focusing on external debt, Putunoi and Mutuku (2013). As indicated by Cecchetti *et al.* (2011), debt is a two-edged sword, if used wisely and in moderation, it clearly improves welfare, but, when it is used imprudently and in excess, the result can be disaster. High and rising debt for the Zimbabwean nation is a source of justifiable concern. The study contributes to the continuing debate of the relationship between debt and economic growth, some studies indicate that external debt does not influence economic growth, while others do think that high debt levels affect economic growth.

II. Economic Impact of Rising Public Debt

A sustainable government debt is one in which the debt ratio is stable or falling over time; a rising debt ratio denotes unsustainability, Goldstein (2003). High public debt can adversely affect capital accumulation and growth via higher long-term interest rates (Gale and Orzag, 2003; Baldacci and Kumar, 2010), higher future distortionary taxation (Barro, 1979; Dotsey, 1994), inflation (Sargent and Wallace 1981; Barro 1995; Cochrane 2010), and greater uncertainty about prospects and policies. High debt is also likely to constrain the scope for countercyclical fiscal policies, which may result in higher volatility and further lower growth. In more extreme cases of a debt crisis, by triggering a banking or currency crisis, these effects can be magnified (Burnside *et al.*, 2001; Hemming *et al.*, 2003).

Steeply rising public debt levels and the uncertainty associated with future fiscal consolidation plans pose challenges for monetary policymakers. Deteriorating public finances can trigger a sudden increase in long-term inflation expectations, Cecchetti *et al.* (2010). Also uncertainty about the timing and extent of fiscal consolidation plans complicates the forecasting needed to set policy interest rates at their appropriate level. Conflicts between the goals of fiscal and monetary authorities also arises causing inflationary outbursts in emerging market economies.¹ History shows that countries that ran high public debts eventually ended up with high inflation because governments were unwilling to pay high interest rates.

III. Debt Statistics in Zimbabwe

Zimbabwe recorded a Government Debt to GDP of 49 percent of the country's Gross Domestic Product in 2012. Government Debt to GDP in Zimbabwe averaged 78.41 percent from 1990 until 2012, reaching an all-time high of 150.90 percent in 2011 and a record low of 48.44 percent in 1990. Government Debt to GDP in Zimbabwe is reported by the Reserve Bank of Zimbabwe. Zimbabwe's debt overhang is an impediment to the growth trajectory. By end-2011, invalidated external debt stock (including arrears) was estimated at US\$10.7 billion, representing 113.5% of the country's Gross Domestic Product of which 67% is arrears. The bulk of the debt is owed to bilateral creditors amounting to US\$3.3 billion (or 31% of total debt stock), followed by multilateral creditors at US\$2.8 billion (26%), other debt at US\$2.5 billion (23%) and private debt at US\$2.1 billion (19%).

Year	2004	2005	2006	2007	2008	2009	2010	2011
Debt% of GDP	52.3	109.8	108.4	218.2	259.4	282.6	149	220.1

The statistics indicate a crisis, the debt is too high and gives so much pressure to the fiscus. It only shows that Zimbabwe is in a state of not being able to service the debt. This has also been fuelled by the economic crisis that has seen Zimbabwe losing its sovereignty currency and adopt the multicurrency regime. Surely the economy cannot fully recover given such levels of debt. Effective policies on debt have to be brought to use. And a new way of accumulating debt should be designed. As also indicated by Hodge (2004) referring to ECCU situation (here likened to Zimbabwe situation), clearly the high debt to GDP ratios in the region presents a clearcase for fiscal adjustment but the approach must be nuanced to the extent that the baby is not thrown out with the bath water.

3.1 Origin of Zimbabwe Public Debt

At independence in 1980, Zimbabwe inherited US\$700 million of debt from the Rhodesian government; the result of UN sanction-busting loans to the white regime to buy arms during the civil war, Jones (2011). This inherited, unjust debt was short-term and high interest; imposing a large repayment burden in the early 1980s just as drought struck. This debt dates primarily from loans made in the 1980s and 1990s by private lenders such as banks; foreign governments such as France, Germany and the UK; and multilateral institutions like the World Bank, African Development Bank and International Monetary Fund (IMF). The most expensive

¹For example Brazilian inflationary boom in the early 1980s when monetary policy, in the face of persistent fiscal deficits, started to act more aggressively against inflation (Loyo (1999)); the large jump in Israeli inflation in October 1983 (Sargent and Zeira (2008)); and the Indian inflation of the 1970s and 1980s in which fiscal deficits were monetised (Rangarajan and Mohanty (1997)).

project in the 1980s was the development of Hwange power station, funded by lenders including the World Bank, European Investment Bank and UK government; tied to the use of British companies. Among these are the US \$ 400 million package from China for the extension of the Kariba South Power Station; the US\$15 billion per year WB's Infrastructure Recovery Asset Platform; the US\$500 million Rapid Social Response Program; the US\$500 million Micro Finance Enhancement facility; and the US\$10 billion Infrastructure Crisis Facility.

3.2 Causes of Debt Accumulation

A lot of factors can be sighted as a cause for increasing debt in Zimbabwe, and these include both political and economic factors. Budgetary indiscipline and poor debt management are the chief causes of the current debt crisis in Zimbabwe and many other developing countries world over, Saungweme and Mufandaedza (2013). Irresponsible over-lending by private and official creditors during the commodity boom of the 1970s, without which irresponsible over-borrowing by African governments could not possibly have occurred also contributed to the commonly known as African debt. Failure to implement ESAP is also a significant cause. Neither the market reforms, nor the different measures that were meant to offset their effects on the most vulnerable, went according to plan. At the same time as parts of the Zimbabwean private sector displayed worrying signs of deindustrialization, and the public debt spiraled upwards, the standard of living of most Zimbabweans was also plummeting to levels not seen in 25 years.

Natural disasters also played a role in worsening debt levels. In 1983, 1985 and 1992, the country experienced severe droughts which forced government to commit resources to drought mitigation measures thus further worsening the country's fiscal and debt position. The participation from 1998 to 2002 in the war in the Democratic Republic of the Congo set the stage for this deterioration by draining the country of hundreds of millions of dollars. In 1997 there was a decision by government to award large unbudgeted pensions to the war veterans, which worsened the situation. Also for the period 1999 and beyond the decline in economic performance led to accumulation of arrears and penalties. In 1999 Zimbabwe defaulted in paying foreign debts and failed to reschedule the IMF debt and the economy was forced to pay 150 million pounds. Disturbed agriculture through the land reform program in 2000, has also a significant share in rising debt levels.

IV. Model Specification and Estimation

The study will analyse the relationship between economic growth and external debt of the economy. The methodology used in this study is related to the study of Dereje (2013) who studied the "effect of external debt on economic growth." Though Dereje (2013) used panel data analysis on different nations, this study will utilize the variables (debt interest burden added) and apply time series analysis on a single nation, Zimbabwe. The variables affecting economic growth are derived from the Solow growth model. Data used in this study is obtained from World Bank and IMF databases, and such data is mainly fit for international comparisons.

The study will regress economic growth against variables like population growth, external debt, investment growth, total external debt service, debt service to export ratio, debt interest payment, GDP growth and trade balance. The study uses the STATA Econometrics software to analyse data. Due to the aim of the study, the regression equation consists of debt burden measuring variables as the majority variables. The specific model will be as follows;

$$EconGrowth = \alpha + \beta_1 Pop + \beta_2 Tradebal + \beta_3 Extdebt + \beta_4 InitGDP + \beta_5 Invest + \beta_6 Interest + \beta_7 DebtSvs + \beta_8 DbtExp + \varepsilon_t$$

Where; *EconGrowth* = Economic Growth measured as growth in GNI per capita, *Pop* = Population growth, measured by the logarithmic of population, *Tradebal* = Trade balance, exports less imports, *Extdebt* = External debt levels, *InitGDP* = measures the initial GDP, *Invest* = Investment levels, *Interest* = Debt interest payment, *DebtSvs* = Debt service payments, *DbtExp* = Debt service as a ratio of exports.

$\alpha, \beta_1 - \beta_8$ and ε_t , constants and the error term.

3.3 Discussion of variables

Economic growth is the dependant variable in the analysis and represented by the growth rate of real GDP per capita. Initial per capita GDP represent the log of real GDP per capita and is used to demonstrate convergence. Convergence is a hypothesis that states: growth will be higher in countries where initial per capita income is lower than countries where initial per capita income is higher, hence 1980 has been taken as a base. Investment growth - according to Solow growth model investment has a positive and direct effect on economic growth. Population growth rate is one of the main variables on the capital accumulation equation developed by Robert Solow. According to the equation, population growth rate reduces capital accumulation. Trade balance/ net export - a country which is in trade surplus doesn't necessarily enjoy economic growth and a country on trade deficit doesn't necessarily fail in terms of economic growth. The study will expect a positive effect of trade balance on economic growth, regardless of the trade balance situation the countries experience. External debt - the disincentive effect of external debt on investment and growth,

which is debt overhang, is considered as one of the major cause for the poor performance of many developing countries. Debt service export ratio - This is the case when indebted poor countries transfer resources, including foreign aid and foreign exchange resources to service their accumulated debt. Net total debt service- The many reason to include net total debt service in the econometrics model is to trap the effect of the debt relief the debt they paid or serve. The study expects a negative impact of the net total debt service on economic growth.

3.4 Statistical Tests

Before estimation of the model basic statistical tests are undertaken and corrective measures to be applied. Multicollinearity test will be done using the correlation matrix. Stationarity test will also be done using Augmented Dick – Fuller test. And finally a heteroskedastic test will be done.

Variable	ADF Statistic	ADF Critical Values	Conclusion
Econgrowth	-5.453***	@1% = -3.696 @5% = -2.978 @10% = -2.620	Stationary, I(0)
Interest	-2.089		Non-Stationary
Investment	-3.318**		Stationary, I(0)
External debt	-2.218		Non-Stationary
Debtserv	-1.832	@ 1% = -2.453 @ 5% = -1.696 @ 10% = -1.309	Non-Stationary
InitGDP	-1.090		Stationary, I(0)
Popgrowth	-7.882***		Stationary, I(0)
Tradebal	-2.701***		Stationary, I(0)
DbtExp	-1.333*		Stationary, I(0)

Stationary: *** 1%, ** 5%, and * 10%.

The table above shows the results of a unit root test using ADF test statistic. Five variables including the dependent variable are stationary [integrated of order zero, I(0)], while four are non-stationary. The study uses the differencing method to stationarise the non-stationary variable to control for time effects. This involves using the basic formula for the first difference;

$$\Delta Y_t = Y_t - Y_{t-1}, \text{ where } Y \text{ is non-stationary variable.}$$

Variable (First Difference)	ADF test statistic	ADF Critical Values	Conclusion
INTEREST	-5.629***	@1% = -2.457	Stationary, I(1)
EXTDEBT	-6.061***	@5% = -1.697	Stationary, I(1)
DEBTSERV	-6.080***	@10% = -1.310	Stationary, I(1)
INITGDP	-4.938***		Stationary, I(1)

After differencing once, all the non-stationary variable became stationary, which means the variables are integrated of order one, I(1). Hence the stationary series will be included in the regressions, having eliminated the time effects.

Multicollinearity test has been done using the correlation matrix to test on the strength of relationships between explanatory variables. The results are shown in the table below;

CORRELATION	invest~t	tradebal	debstexp	logpop	interest	extdebt	debtserv	initgdp
investment	1.0000							
tradebal	-0.3779	1.0000						
debstexp	0.2627	0.0695	1.0000					
logpop	0.5061	-0.2346	-0.0908	1.0000				
interest	0.1888	-0.4247	-0.1076	-0.2734	1.0000			
extdebt	0.0113	-0.1857	-0.0001	-0.1212	0.2845	1.0000		
debtserv	0.4722	-0.4180	0.4380	-0.0679	0.1094	0.2125	1.0000	
initgdp	-0.0804	0.1197	-0.1237	0.0899	-0.2154	-0.8499	-0.2457	1.000

The table shows that correlation between external debt variable and the initial GDP variable is -0.8499, which is greater than the rule of thumb of 0.8. Hence both variables cannot be included in the same regression equation, as biased results will be obtained. Since external debt is a major variable in the study, INITGDP variable will be dropped. A variance inflation factor has also been computed for a regression equation containing the correlated factors and a magnitude of 2.7 has been obtained, which is again less than 4 (rule of thumb), implying that we cannot include both variable in a single equation.

3.5 Regression Model Results

Since the variables have been integrated of different orders, the appropriate model is to run an Ordinary Least Squares model. The first regression was run, and eliminating highly insignificant variables, in this case TRADEBAL (trade balance) which has a p-value of 0.748, another regression model was run to improve efficiency of results. The final model yielded the following results;

Regression Results, Economic Growth – Dependant variable (1980-2013)

VARIABLE	COEFFICIENT	STD ERROR	P-VALUE
INVESTMENT	1.75652	.9017604	0.062 *
DEBTSEREXP	8.511934	7.312208	0.255
POPGROWTH	-32.97132	16.11351	0.051 *
INTEREST	1.470787	1.550475	.352
EXTERNAL DEBT	-.3842144	.0553311	0.000 ***
DEBT SERVICE	-.5107073	.3641773	0.173
CONSTANT	229.3662	113.4071	0.054 *

F(6, 26) = 10.76 (0.0000), ADJ R-SQUARED = 0.6467, DW Statistic = 1.978506

3.6 Discussion of Results

A heteroskedasticity test was conducted after regression, using the Breusch Pagan test, and a chi-square statistic of 0.24 (0.6235) was obtained. Hence we have rejected the null hypothesis of robust standard errors, implying homoscedasticity prevails. The F-statistic reported 10.76 (0.0000) and is significant at 1% level indicating that the model used in the study is correctly specified. An adjusted R-squared of 0.6467 shows that about 65% variation in the dependant variable is explained by the included explanatory variables. Hence, it shows that there are some variables that affect economic growth that have not been included in this study. A Durbin-Watson statistic of 1.9785 shows that there is no serious autocorrelation as it is near to 2 (rule of thumb). This gives the study worth importance and of value as the tests indicate no misspecification.

The regression model shows three significant variables, external debt variable at 1%, population growth and investment level both at 10%. The fourth variable being the constant, also at 10%. The study has shown that public debt affects economic growth negatively as the coefficient of EXTDEBT has a negative sign and is significant at 1% level. Investment variable has a positive significant sign, indicating that investing is a good way of raising economic growth, and this is consistent to growth theories. Population growth has a negative significant sign, implying that the rate at which the population is growing, is affecting the growth of the economy negatively. Hence, the economy is failing to cope with the growth of the population.

The study has failed to prove that debt interest payment has an effect on economic growth. The study also has failed to prove statistically that the debt service to export ratio has an impact on economic growth. Also the servicing of debt is not so influential on economic activities to the extent of affecting economic growth, though the variable has a negative sign indicating a downward effect on growth.

Similar results have been obtained by Hodge (2004). The study results by Hodge (2004), demonstrated that well-executed high-yielding public investment programs may have concomitant increase on the level of economic output, boost private investment and consumption and most importantly not erode or lead to unfavourable debt dynamics in the long run. Also a study by Presbitero (2005), pertaining to LICs estimated a growth model, with a panel of 121 developing countries, and underlined the presence of a negative and linear relationship between past values of the NPV of external debt and current economic growth. Empirical study results by Baum et al. (2012) suggest that the short-run impact of debt on GDP growth is positive and highly statistically significant, but decreases to around zero and loses significance beyond public debt-to-GDP ratios of around 67%; for high debt-to-GDP ratios (above 95%-[Zimbabwe statistics are in this range]), additional debt has a negative impact on economic activity. Using annual data for the period 1984 to 2008 for a panel of sixty developing countries, a study by Qayyum and Haider (2012), found that good governance and foreign aid affect the economic growth positively while external debt has a negative impact on growth.

V. Concluding Remarks

An examination of the public debt leads to several important conclusions. Rising debt levels are not favourable to a nation. Debt service is becoming an increasing harsh constraint on government. External debt is a burden that put an economy into trouble. The negative impact of this debt affects areas of critical importance in the economic/social/political management and development of the nation. Large debts may discourage capital accumulation and reduce economic growth, and large debts have significant financial and real consequences. This could occur through higher long-term interest rates, higher future distortionary taxation, higher inflation, greater uncertainty and macroeconomic volatility. If growth is indeed reduced, fiscal sustainability issues are likely to be exacerbated, with further adverse consequences. It is essential that governments not be lulled into complacency by the ease with which they have financed their deficits thus far.

There are various ways that have been suggested by literature to resolve debt problems especially for African countries.² However, Zimbabwe should mainly concentrate on internal measures to ease the debt

²These include debt rescheduling, debt rolling, debt cancellation, Regional cooperation, re-instituting structural adjustment policies, forgiveness asking, increasing foreign aid among others. For more debt solutions see Ndegwa Philip (2005), "Solution of Africa's External Debt Crisis within a Framework of Recovery and Growth."

problems. This involve effective monitoring of borrowed funds, investing in capital projects that generates income. The nation should never borrow for consumption. There is need to have an approval committee, whenever borrowing is to take place. This avoids misuse of funds and also ensures necessary borrowing. Government spending should be monitored and also parastatal performance should be raised, and avoid continuous capital injection by government to underperforming parastatals. There should be a framework of harnessing the informal sector, so as to raise the tax base for government revenue. Adequate debt relief measures are, therefore, necessary, and a matter of urgency.

Careful attention has to be paid to factors such as the efficiency of public investment, the government's willingness to make tough decisions regarding fiscal adjustment in addition to policies regarding collection of user fees for public investment and return on public investment. Of crucial importance is the institutional framework for analyzing and managing public investment projects. This enables efficiency on borrowed funds and hence increased capital creation. Edet-Nkpubre (2013), emphasised sovereign debt management practices, and this is very crucial also for the Zimbabwean economy, and it also extends to other developing nations. Ojo (1989), explained external debt management as a policy which seeks to alter the stock, composition, structure and terms of debt with a view of maintaining at any given time, a sustainable level of debt service payment.

In conclusion, important to note is that borrowing is not all bad, but borrowed funds should not be misused. Finance is one of the building blocks of modern society, spurring economies to grow. Without finance and without debt, countries are poor and stay poor. When they can borrow and save, individuals can consume even without current income. With debt, businesses can invest when their sales would otherwise not allow it. And, when they are able to borrow, fiscal authorities can play their role in stabilising the macroeconomy. But, history teaches us that borrowing can create vulnerabilities. Solving the existing external debt problem should not, therefore, be regarded as the final objective; indeed solving that problem should be seen as one of the necessary conditions for enabling Zimbabwe to absorb more external resources for economic recovery and growth.

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