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SOVEREIGN DEBT THRESHOLD AND GROWTH IN THE SUB-SAHARAN AFRICA: A HISTORICAL DATA APPROACH

Abubakar Sadiq Saleh and Gabriel Okenwa

Department of Banking and Finance, University of Abuja, Nigeria

ABSTRACT: *Scholars have argued that excessive sovereign debts at certain levels could impact negatively on the economic growth of a borrowing nation. Studies however suggest a contrary view of the phenomenon. This study examines trends in debt-to-GDP-ratios, viz-a-viz economic growth, with a view to ascertaining whether there is a particular debt threshold beyond which borrowing can pose a threat to economic prospects of a nation. By use of the descriptive analysis the study samples four sub-Saharan African countries and review trends in gross government debt-to-GDP-ratio, and economic growth, to establish whether shock variables other than debt are responsible for the unfavourable growth recorded among highly indebted countries. The study confirms that a country's level of indebtedness may not necessarily be responsible for poor growth prospects.*

KEYWORDS: Debt Management, Debt Service, Debt Distress, Debt Threshold, Debt Overhang

INTRODUCTION

There is yet to be determined a particular debt threshold for countries in the sub-Saharan Africa. This has been a major challenge for scholars especially after the debt crisis and debt relief periods of the 1990s and the early new millennium. After these two periods some sub-Saharan African countries that experienced some level respite tend to be facing similar threats with all the signs of impending distress. Hence the need for the query: Is there really a particular debt threshold beyond which lower income countries especially those in the sub-Saharan Africa cannot borrow? And if there is a particular at what level of borrowing does debt become harmful to the economy of a country?

Several scholarly works have however been accomplished in the area of the relationship between sovereign debt and economic growth. It has been established that many of the countries in the sub-Saharan Africa, had larger proportions of their economic crisis to be directly or indirectly linked to borrowing. Okosodo and Isedu (2008) study on Nigeria for instance, confirmed and supported the existence of what is referred to as the debt overhang hypothesis. The researchers argued that increases in resources outflow due to servicing of external debts tend to result in serious depression of domestic economic activities and could lead to substantial contraction of agricultural and manufacturing output in the country. But supporting a similar disposition on the negative impact of debt in the sub-Saharan Africa Adigbite, et al. (2008) noted that debt was actually the major factor militating against growth and development in a country like Nigeria. It was argued that due to excessive servicing requirements that tend to follow such huge external facilities chances of economic growth from investment in productive activities is severely impaired. When debt is accumulated

there is the tendency of reducing economic performance through overhang effect and other macroeconomic instability ranging from discouraged savings, thereby worsening fiscal deficit, exchange rate depreciation, and balance of payment disequilibrium among others. The work however did not specify the at which debt becomes a threat to growth. Fosu (1990) however drew the conclusion that the long-term impact of debt was "non-monotonic"; and that it was positive at low levels of investment and after a debt/GDP threshold of about 16 per cent, it becomes negative.

Taking a similar view, Deshpande (1997) explained using a sample of 13 countries that the claims of debt overhang effect is found to be valid and really exist. He confirmed the opinion that external debt is found to exercise a negative influence on the investment ratio of a country in debt. For the period under consideration, the investment ratio for the sample countries displayed first a rising tendency roughly up to the late seventies and then declines to the end the eighties. Contrary to this stand however Cohen (1993) observed that although debt levels had insignificant overall effect, it was seen to have a negative effect on growth particularly in the Latin American countries but not in African countries. Objecting to the notion of debt overhang further, Cordella, Ricci, and Ruiz-Arranz (2010), pointed out that investments in highly indebted countries were not really affected by debts. Instead, they explained that the real negative effect of debt on investment was actually significant among countries with lower indebtedness.

In particular the sub-Saharan Africa, a region so much hit by distress that led to a number of policies in debt relief and debt cancellations in the periods between the late nineties and early new millennium. Recently in it's the IMF (2018) warned that about 40 per cent of countries in the sub – Saharan Africa were in debt distress or at a high risk of distress. The Report specifically stated that African countries issued $7.5 billion sovereign bonds in 2017, a figure that is 10-fold higher than in 2016. It is a matter of necessity for African countries to invest massively in infrastructure, but in the same instance the countries in the region need to avoid the risk of being caught in a debt trap all over again. With the lowest revenue-to-debt ratio in the world (IMF, 2018) nations in Africa need to rely on more sustainable sources of financing and prioritising increased domestic revenue.

Pescatori, Andrea et al. (2014) in a recent work, employed a new comprehensive IMF database to argue against the long-held view that there is a level in sovereign debt that ultimately becomes harmful to a country's economic growth. This assertion is promoted in works by renowned economic researchers such as Reinhart and Rogoff (2010); and Reinhart and Rogoff (2012) study which further confirmed the existence of a debt threshold beyond which borrowing could become harmful to economic growth. According to these scholars, for advanced economies such as those in the OECD, the debt threshold should be a maximum of 90 per cent of the GDP; above which borrowing could turn out to impact negatively on growth. Prior to all this, but through the exploitation of a new multi – country historical data set on central government debt as well as more recent data on external debt (both public and private), to search for a systematic relationship between debt levels, growth and inflation, Carman, Reinhert, Kenneth and Rogoff (2010) reported that whereas the relationship between growth and debt seems relatively not very strong at normal debt levels, the median growth rates for countries with public debt over 90 per cent of GDP are about one per cent lower than if they had no debts at all; with the average (mean) growth rates several percentage points lower.

The issue of debt among lesser developed countries has equally been one of the foremost phenomena in public finance. For example, studies by Hansen (2001) where he examined a sample of about 54 developing countries but failed to find a conclusive evidence to support the assertion that debt (external) had a negative effect on economic growth. Also, in a much earlier analysis, Bert, Hofman et al. (1990) argued that debt overhang largely played a large part in explaining the slump in investment among debt distressed nations. The two researchers explained how the IMF hinged its support of the debt overhang proposition on two pieces of evidence: the savings ratio in the so-called Baker-15 countries fell sharply, rather than increased, when external finance dried up. The study indicated that the necessary squeeze in domestic demand relative to output was therefore more than fully reflected in lower investment. A comparison of the country group of problem debtors with a group of other heavily-indebted countries which did not experience debt-servicing problems showed that investment and savings ratios dropped in the former group but not in the latter. This evidence tends to confirm the debt overhang hypothesis which attributes disincentive effects to the fact that debt service becomes linked to economic performance in problem debtors, thus weakening the incentive to invest.

These analyses employing a significant number of developed countries was quite relevant in the study of debt and economic growth, but was however found to be entirely lacking in empirical evidences especially with respect to countries in the sub-Saharan Africa. But a study of debt in Africa would prove most relevant as Omotola and Saliu (2009) observed that it is a fact to assert that Africa has been over burdened by debt. They look at debt crisis as a situation in which indebted countries will be so much indebted to the extent that it will be just difficult to sustain the management of the debt a situation that most of the times results in severe economic distortions and internal instability.

Generally, however, the fact that debt servicing by the debtor nation will result in less available funds for investment is understandable and logically leads to illiquidity which gives rise to what is referred to as the Liquidity Constraint Hypothesis (LCH). This hypothesis argues that the more funds are expended in debt repayments then there is bound to be shortage of funds for investment purposes which in the long run equally affect both the debtor as well the creditor.

Richard Cooper and Jeffrey Sachs (1984) observed that solvent countries may borrow up to the point of the solvency constraint. They however noticed that borrowing limits could be reached far below the solvency limit, because creditors are averse to liquidity problems and probable incident of debt repudiation by the heavily indebted countries. According to the duo, liquidity constraint may occur where a country owes more in a given period than it can service in the absence of a new loan. In a nutshell such a country is said to be under liquidity constraint.

Liquidity constraint is by far not the only reason that could deny a country the option of raising funds in the international market. Such a country may lose its creditworthiness if it is facing short-run difficulties, even though its long-run prospects are bright. In this case, the lending is bound by a liquidity constraint. However, a country may be proven to have foreign exchange earnings sufficient to honour its obligations, may still be considered unfit to borrow if it shows signs indicating unwillingness to do so, because debt repayment is too onerous or because it is holding out for some sort of debt relief. Fear of default referred to as “repudiation risk” may pose a serious constraint on lending.

Apart from the liquidity or repudiation risks, creditors consider a country's long run capacity to service its debt. From their point of view creditors' long run solvency must not necessarily mean that the borrowing nation must have transformed itself into an industrialized nation in the long run with excessive favourable balance in its current account or foreign reserves. Instead a prospective borrowing nation should prove to its potential creditors that it has a guaranteed expected flow of future resources to service its debt, without having to recourse to further debts in order to make interest on loans payments. This ability is necessary such that a rise in the real interest rate above the growth rates of debtor and creditor countries can have a negative effect on the debtor's solvency constraint. A country's capacity to borrow is therefore most likely to reflect the creditors' concerns about solvency, liquidity, and repudiation risk. It is the interaction of these constraints that determines the dynamic budget constraint facing an economy (Richard C. and Jeffrey S., 1984)

Thus, when investment in a group of large debtor countries tumbled in the 1980s, many analysts blamed the poor performance on debt crisis. This was based on the theory that if there were to be a discount on the secondary debt market, the lenders might not expect to be paid in full; where repayments is hinged on the debtor's resources (Cohen, 1995); where debt was operating like a tax on a country's resources implying debt's adverse effect on domestic investments popularly called the debt over hang. The debt overhang phenomenon which tend to give creditors the incentive to lend at an expected loss ostensibly to secure their existing claims (Jeffrey Sachs, 1984; JD Sachs (1989)). But the position in the real world however is one of both repayment and new borrowings; where if countries future repayments were not in doubt they would have no difficulty borrowing (Krugman, 1988). Krugman (1988), further saw debt overhang as referring to a situation of an existing 'inherited' debt that was substantially large enough that creditors would not confidently expect to obtain repayments on their lending. Carmen M Reinhart, Rogoff, and Savastano (2003), however, differed especially while considering the case of emerging economies when they saw the entire phenomenon as a consequence of what they referred as the debt intolerance. Debt intolerance was associated with the pervasive of persistent debt default among many sovereign debtors. These debt-intolerant countries tend to have weak fiscal structures as well as weak financial systems. But whether governments' decision to borrow or reduce the amount of debt could have a positive impact on economic growth tend to depend on the existence of the so-called debt overhang. According to Pattillo, Poirson, and Ricci (2011) there existed some evidence for an empirical turning points or thresholds beyond which borrowing tend to impact negatively on economic growth. This result confirms the findings of Fosu (1996) working on a sample of sub-Saharan African countries where he found that debt negatively influenced GDP growth through a process of reduction in the marginal productivity of capital. The findings indicated that on the average, associated with a higher debt country is a fall in GDP growth of about 1 percentage point annually; which approximately constitute a third of the sample mean growth of GDP. The impact however tends to be positive at low levels of investment, i.e. and after a GDI/GDP threshold of up to 16 per cent it reverts to negative. The same negative conclusion was drawn by Cohen (1991); and many others. Sosin and Lin (2001) using cross-sectional estimates of the coefficient of foreign debt based on the total sample found that it had a negative sign, however without any statistical significance. According to them all available data from African countries indicate that foreign debt and growth rate per capita GDP were negatively related especially at high level of significance.

More studies however continued to show that higher levels of borrowings tend to negatively hamper economic growth. But a number of researchers went further to explain that the debt overhang phenomenon was more than just a drop in the investment level. For instance an implication of the debt overhang could lead to reduced government incentive to carryout difficult reforms in the areas of trade liberalisation or fiscal adjustments (Pattillo et al., 2011); because any activity that requires an expenditure in the expectation of an increased future output would be discouraged for fear of taxes by the creditors. But looking at the relationship between debt and growth in the light of specific features such as the quality of its policies and institutions, Ricci and Cordella (2010) discovered that the marginal effect of borrowing especially for non HIPC countries tend to be negative when the par value of debt was up to 20 per cent of the country's GDP. Alternatively, it could be where the net present value of such debt reaches up to 10 per cent of the GDP. It was however found that those countries with sound policies were relatively having higher debt overhang thresholds over and above those countries with bad policies which were found with lower thresholds. But good policies especially among the developing countries were usually as a result of outcomes of debt and debt renegotiations with the international financial institutions in the form of structural adjustments and conditionality. This is because at the centre of conditionality are the aspects of structural adjustment and trade liberalisation. According to Fafchamps (1996) however, conditionality helps the repayment of sovereign debt by providing a partial solution to a commitment problem. In certain situations, conditionality promotes good policies that lead to the elimination of debt overhang. This is especially where conditionality comes with concessionary lending of sufficient magnitude. But where it is anticipated by lenders, conditionality could get the IFIs and the debtor nation into a trap where the debt overhang is bound to persist; with conditionality continuing indefinitely. The issue of debt over hang however, tend to dwell on the threat of default to the creditors and a risk of strangulation of domestic investments as a result of high debt servicing, on the part of the debtor.

External Debt

A larger proportion of the debt owed by countries in the sub-Saharan Africa suffering from debt crises and distress had been sourced externally. The debt crises led many of the countries in the sub-region to be declared insolvent and thus had the phenomenon of debt overhang ensured. In order to ascertain the debt overhang as it impacts on economic growth certain trends in key variables were considered using data obtained from the World Bank economic indicators on the four countries sampled. A range of indicators depicting a country's extent of indebtedness e.g. values corresponding to external debt to GDP ratio, external debt to export ratio, interest on debt to export ratio, and total debt service to export ratio.

METHODOLOGY

The Historical Data Approach

This study adopts the new approach employed by Pestecori, Andrea et al. (2014) in the work, *No Magic Threshold* investigating further the relationship between high sovereign debt situations and economic growth. By focusing on 34 advanced economies, Pescotari, Andrea et al. (2014) uses new and comprehensive IMF database on gross government-debt-to-GDP-ratios, interest payments, and primary deficits. The work reviewed episodes where gross

public debt rose above a particular threshold to observe real GDP growth per capita over specified long-term periods. According to Pestecori, Andrea et al. (2014) the new methodology was different from the one in use by researchers such as Reinhart and Rogoff's 2010, because it focused on medium-to-long-term relationship existing stock of debt-to-GDP and any further GDP growth instead of mere short-term relationships explored by other studies. Observing longer term effects has the advantage of mitigating compounding caused by temporary recessions or sudden growth bursts that could impact on the short run relationship between debt and growth.

Unlike studies focusing mainly at advanced economies, this study focusses on selected samples of countries from the sub-Saharan Africa; and uses historical data to review individual country trends with respect to the relationship that exists between debt-to-GDP-ratio, and economic growth. Like in the work by Pestacori, Andrea et al. (2014) the methodology employed in this study differ from those adopted in earlier works in two other important aspects. One, the study proposes to review an array of debt thresholds not a fixated threshold of 90 per cent in the case of an advanced economy; and 15 per cent as suggested in the debt intolerance theory; for nations with past history of debt crisis e.g. those in the sub-Saharan Africa. Secondly the proposed methodology is focusing only on the period when debt thresholds are higher than particular levels, the growth performance of a country over a period of time regardless of the debt outcome are taken into cognisance (Pestacori, Andrea et al. 2014). The proposed methodology thus has an advantage of objectivity towards nations that found it difficult to reduce their levels of borrowing. There is always the danger of bias when debt analysis focuses mainly at situations where debt remains above a certain threshold.

Data for the study was sourced from the World Bank database economic indicators, and the IMF database world economic outlook, and government debt statistics. Analysis would be carried out by use of tabulations and Charts.

Government Gross Debt to GDP Ratio

In an attempt to assess the impact of government borrowing on economic growth, an attempt was made earlier in this work to link government indebtedness to economic growth. For instance, it was argued that there exists an optimal level of government debt, where it is assumed that at certain levels of government debt ratio, the impact might revert to become negatively related to growth. If there is a level above that which government tends to substantially affect economic growth, then it follows that reducing government debt to a certain scheduling should become a priority for debt mangers and management offices.

As further argued earlier in the write up, there was actually no preferred level for government debt. It was postulated that debt level might have been triggered by lower economic growth instead of the other way round. In order to look at this phenomenon there was a need to compare a country's annual growth to gross government debt as a ratio of GDP. The data below gives the annual GDP growth and gross government debt to GDP ratios for 12 years commencing 2000.

Table 1: Pattern of Debt: Nigeria

Year	GDP Growth (Annual %)	Gvdgdp
2000	5.32	84.22
2001	4.41	87.97
2002	3.78	68.78
2003	10.35	63.86
2004	33.74	52.66
2005	3.44	28.61
2006	8.21	11.81
2007	6.83	12.79
2008	6.27	11.58
2009	6.93	15.17
2010	7.84	15.46
2011	4.65	17.16
2012	6.75	18.39

Source: Government Debt Statistics

Table 1 shows the record of GDP annual growth and the gross government debt as a ratio of GDP. This trend tends to show that at lower economic growth rate relative higher debt ratio was recorded. But it is also evident that there is a lack of consistency in the pattern. For instance, in the 2000, growth rate was recorded at 5.32%, which corresponds to a debt ratio of 84.22% and when growth rate was 4.41%, the debt ratio was 87.97% respectively. From these two periods it would be safe to assert that at lower debt ratio, higher growth rates were recorded. This was, however, not a reliable assertion since in the year 2003 debt ratio was lower at 68.78%, while a corresponding growth rate was still lower at 3.78% when compared to 2001 and 2000 respectively. This makes the relationship between the two phenomena suddenly directly lacking in an established pattern with regards to any of the periods reported earlier. In 2003 however, a high growth ratio of 10.35% corresponds with a debt ratio of 63%, and in 2004 a growth of 33.74% corresponds to a debt ratio of 52.65%, conforming to the assertion that a higher debt ratio might have the tendency to impact negatively on the growth of a country.

The data presented here helps to portray the observable trend and possible relationship between debt and economic growth. Thus, in an effort to establish the relationship and before the proposed statistical analysis, a review of the trends and patterns of data would shed light on a probable outcome, which could assist us in a better understanding of the government debt phenomenon.

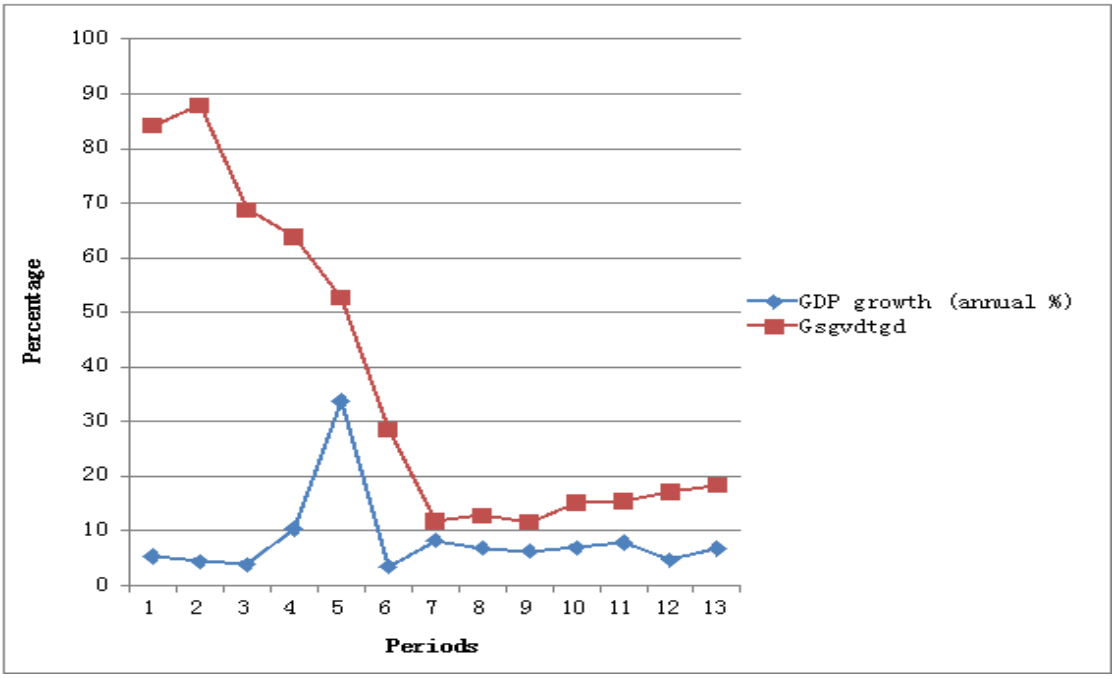

Figure 1: Graph Showing Pattern of Debt – Nigeria

Figure 1 portrays a pictorial representation of the gross government debt as a ratio of gross domestic product and the actual GDP growth rate in percentages as presented in table 1. The curves in the figure, with red being gross government debt and blue depicting GDP growth rate. From the beginning the trend tends to show an opposing relationship between the two indicators. Afterwards, the pattern is maintained, but with reversed movement directions up to period 5 or year 2004. Between period 7 and 8, which corresponds to 2006 to 2007, the relationship inverted i.e. GDP growth rate drop corresponded to a rise in gross government debt, from 8.21% to 6.82% against a rise from 11.81% to 12.79% respectively.

The next two periods between 2007 and 2008 and from 2008 to 2009, show a fluctuating trend with a decrease in growth rate from 6.83% to 6.27% and from 6.27% to 6.93% respectively. This was accompanied by a similar movement in gross government debt to GDP ratios, recording first a decrease from 12.79% to 11.58% and then a rise from 11.5%to 15.17% for the same periods respectively. The remaining three periods until the year 2012 revealed an inconsistent movement between the two variables with GDP growth rates fluctuating up, then down and later rising again to 6.75%, from 6.93% to 7.84%, then dropping to 4.65% and finally rising to 6.74% for the periods respectively.

Gross Government Debt to GDP Ratio against GDP Growth: Ghana

To further establish whether there is a peculiar trend or relationship that might have existed between government borrowing and economic growth, we next consider GDP growth against gross government debt as a ratio of GDP to observe the pattern over a period. Here we look at the period from 2001 to 2012, obtainable from the World Economic outlook of the IMF.

Table 2: Pattern of Debt: Ghana

Year	GDP Growth (Annual %)	Gvdgdp
2001	4	98.20
2002	4.5	84.59
2003	5.2	81.80
2004	5.6	54.04
2005	5.90	43.77
2006	6.4	21.92
2007	6.46	23.26
2008	8.43	30.10
2009	3.99	32.69
2010	8.01	43.03
2011	15.01	39.81
2012	7.91	49.10

Source: World Bank Debt Indicators and World Economic Outlook

Table 2 displays a trend of all the GDP annual growth ratios against the government gross debt to GDP ratios for the period 2001 to 2012. Except for the years 2009 and 2012, GDP growth had been positive for the whole the period since 2001. The GDP growth ratio started at 4% in 2001 and continued to record a persistent increase reaching a high ratio of 8.4% in 2008. This represented an increase of 4.43 percentage points or 110.75% change over the years from 2001. However, after this period, in 2009 the GDP growth rate tumbled significantly to a low 3.99% representing a drop of 4.44% points or 52.67%. The movement of the GDP growth ratio continued its movement with increases in 2010 and 2011 recording 8.01% and 15.01% respectively. In 2012 however the GDP dropped to 7.91%.

In comparison, the third column on the table portrays the gross debt to GDP ratios over the same period under review. The debt ratio continued to decline with an increase in GDP growth rate until the year 2007 when the decline of the debt ratio slowed down with a slight increase to 23.25% from 21.92% in 2006. The remaining period from 2008 to 2012 reveals an inconsistent pattern of movement in both GDP growth ratios and gross debt to GDP ratios. At higher growth ratios relatively, lower debt ratios were recorded and vice versa. For instance, in 2011 a GDP growth rate of 15.01% was recorded against a gross debt to GDP ratio of 39.81%. However, GDP growth rates dropped to 7.91% the following year in 2012, yet gross debt to GDP ratio rose to a high 49.09% for the same period. Thus, the trend tends to be only predictable at low levels of GDP growth, but inconsistent at higher levels of GDP growth rate.

This provides us with the ground to tentatively assert that at lower levels of GDP growth rate government borrowing tends to affect economic growth negatively. Or, growth tends to be more sensitive to growing government debt. At higher GDP growth rate there tends to be either reduced or no effect of borrowing on economic growth.

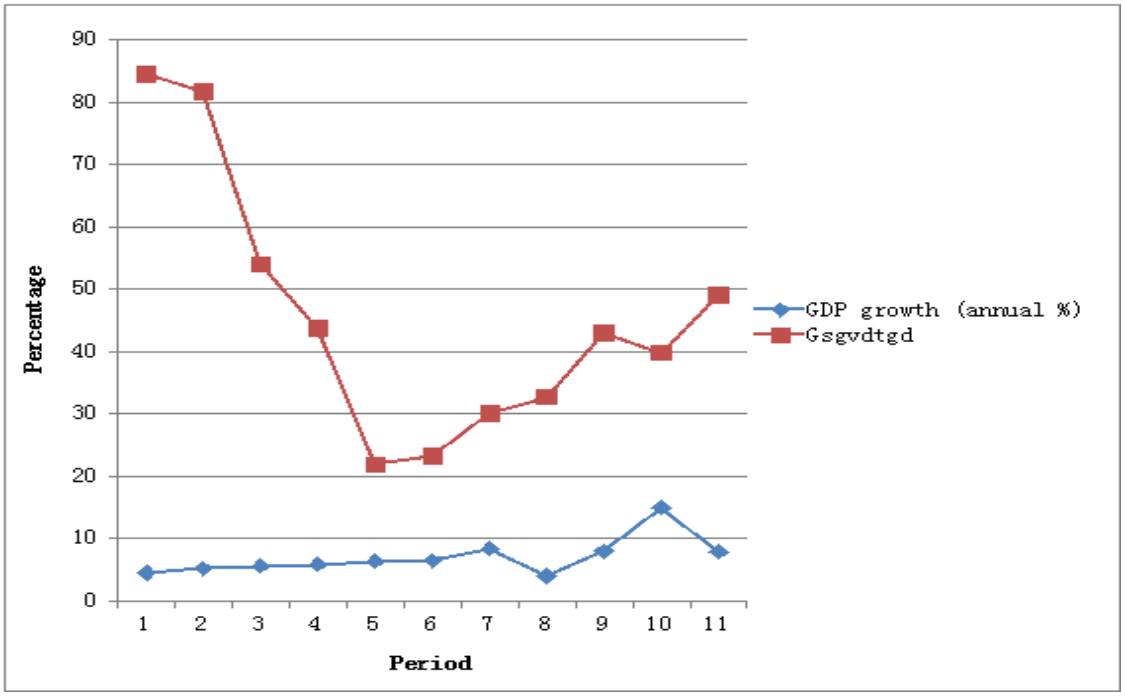

Figure 2: Graph Showing Trend in Debt and Economic Growth – Ghana

Figure 2 further depicts the relationship between GDP growth's curve and gross debt to GDP ratio. The blue curve shows the GDP growth and the red curve shows the gross government debt to GDP ratios. The trend is most obvious from period 1 to period 5. GDP growth climbs gradually and the gross government debt ratio declines at an accelerated rate. Between periods 5 and 6 we also observe a movement that is in a similar direction. After period 7 the pattern is seen as inconsistent and erratic. This is merely to buttress the observation made earlier, that at lower levels of GDP growth; government borrowing tends to have a significant effect on growth but tends to become irrelevant at higher growth rates.

Gross Government Debt to GDP Ratio to GDP Growth: Uganda

This section continues with the same data presentation as the previous section on gross government debt to GDP ratio and the annual GDP growth for Uganda, covering a period of 1997 to 2012. Here, the same traits were observed as noted under Nigeria and Ghana; all in an effort to study how the phenomenon of government borrowing could affect the economic growth of a country. Under Uganda, the data sourced from the IMF's Economic Outlook is more comprehensive. At least in this case, we are able to obtain three years' data, which is over and above what we had obtained in the case of Ghana and Nigeria.

Table 3: Debt Pattern: Uganda

Year	GDP Growth (Annual %)	Gvdgdp
1997	5.10	53.54
1998	4.91	52.55
1999	8.05	57.76
2000	3.14	61.73
2001	5.18	63.45
2002	8.73	69.11
2003	6.47	68.24
2004	6.81	62.40
2005	6.33	52.82
2006	10.78	35.49
2007	8.41	21.94
2008	8.71	21.43
2009	7.25	21.43
2010	5.86	26.84
2011	6.62	29.30
2012	3.41	31.10

Source: World Bank Debt Indicators and IMF World Economic Outlook

Table 3 reveals the trend of GDP growth ratio and gross government debt to GDP ratio over the years under review. The figures displayed in the second column representing GDP growth rate over the 15 years under review indicates that there was no particular observable pattern in the trend. GDP growth started from a moderate ratio of 5.10%, when then then fell to 4.91% in 1997 and 1998 respectively. By the year 1999, GDP growth ratio had jumped to 8.05%, representing a rise by 3.14%or 63.95% over the previous period. By the year 2000, the GDP growth ratio dips significantly to 3.14% representing a drop of 4.91% or 60.99%.

In the following years: 2001, 2002, 2003 and 2004, the growth ratios recorded were 5.18, 8.73, 6.47 and 6.81 respectively. These ratios as with the recorded earlier randomly fluctuated, showing no specific pattern in the trend. This trend continued, where it reached a peak in 2006 with 10.78% from 6.33% at the end of 2005. This represents an increase of 4.45 percentage points or 70.30% respectively. The ratios continue their inconsistent movement in the following years: 2007, 2008, 2009, 2010, 2011 and 2012, with 8.41, 8.71, 7.25, 5.86, 6.62 and 3.41 respectively.

So far, a study of the trend above helps to paint a particular picture of GDP growth ratios movement over time. It has been made clear that the rise and fall of GDP ratios had no relationship with figures shown in the next column of gross government debt to GDP ratios for the same period. For instance, when the lowest GDP growth rate was recorded in the year 2000 at 3.14%, the corresponding gross government debt ratio was recorded at a high 61.73%. On the other hand, the highest GDP growth ratio was recorded at 10.78% in the year 2006, against a corresponding debt ratio of 35.49%.

These two periods may tempt us with the assumption that the lower the GDP growth recorded, the more the tendency for higher government debt (and vice versa). In the same

vein, we could further postulate that at higher levels of GDP growth rates, lower levels of borrowing were embarked upon by government. This relationship was however, found not to be significant and feasible when we further study the entire trend. In particular, the year 2002 recorded a GDP growth ratio of 8.73 against a debt ratio of 69.11, 2003 recorded a growth ratio of 6.47%, against a debt ratio of 68.24% and in 2004 the GDP growth rate was 6.80, while a debt ratio of 62.40%. There was no precise conformity with the negative causal relationship between government debt and economic growth postulated above. In addition, there was no clear-cut direction of the relationship - if there existed such a relationship, it was difficult to establish whether GDP growth rate impacted on government rate of indebtedness, or the other way around.

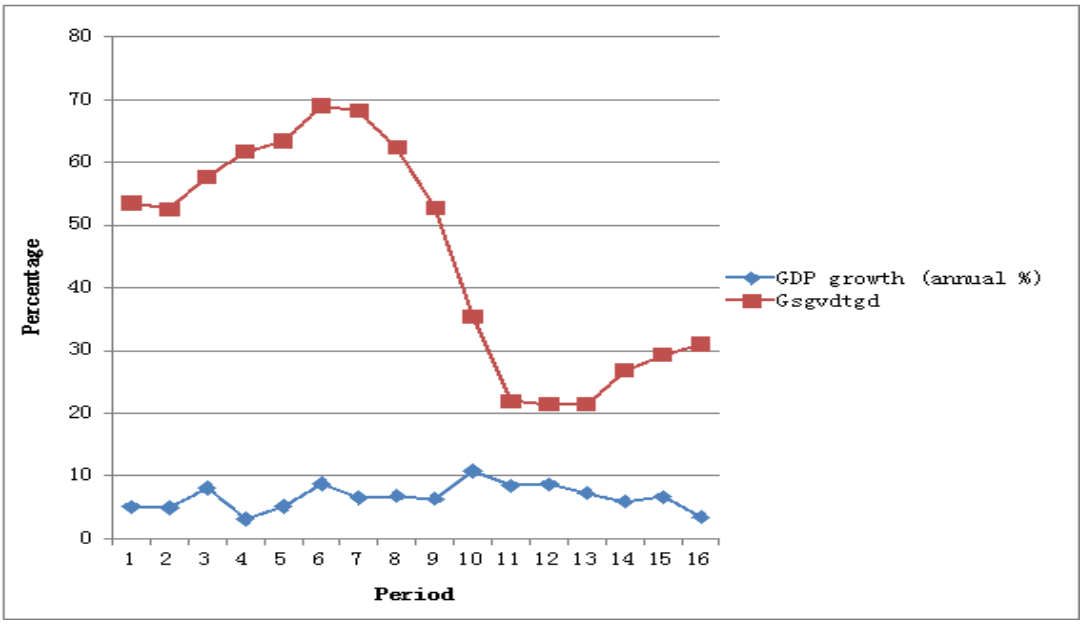

Figure 3: Trend in Debt and Growth – Uganda

Figure 3 depicts the trend considered earlier in this section. The relationship between GDP growth rate and debt ratio indicates no particular pattern over the period under review. For Uganda, the trend was not so different from the other two sub-Saharan African countries reviewed earlier in this work.

However, it is clear from the figure that during the earlier years there tended to exist an inverse relationship between GDP growth rate and debt ratio. Except for few fluctuations between period 3 and 4, the trend for the earlier periods up to period 6 or year 2002 was negative. While the debt ratio tended to flatten between periods 6 and 7, GDP growth rate on the other hand dipped to flatten in the next period. Debt ratio however, continued on an accelerated decline until period 11, which corresponded to the year 2007. And beyond that point to the next 2 periods (2008 and 2009), the debt ratio flattened to pick up from period 13, then rose until period 16 or 2009 to 2012.

Generally, the trend that has become evident is that during most of the periods the relationship that existed between debt and growth was negative and reversed though in several instances the relationship became indeterminate. In some instances, the two curves

either move in same direction or either of the curves flattens, with the other rising or sloping downwards.

Gross Government Debt to GDP Ratio to GDP Growth: South Africa

South Africa was an interesting country among the sampled sub-Saharan Africa economies. Unlike in the case of other sub-Saharan African countries, South Africa had little history of external debt and was among the few countries that had a developed domestic capital market. South Africa was not a HIPC and thus had not befitted from a substantial debt relief or debt cancellation during the IMF-World Bank Debt Relief Initiative. In this section, we review the gross government debt data for South Africa against the record of GDP growth rate over the years.

Table 4: Debt Pattern: South Africa

Year	GDP growth (annual %)	Gvdgdp
2000	4.15	43.32
2001	2.74	43.49
2002	3.67	36.95
2003	2.95	36.91
2004	4.55	35.88
2005	5.28	33.20
2006	5.60	30.97
2007	5.55	28.33
2008	3.62	27.23
2009	-1.53	31.58
2010	3.09	35.31
2011	3.46	38.82
2012	2.55	42.10

Source: World Bank Debt Indicators and IMF Economic Outlook

Table 4 displays a trend of the two economic indicators of GDP growth and government gross debt to GDP ratio. Column 2 which presents the GDP growth ratios shows an array of erratic rates over the years. Between year 2000 and 2001, GDP growth rates fell from 4.15 to 2.73% respectively. This corresponds with debt ratios shown in the next column of a high 43.32 and 43.49%, for the same periods respectively.

Here it is safe to assert that at lower GDP growth rates higher debt ratios are posted. Impliedly, high government debt is negatively related to growth - invariably high government borrowing tends to hinder growth. However, by studying the trend in the table it would not be hard to understand that such a relationship happened for just a moment among several others over the years under review. For instance, year 2002 told an entirely different story, although, not precisely unrelated to the first scenario. GDP growth rate jumped to 3.67% representing an increase of 0.93 percentage points or 33.94%. Debt ratios for the corresponding period declined from 43.49 to 36.95%, representing a fall of 6.54 percentage points or 15.04%. The same relationship turned out to be maintained, but it was relatively insignificant.

Further along the trend, the year 2003 saw to the decline of both GDP growth rate and debt ratios to 2.95 and 36.91% respectively. This movement disrupted the established relationship where both indicators travelled in the same direction. However, the following three periods witnessed a reversion to the initial relationship where in 2004, 2005 and 2006, the indicators of GDP growth rate and debt ratio related negatively with 4.55, 35.88, 5.28, 33.20, and 5.60, 30.97 respectively. The next two periods however, change the trend again with a relatively significant decrease in the values of the two indicators. In 2007 and 2008, the indicators of GDP growth and debt ratio recorded a decline to 5.55, 28.33, and 3.62, 27.23% from 5.60, 30.97% at the end of 2006 respectively.

An interesting development however, occurred in 2009 with a significant decrease in GDP growth ratio to – 1.53% from 3.62% at the end of 2008, representing a decline of 5.15 percentage points or 57.73%. This corresponds with an increase of the debt ratio for the same period from 27.23 at the end of 2008 to 31.58% at the end of 2009, representing a rise of 4.35 percentage points or 15.97%. The negative relationship between the two variables was once again stressed. The next two periods, 2010 and 2011 further distorted the trend, where the two indicators recorded increases to 3.09, 35.31 and 3.46, 38.82, respectively. The two indicators moved in the same direction with GDP growth and debt ratios increasing over the periods respectively.

By the year 2012 however, the negative relationship between GDP growth rate and government gross debt to GDP ratio (or extent of indebtedness) resumes. The year 2012 witnessed a GDP growth ratio that declined to 2.54 from 3.09% by the end of 2011, representing a decline of 0.55 percentage points or 17.80%. On the contrary, the corresponding period saw an increase in the recorded debt ratio from 38.82% at the end of 2011 to 42.09% at the end of 2012. This represents an increase in debt ratios by 3.27 percentage points or 8.42%.

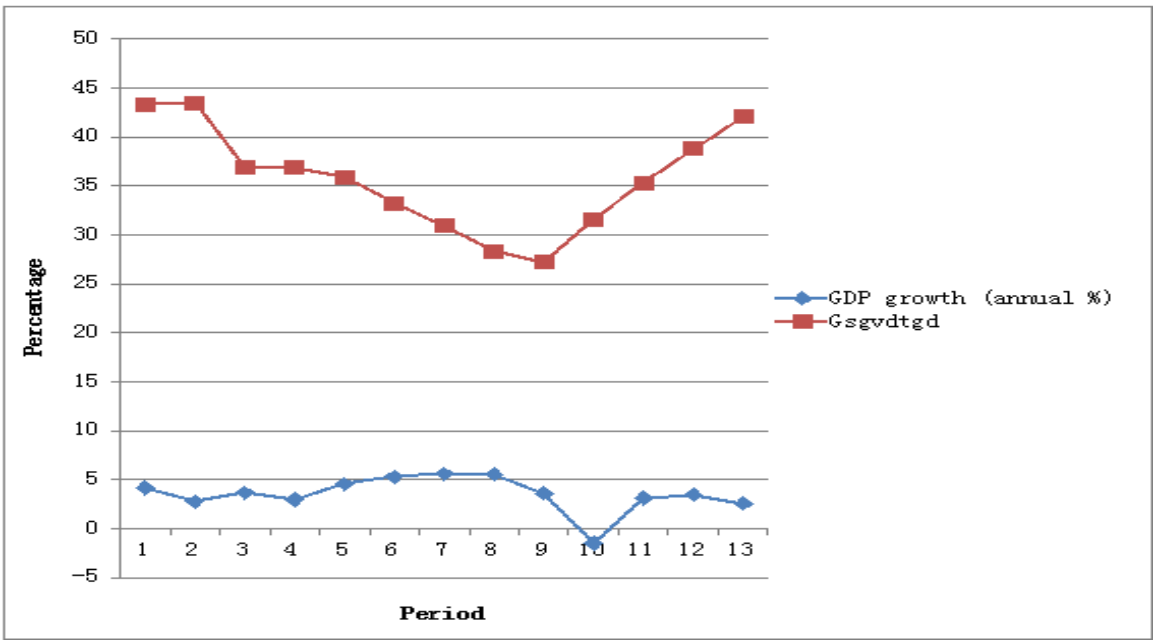

Figure 4: Trend in Debt and Growth – South Africa

Figure 4 presents a pictorial representation of the relationship that exists between GDP growth and gross government debt to GDP ratio. From the figure, we can see that debt ratio is depicted by the red curve and GDP growth is shown along the blue curve. The horizontal X axis shows the periods ranging from 1 to 13 (2000 to 2012) and the vertical or Y axis portrays the different ratios to 50. As discussed earlier in the section, in many instances (and for most levels of the curves) the relationship that exist between GDP growth and debt ratio tended to be negative. However, in several instances we also witness a flattening or reversal scenario, yet most occurrences depict a negative relation -at higher GDP growth ratios, debt ratios tended to be low and vice versa.

CONCLUSION

The relationship that exists between these two important variables however, might not be precisely determined by mere comparison between an array of figures and ratios. In any case the comparison was hardly consistent, especially when similar patterns were considered using similar variables under the same circumstances but for the other three sampled sub-Saharan African countries. While the work tried to establish a certain relationship that exists between government debt and economic growth, first with external debt data and later with gross government debt data, several explanations emerged. For example, at lower levels of debt, GDP growths tends to be high and the relationship tends to become indeterminate at higher levels of GDP growth ratios. This trend is consistent for the sampled country data.

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