



External debt and economic growth in selected African economies: A heterogeneous dynamic panel data analysis

Innocent U. Duru^{1*} --- Okoroafor, O.K. David² --- Ehidihamhen, Paul O.³ --- Iyaji Danjuma⁴ --- Fortunatus Chikeziem Okorontah⁵ --- Obisike, Ndubueze E.⁶ --- Chukwuemeka Nwamuo⁷ --- Ojo Toluwalashe Favour⁸

^{1,5,6,7}Department of Economics, Rhema University Nigeria, Aba, Abia State, Nigeria.

¹Email: uud3.x@yahoo.com

²Email: chizim4teens@yahoo.com

³Email: obisikendubueze@yahoo.com

⁴Email: mekuzzy2002@yahoo.com

^{2,5}Department of Economics, University of Abuja, Abuja, Nigeria.

²Email: okoroafor@uniabuja.edu.ng

³Email: ehiobohpaul@yahoo.com

⁴Department of Economics, Nigerian Army University, Biu, Borno State, Nigeria.

⁴Email: danjumaivyaji@gmail.com

⁸Ado-Ekiti State University, Ekiti State, Nigeria.

⁸Email: ojotoluwalashe1995@gmail.com

Abstract

The nexus between external debt and economic growth of Ghana, Kenya, Morocco, Nigeria, Rwanda, Tunisia and Zimbabwe from 1981 to 2021 was examined in this study. For analysis, the Pooled Mean Group Heterogeneous Dynamic Panel Data Approach and the Toda Yamamoto Granger causality tests technique were deployed. The results indicated that external debt had a negative effect on economic growth. Moreover, debt service exerted a positive impact on economic growth. The findings of the causality tests showed that there is no causal link between external debt and economic growth. Furthermore, no causal link was established between debt service and economic growth. As a result, the study suggests that the capacity of these economies in terms of revenue generation and debt servicing should be reinforced by their governments through the channelling of external debt into long-term productive investments for the realization of positive economic growth. Moreover, the policies on debt servicing in these economies should be sustained since it is yielding the desired results. Furthermore, thoroughly assessed projects of high significance should be the only yardstick for the contraction of foreign loans in these economies. Also, the policy objectives of external debt, debt service and economic growth can be pursued separately from one another in this group of economies in Africa.

Keywords: Africa, Dynamic heterogeneous panels, Economic growth, External debt, Pooled mean group estimation, Toda Yamamoto causality.

Licensed: This work is licensed under a Creative Commons Attribution 4.0 License.

Funding: This study received no specific funding

Institutional Review Board Statement: Not Applicable.

Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: Conceptualization, all authors; Methodology, software and formal analysis, I.U.D., O.O.K.D.; Validation, E.P.O., O.N.E., O.T.F.; Investigation, I.D., C.N., O.T.F.; Data Curation, I.U.D., O.O.K.D., F.C.O.; Writing –

Original Draft, I.U.D.; Writing – Review & Editing, C.N., O.T.F., I.U.D.; Visualization, O.N.E., E.P.O., I.D., F.C.O.; Supervision, O.O.K.D., I.U.D., F.C.O., O.N.E. All authors have read and agreed to the published version of the manuscript.

1. Introduction

Most economies in Africa are plagued with a grave burden of external debt thereby making the realization of fast and viable economic growth and development a mirage. Thus, the achievement of rapid and worthwhile economic growth becomes their major objective. However, [Adepoju, Salau, and Obayelu \(2007\)](#) argued that the accomplishment of this economic growth is compounded by dwindling capital formation as a result of low investments and savings in these countries. The quest of the government to address this through a deficit budget has resulted in external borrowings. As was cited in [Tefera \(2019\)](#) external debt based on the Africa Economic Chart Book 2018, will not constitute a great dilemma if contracted debts are committed to viable projects and debt repayments and further investments are addressed through the resulting economic growth. The aid granted to these economies would have been a source of succour in the financing of some of these deficits.

However, as stated by [Muhanji \(2010\)](#) “much of the aid was used to finance grandiose projects of little economic value and to underwrite economically ruinous policies”. The external debt-economic growth debate in the economic literature came to limelight after the assertion of [Reinhart and Rogoff \(2010\)](#) based on a far-reaching experimentation of developing and developed economies that debt to GDP ratio of more than 90% is unfavourable to growth. It was further strengthened by the global economic and financial crisis that began in 2007 and affected several countries in the world. [Tomaselli \(2018\)](#) argued that the interest and shift in focus on the subject matter of debt to developed economies was reawakened by it. This recession provoked by dwindling prices of houses in the United States and an increasing number of borrowers incapable of repaying their loans resulted in an extraordinary shock to the financial system that led to one of the most noticeable economic cramps after the Great Depression.

Financial experts have expressed their concerns over the decisions of some governments in Africa to continue borrowing amid their unsustainable debts. Most of these governments have not heeded the advice of Alexander Hamilton that a state debt that is not too much would amount to a state blessing to us. They argued that the governments of these countries need to slow down on borrowing since their external debt stock is unsustainable. Thus, like a ticking time bomb, these growing debts need to be defused to avoid an economic earthquake. The external debt problem in the world undertook a critical reputation and drew the attention of policymakers globally in the wake of the Mexican debt crisis that began in 1982. Evidence from financial crises after the 1980s showed that high external debt compounded the susceptibility of economies in terms of capital flight and exchange rate oscillations ([Chen, 2019](#)).

Several analysts think that hindrances resulting from the burden of external debt of numerous developing economies, SSA inclusive to some extent are responsible for their poor investments and growth outcomes from the time when the debt crisis in the world began in 1982 ([Eshetu, 2021](#)). This resulted in the implementation of structural adjustment policies enforced by the International Monetary Fund (IMF) and World Bank (WB) in most of these economies. However, these programmes did not yield the desired outcomes. The institution of the Heavily Indebted Poor Countries (HIPC) initiative in 1996 by the IMF and WB was a testament by the creditors that SAP is deficient in terms of capability to stop the growing debt in developing economies. No wonder, academics, policymakers, and economists have been contemplating the best way in terms of speed and degree to overcome the economic problems of external debt in the world.

A painstaking investigation of the nexus between external debt and economic growth in selected economies of Africa could serve as a platform that would underpin the development of an efficient strategy for debt management that would sustain economic growth and development in the African continent. The current and future generations of policymakers could resort to the outcome of this study as an uncommon resource for the development of economic plans and the navigation of their economies in an unpredictable world. For the economies under investigation, despite the contracted debt, evidence from [Figures 8-7](#) showed that external debt exceeded the GDP growth rates of these economies. This suggests that the contracted debt probably did not yield the desired result in terms of economic growth. Again, the negative relationship between external debt and GDP growth rates could be a confirmation that borrowed funds possibly were dispatched by leaders, particularly dictators of these countries to Western economies through capital flight rather than utilization in productive investment to boost economic growth.

In addition, in the face of external borrowings, [Figures 15-21](#) indicated that external debt service diminished the GDP growth rates of these economies for most of the periods under review. Furthermore, [Figures 22 to 28](#) revealed that the servicing of external debt reduced the Foreign Direct Investment (FDI) inflows in most of these countries for the periods under study. This can unearth further macroeconomic distortions. Hence, the dwindling economic growth and the external debt stocks in these economies have drawn the attention of scholars. Most of these economies are experiencing fast growth in their external debts, raising doubts about their effect on their GDP growth rates. The questions to address in this paper are: What is the impact of external debt on economic growth in the selected countries of Africa? What is the causal relationship between external debt and economic growth in the selected economies of Africa?

In light of this background and given the ambiguous nature of the link between external debt and economic growth, this investigation seeks to probe the effect of external debt on the economic growth of Ghana, Kenya,

Morocco, Nigeria, Rwanda, Tunisia and Zimbabwe from 1981 to 2021. Also, it would examine the causal link between the variables of interest. Besides the introduction, this study has five sections. The overview and practical evidence of external debt in selected economies are described in section two. The theoretical framework and empirical issues are presented in section three. The fourth section will dwell on the methodology and model specification. The empirical results are discussed in section five whereas section six would concentrate on the conclusion and recommendations.

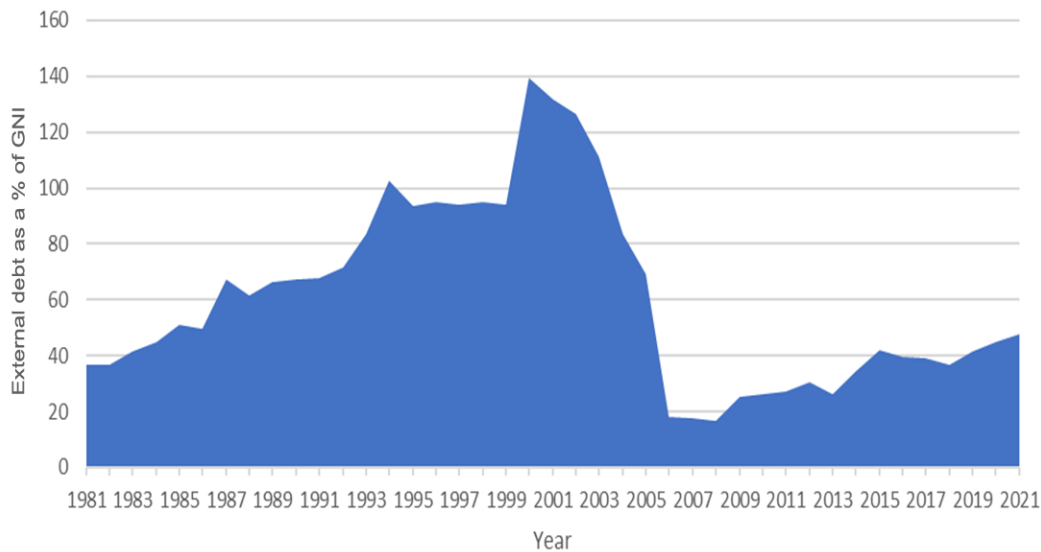


Figure 1. External debt of Ghana, 1981-2021.

2. Overview and Practical Evidence of External Debt in Selected Countries, 1981-2021

2.1. External Debt of Selected Countries, 1981-2021

The external debt of Ghana is depicted in Figure 1. The external debt exhibited an upward growth trend from 1981 to 2000. However, the external debt stock declined continuously from 2001 and reached its lowest point in 2008. Ghana's external debt to Gross National Income (GNI) moved from 25% in 2009 to 31% in 2012. The external debt stock to GNI dropped to 26% in 2013. The external debt to GNI rose to 42% in 2015 and became stable from 2016 to 2019. It then rose from 45% in 2020 to 48% in 2021.

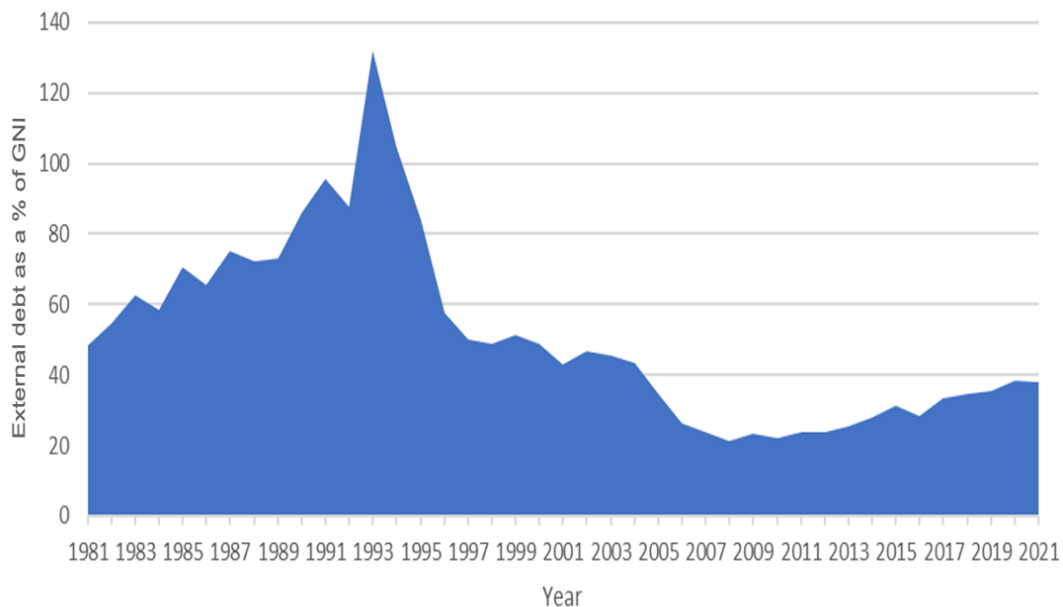


Figure 2. External debt of Kenya, 1981-2021.

Figure 2 revealed that the external debt trend in Kenya fluctuated from 1981 to 1994. Afterwards, it declined continuously and amounted to 49% in 1998. It fluctuated between 1999 and 2006. However, it became stable from 2007 to 2015. The external debt to GNI rose from 29% in 2016 to 38% in 2021.

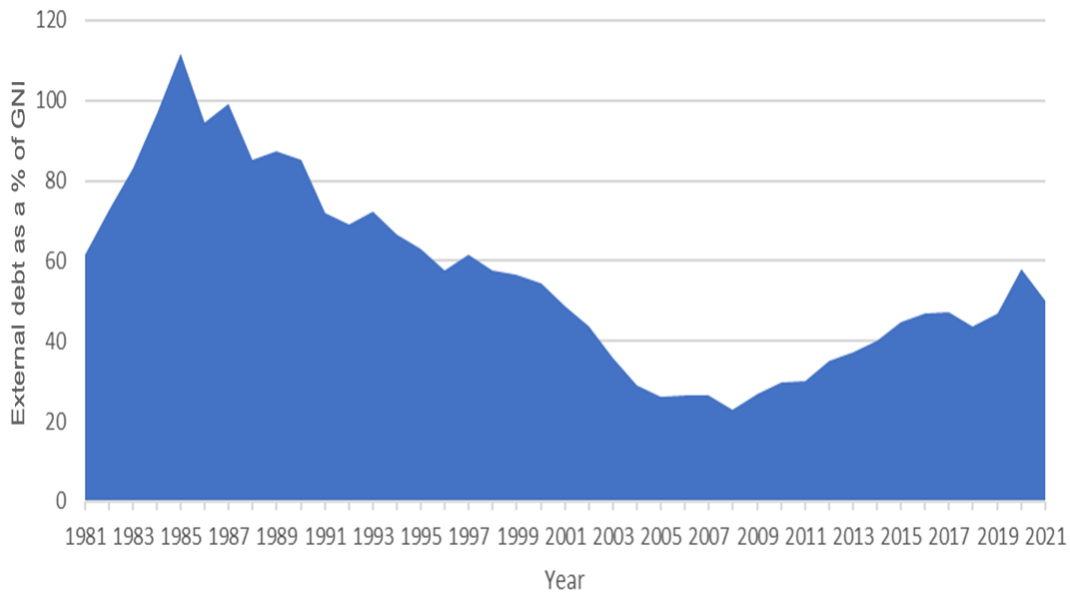


Figure 3. External debt of Morocco, 1981-2021.

The external debt of Morocco from 1981-2021 is indicated in Figure 3. It showed that the highest external debt to GNI recorded by Morocco for the period under review was 112% in 1985. It fluctuated between 1986 and 2001. It declined continuously from 44% in 2002 to 26% in 2007. It grew from 23% in 2008 to 47% in 2017. However, it dropped to 43% in 2018. It fluctuated between 2019 and 2021.

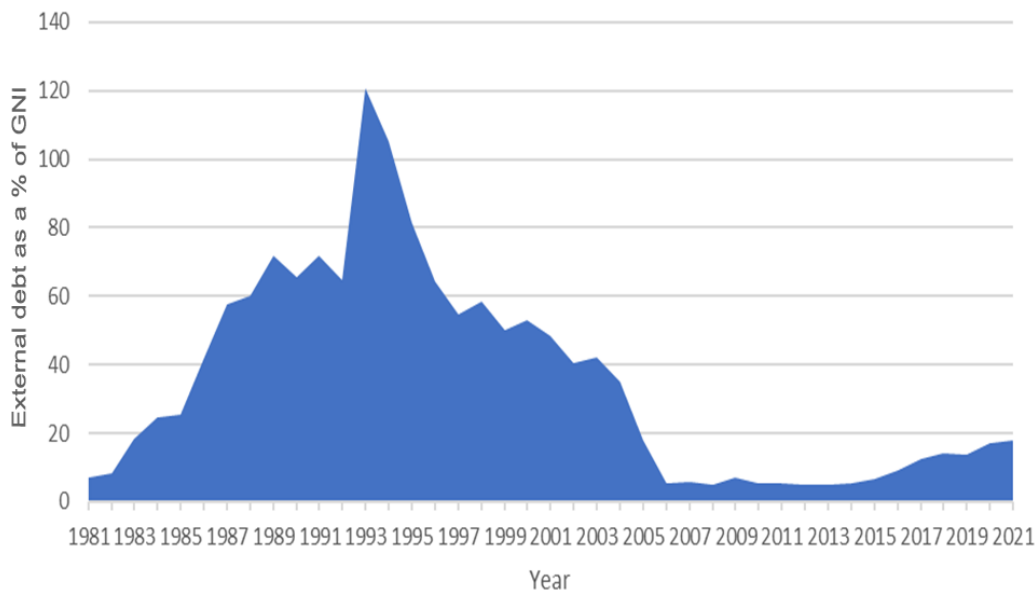


Figure 4. External debt of Nigeria, 1981-2021.

Figure 4 shows Nigeria's external debt from 1981 to 2021. Evidence from Figure 4 revealed that external debt as a share of GNI rose continuously from 1981 to 1989. The execution of the Structural Adjustment Programme (SAP) was responsible for the escalation of foreign borrowings during the era. The external debt recorded in 1994 was alarming. It was 103% and the highest for the period under study. The drop in the revenue of the government was partly responsible for the high debt accumulation. Another factor was Decree No.3 of 1985 which pegged the maximum external loan at ₦5 billion. After the pronouncement of this decree in 1985, Nigeria's external debt assumed an upward trajectory till 2005. After the 2005 debt relief granted to Nigeria, external debt exhibited a downward trend from 2006 to 2016. However, it assumed a growth course from 2016 to 2021 owing to the reappearance of foreign borrowings. It is worth noting that the crash in the international prices of petroleum products was mainly responsible for foreign borrowings from 2012 to 2021.

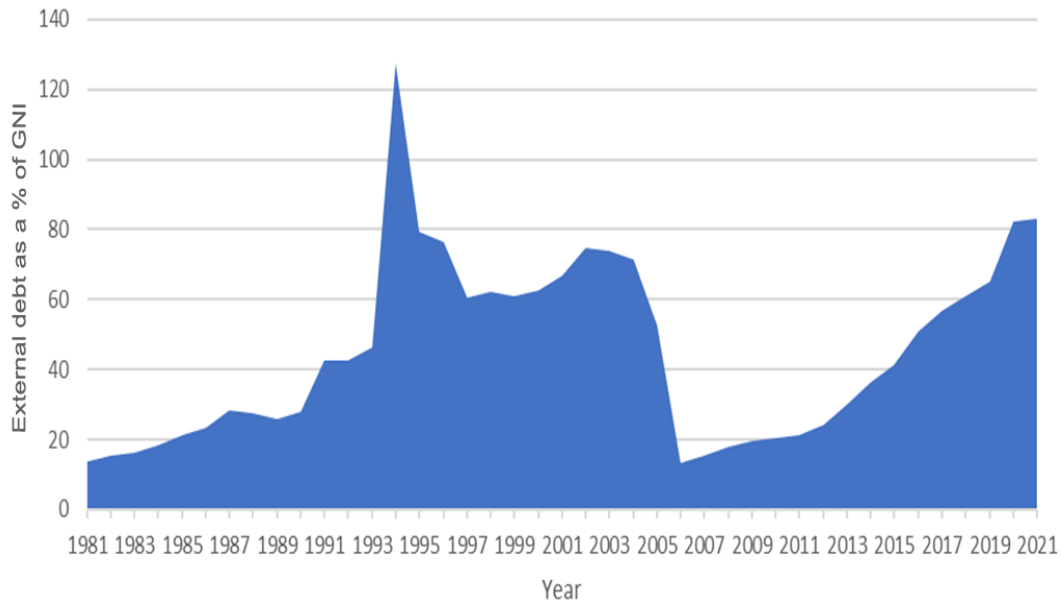


Figure 5. External debt of Rwanda, 1981-2021.

Evidence from Figure 5 indicated that the external debt stock of Rwanda exhibited a rising trend, though on a gradual pace from 1981 to 1987 and fluctuated between 1988 and 1992. The external debt to GNI soared from 46% in 1993 to the highest point of 127% in 1994. The external debt value of 1994 which was more than double the rate recorded in 1993 affected the performance of the economy. It fluctuated between 1995 and 2005. It recorded the lowest value of 13% in 2006. It maintained a rising trajectory from 2007 to 2021.

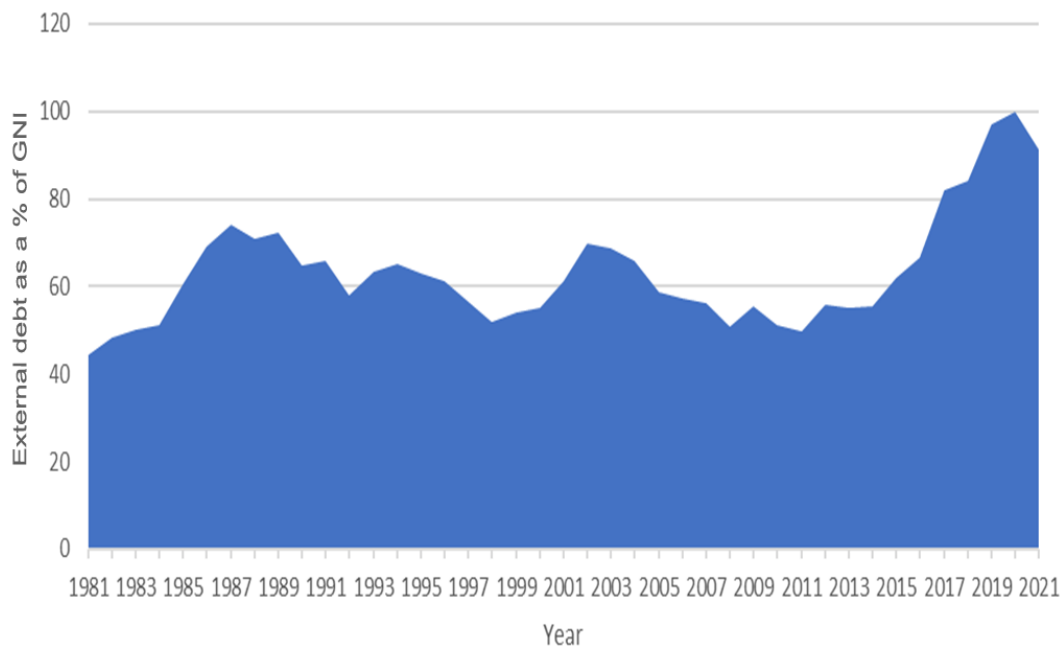


Figure 6. External debt of Tunisia, 1981-2021.

The progress of the external debt as a share of GNI for the period under investigation is shown in Figure 6. The external debt stock revealed a rising trend from 1981 to 1987. The rise in the stock of debt was mainly triggered by the economic recession of the 1970s, which affected the performance of Tunisia's economy. It fluctuated between 1988 and 2015. The external debt to GNI maintained an upward trend from 2016 to 2020. In 2021, it recorded a value of 91%.

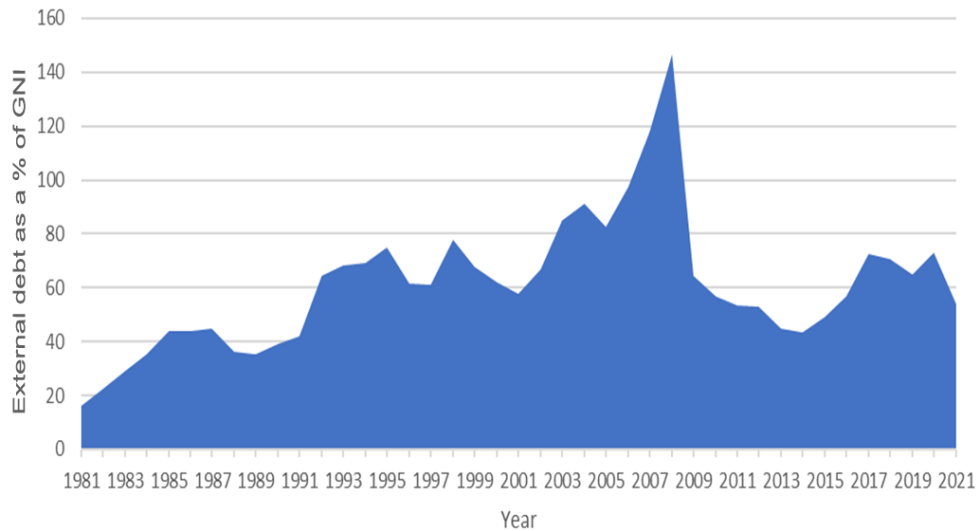


Figure 7. External debt of Zimbabwe, 1981-2021.

Figure 7 shows that the external debt of Zimbabwe was pronounced throughout the period under review. Richardson (2004) argued that unwarranted government expenditure amid available revenues of government resulted in the growth of external debt. Richardson (2004) and Government of Zimbabwe (GoZ) (1998) maintained that the implementation of structural adjustment reforms in 1991, through the Economic Structural Adjustment Programme (ESAP) and Zimbabwe Programme for Economic and Social Transformation (ZIMPREST) resulted in additional foreign borrowings that increased the external debt of Zimbabwe. In the contention of Gono (2008); Government of Zimbabwe (GoZ) (1982) and Mumbengegwi (2002) the accumulation of external debt arrears owing to the shrinkage of the local economy and the surge in non-concessional external loans were accountable for the rise in external debt between 1980 and 2008. International Monetary Fund (2001) argued that the obvious drop in external debt between 1998 and 2001 is due to a decrease in external borrowing resulting from the postponement of Zimbabwe's right to borrowing by the International Monetary Fund (IMF) and World Bank, and other creditors' reluctance to offer new debt. In addition, Nyarota, Kavila, Mupunga, and Ngundu (2015) argued that the insufficient inflows of foreign direct investment between 2012 and 2014 was partly responsible for the increment in external debt.

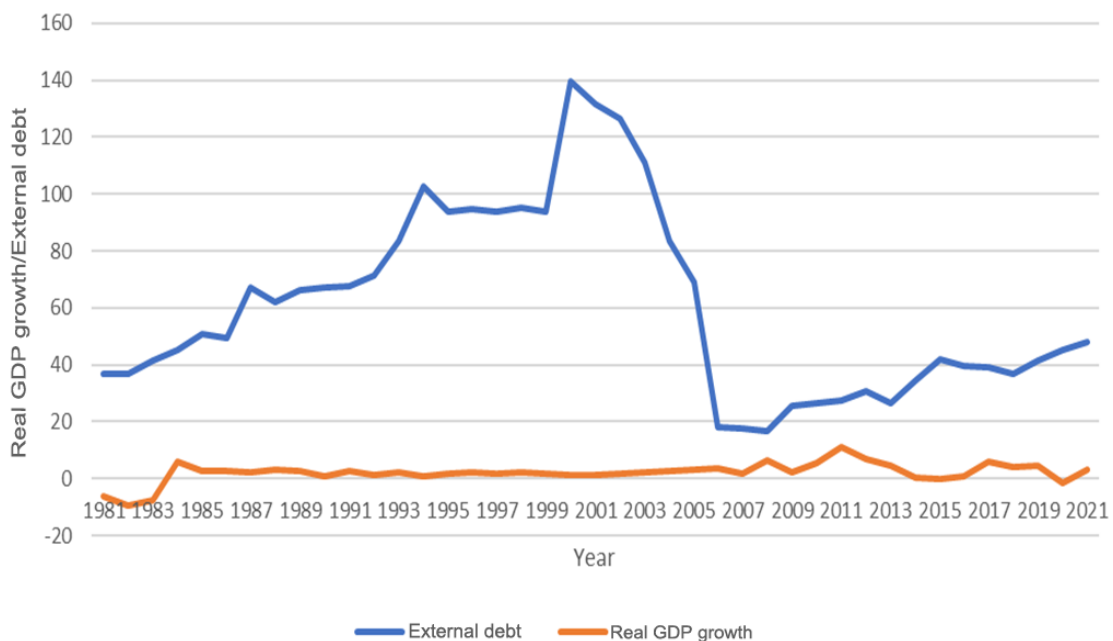


Figure 8. External debt and GDP growth of Ghana, 1981-2021.

2.2. External Debt and GDP Growth of Selected Countries, 1981-2021

The external debt and GDP growth of Ghana from 1981-2021 is shown in Figure 8. For the period under review, the external debt and the Gross Domestic Product (GDP) growth moved in diverse directions. The external debt was higher than the GDP growth throughout the investigation. The highest external debt as a share of GNI recorded for the study period was 133% in 2001. However, the highest GDP growth registered by

Ghana for the period under review was 11% in 2011. External debt and GDP growth maintained a negative relationship from 1981 to 2021. Despite the upward trajectory exhibited by external debt for most of the periods under investigation, the performance of GDP growth was dismal for the entire period. A pictorial assessment of the external debt and GDP growth trend in Figure 8 further revealed that high external debt affected the growth rates of GDP adversely for the entire episode.

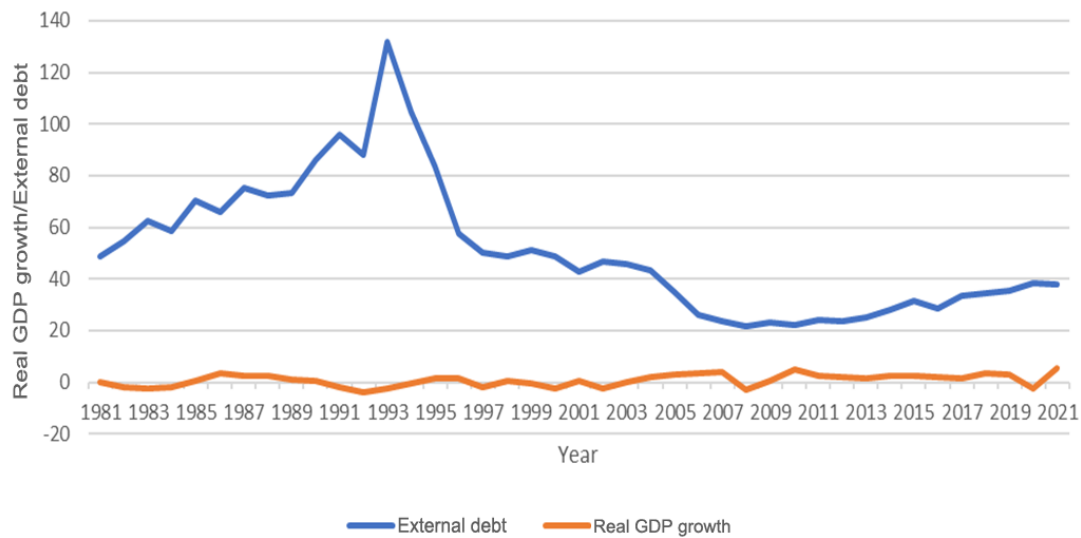


Figure 9. External debt and GDP growth of Kenya, 1981-2021.

The illustration in Figure 9 revealed that the external debt was higher than the growth rate of GDP from 1981 to 2021. The upward course of the external debt for the entire period under investigation is an indication that it affected Kenya's growth rates of GDP. In 1993, Kenya's external debt as a percentage of GNI reached its peak. The growth rate of real GDP maintained a downward course over the study period.

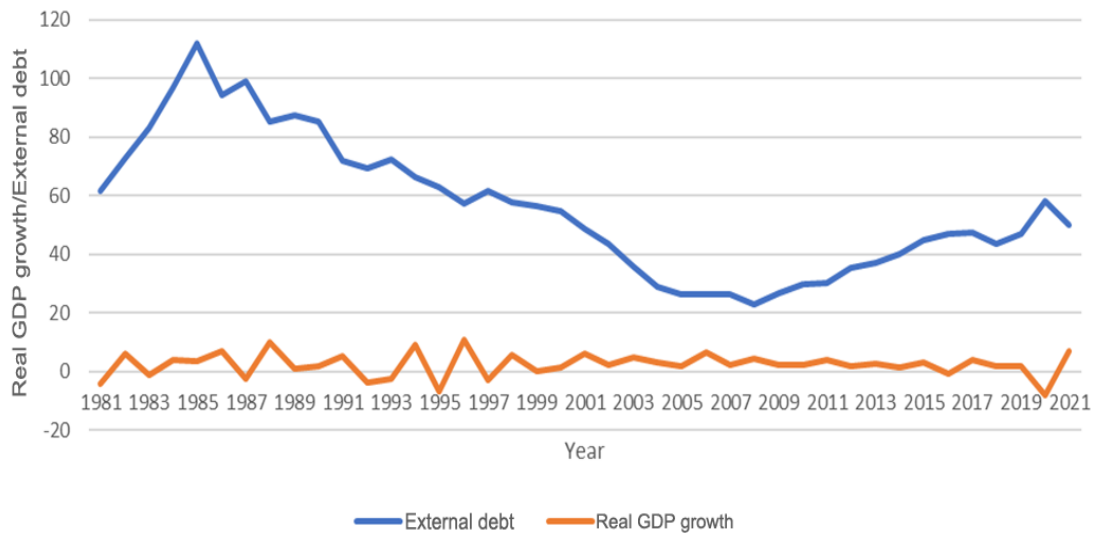


Figure 10. External debt and GDP growth of Morocco, 1981-2021.

The relationship between external debt and growth rates of GDP from 1981 to 2021 is depicted in Figure 10. Visual observation of this relationship gives convincing motivation to contend that the enormous external debt accumulated by the government of Morocco led to debt overhang. In addition, the two variables of interest maintained a negative link from 1981 to 2021. The global economic and financial crisis of 2008/2009 accounted for the dismal performance of growth rates of GDP between 2008 and 2009.

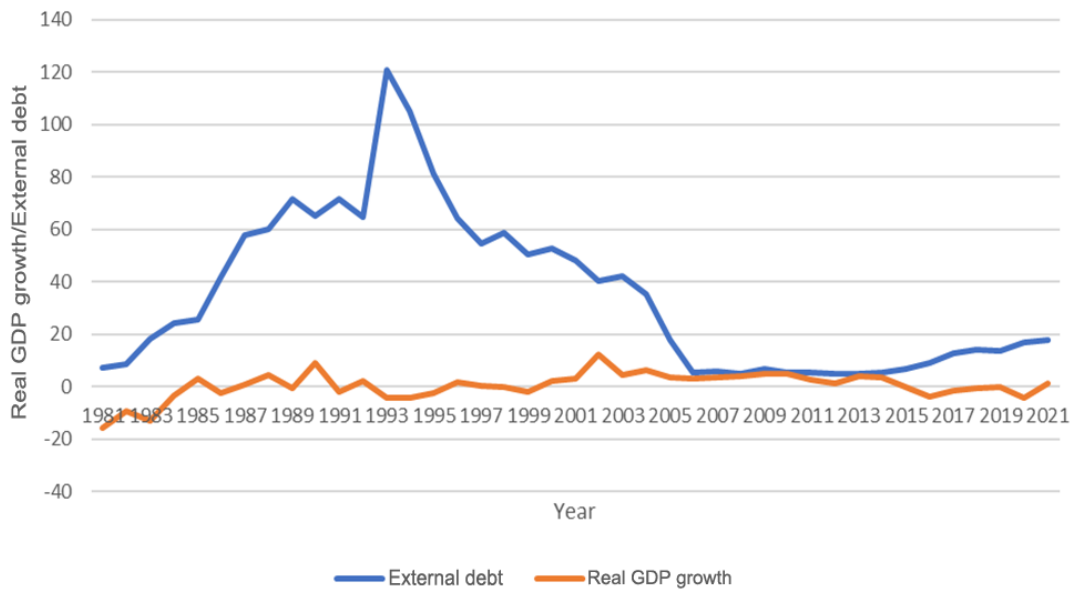


Figure 11. External debt and GDP growth of Nigeria, 1981-2021.

As indicated in Figure 11, the external debt and GDP growth of Nigeria moved in reverse directions from 1981 to 2005. The external debt was higher than the GDP growth rates from 1981 to 2005. This suggested that the accumulation of new loans reduced the GDP growth. Low external debt co-existed with low GDP growth rates from 2006 to 2014. Nigeria experienced negative growth rates continuously from 1981 to 1984 and 2016 to 2020. The structural adjustment loans accounted for the rise in Nigeria’s external debt from 1986 to 1989. The negative growth rate recorded in 1987 was made more noticeable by the oil price crash that was prolonged in the world till the mid-1980s. Owing to the 2005 debt relief granted to her, the external debt dropped from 2006 to 2014. The GDP growth was affected by the global economic and financial crisis of 2008/2009. After 2014, external debt exhibited an upward course from 2015 to 2021. Iyoha (1999) argued that structural adjustment was portrayed as a package for the restoration of short-run stabilization and enablement of medium to long-term sustainable growth. However, the period of SAP and the Economic Recovery Program (ERP) was portrayed by an increase in overall debt, payments for debt service and little inflow of external resources.

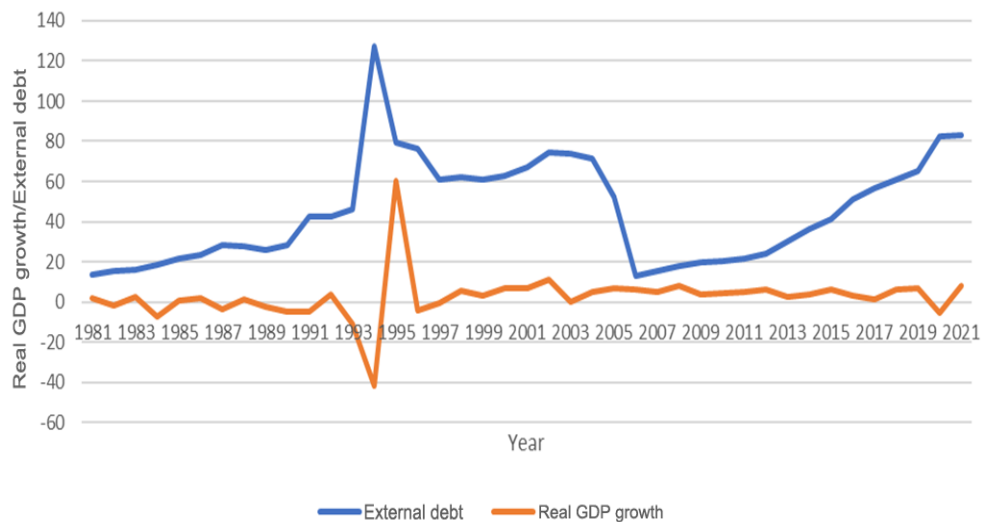


Figure 12. External debt and GDP growth of Rwanda, 1981-2021.

The GDP growth and external debt of Rwanda from 1981-2021 is presented in Figure 12. Except for 1982, 1984, 1987, 1989, 1990, 1991, 1993, 1994, 1996, 1997, 2003 and 2020, which had negative GDP growth rates, positive growth rates were recorded for the remaining years under review. Also, external debt and GDP growth for Rwanda moved in contrary directions throughout the investigation. The accumulated debt was higher than GDP growth throughout the time of investigation. As a result of this, the period under review was characterized by more payments for debt service and little inflow of foreign direct investment (FDI).

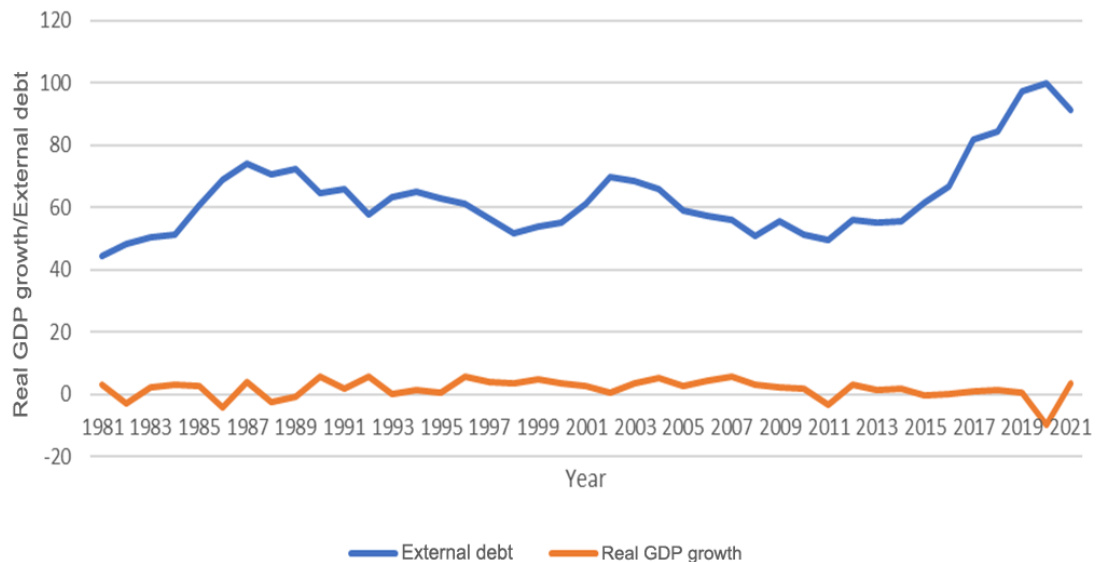


Figure 13. External debt and GDP growth of Tunisia, 1981-2021.

Evidence from Figure 13 revealed that the external debt of Tunisia fluctuated between 1981 and 2016. The external debt exceeded the GDP growth rate from 1981 to 2021. Also, they moved in opposite directions for the period under study. The implication of this is that the contracted debt did not boost the economic growth of Tunisia to the desired level. The inverse link between external debt and GDP growth rates could be a confirmation that contracted funds possibly were dispatched by leaders to Western economies through capital flight rather than utilization in productive investment to boost economic growth.

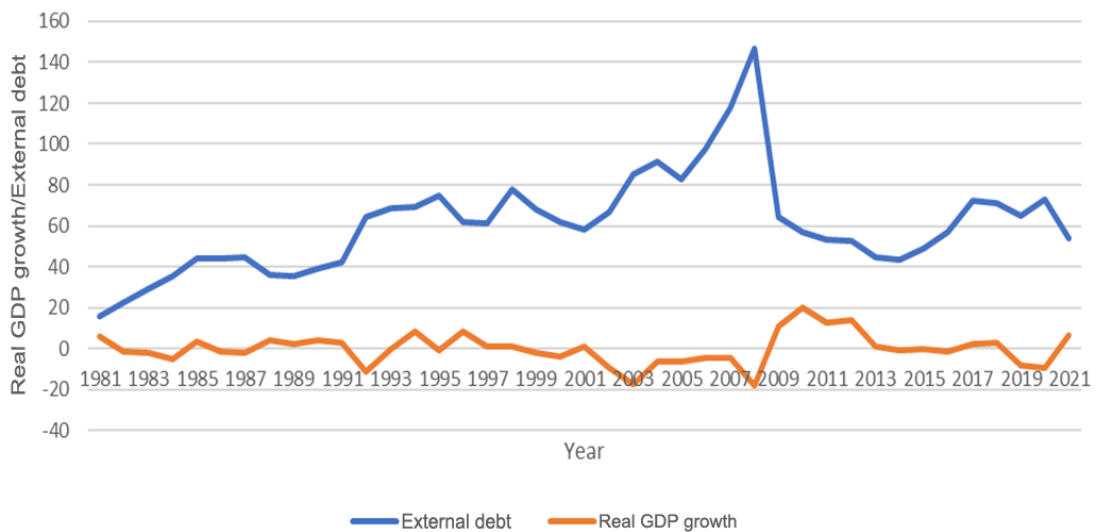


Figure 14. External debt and GDP growth of Zimbabwe, 1981-2021.

The external debt and GDP growth trends of Zimbabwe between 1981 and 2021 are presented in Figure 14. The external debt is stated as a share of GNI. The GDP and external debt of Zimbabwe moved in different directions for the entire time under investigation. Throughout the phase of this investigation, external debt increased while GDP declined. The implication is that as Zimbabwe accumulates further debt, her GDP reduces. The GDP fluctuated for the entire period under review while additional debts were accumulated by Zimbabwe in the structural adjustment loans fashion. As indicated in Figure 14 the changing aspects of GDP growth in Zimbabwe in the contention of Saungweme (2020) have six phases: the pre-independence era (1965-1979); the corporatism era (1980-1990); the liberalism era (1991-1999); the economic recession era (2000-2008); the economic recovery era (2009-2013); and the economic stagnation and recession-era (2014-2020). A negative relationship between external debt and GDP growth is shown in Figure 14. The GDP growth and external debt displayed a downward trajectory and an upward course in the corporatism period respectively. The two variables of interest displayed similar trends in liberalism, the economic recession, the economic recovery and the economic stagnation and recession eras. This probe is in line with the submissions that dwindling GDP growth could result in higher levels of debt at some points.

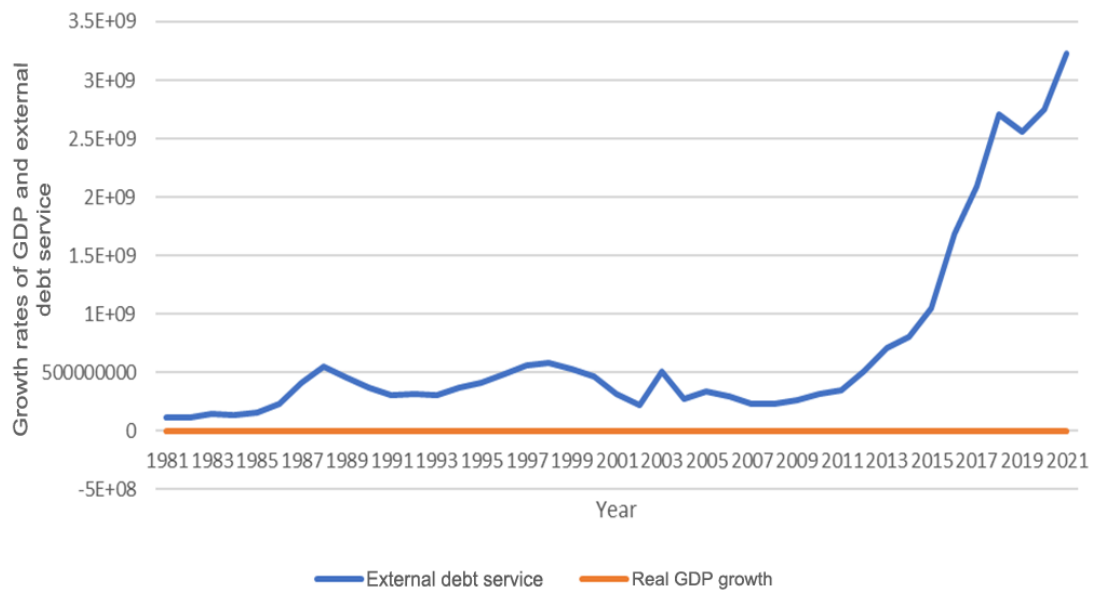


Figure 15. GDP growth rates and external debt service for Ghana, 1981-2021.

2.3. External Debt Service and GDP Growth Rates of Selected Countries, 1981-2021

As indicated in Figure 15 there was an inverse link between real GDP growth rates and external debt service throughout the period under investigation. Figure 15 depicts a rising trend for external debt service but a declining trend for the real GDP growth rate for the entire period of study. In addition, external debt service fluctuated between 2000 and 2005. The external debt service and real GDP growth were close to each other from 1981 to 1985.

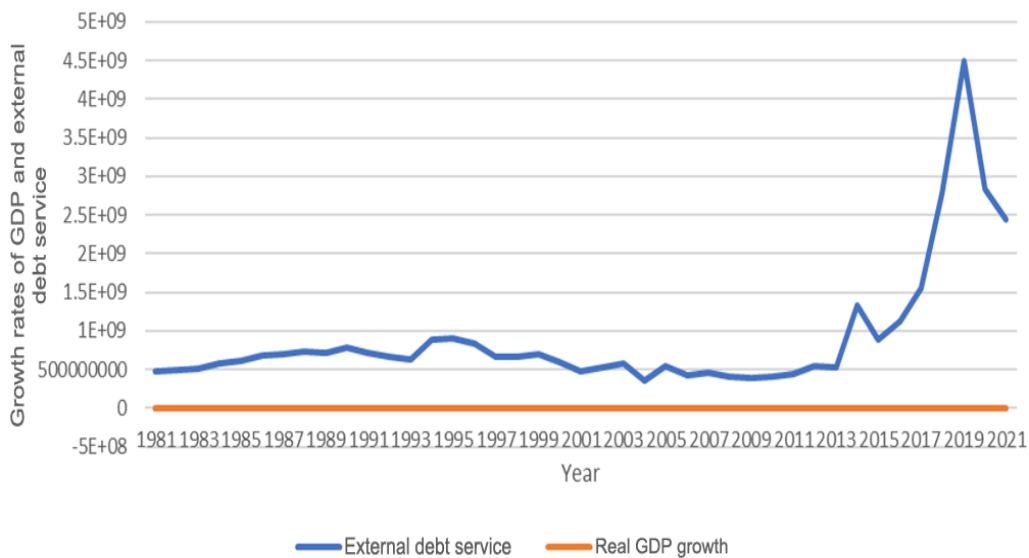


Figure 16. GDP growth rates and external debt service for Kenya, 1981-2021.

Figure 16 indicates the real GDP growth and external debt service of Kenya from 1981 to 2021. It revealed a negative relationship between growth rates of GDP and debt service. The debt service between 2015 and 2019 put a colossal burden on Kenya. The economic growth of Kenya is seriously compounded by the debt servicing process in Kenya during this episode. The real GDP growth becomes dampened as additional funds are committed to debt service in Kenya.

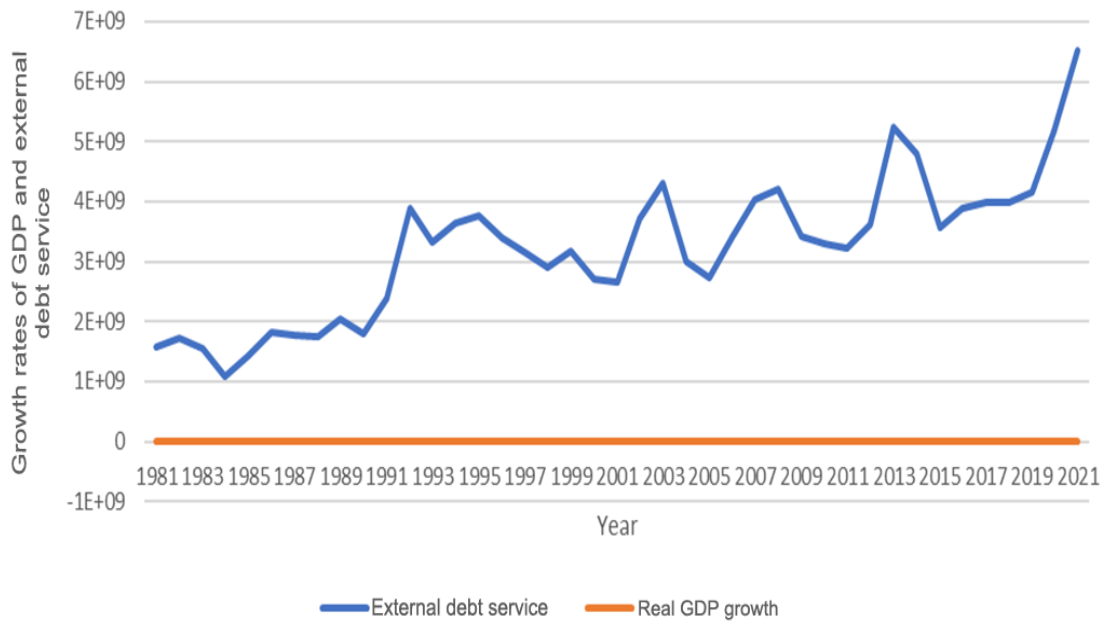


Figure 17. GDP growth rates and external debt service for Morocco, 1981-2021.

The relationship between the real GDP growth rates and debt service of Morocco from 1981 to 2021 is indicated in Figure 17. The two variables of interest maintained a negative relationship throughout the investigation. The implication is that the servicing of debt exerts immense fiscal pressure on Morocco. Thus; the economic growth of Morocco is compounded by the debt servicing process. A visual glance at Figure 17 revealed that as additional funds are committed by Morocco to service debts, GDP become dampened.

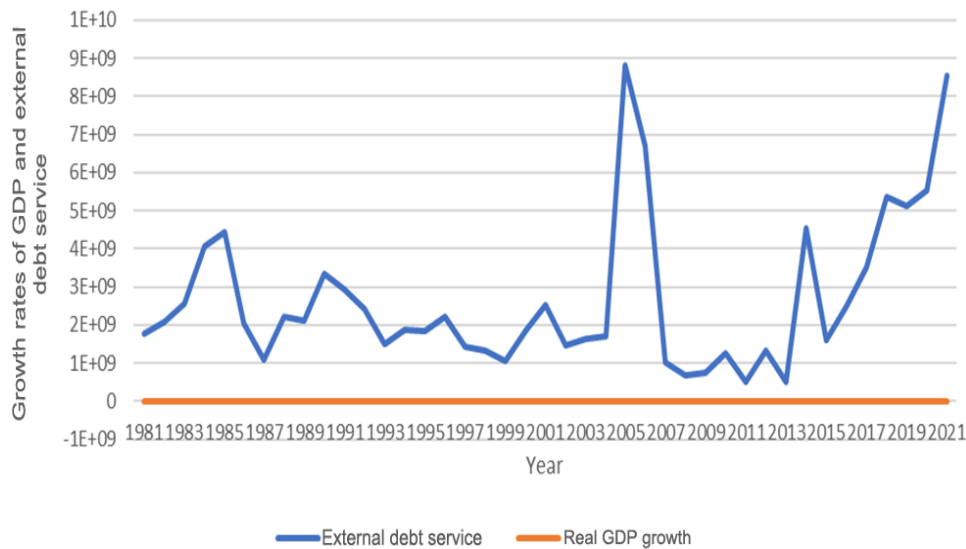


Figure 18. GDP growth rates and external debt service for Nigeria, 1981-2021.

As depicted in Figure 18 external debt service and real GDP growth had a negative relationship from 1981 to 2021. The servicing of debt exerts a mammoth fiscal burden on Nigeria. [Muhanji \(2010\)](#) argued that this burden exerted a harmful effect on government investment and the delivery of social services in Cote d'Ivoire, Ghana, Kenya, Malawi, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia and Zimbabwe as mirrored in the drop in the percentage of government investment in GDP from the late 1970s and beyond in addition to excessive fiscal deficit level. This corroborates the findings of [Rugumamu \(2001\)](#) that the payment of external debt is economically depleting as it prolongs impending development; it is politically undermining as it endangers social unity; and, it is ethically intolerable as it harms the poorest of the poor.

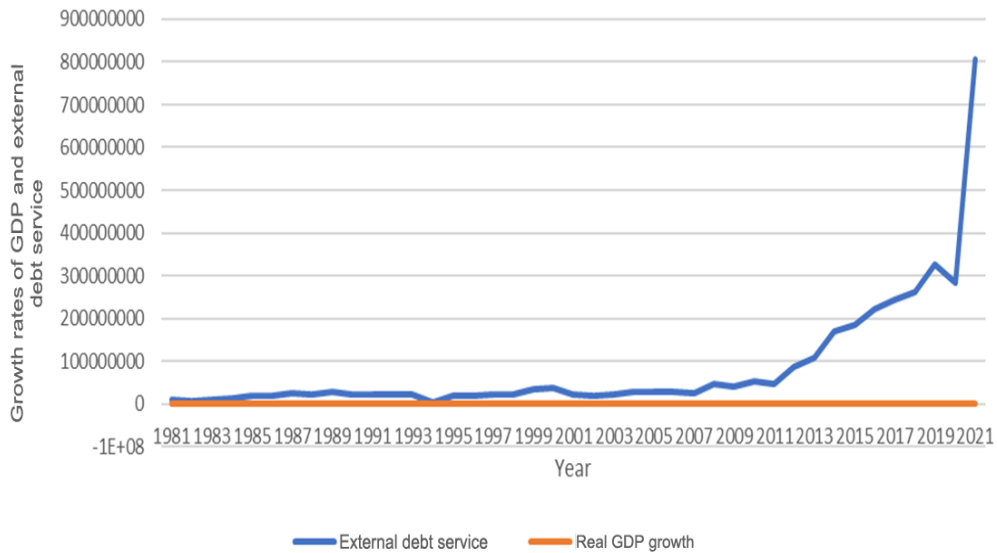


Figure 19. GDP growth rates and external debt service for Rwanda, 1981-2021.

The debt service and GDP growth rates trend from 1981-2021 is presented in Figure 19. The external debt and external debt service of Rwanda displayed a downward trajectory from 1981 to 2011. A rise in debt service payments from 2012 to 2021 was perhaps triggered by an increase in external debt during this episode. The scenario in Figure 19 particularly from 2012-2021 could force a crowding out effect problem if the condition remains unchecked. Furthermore, the budget deficit would increase as a result of a surge in external debt service worsened by enormous external debt accumulation.

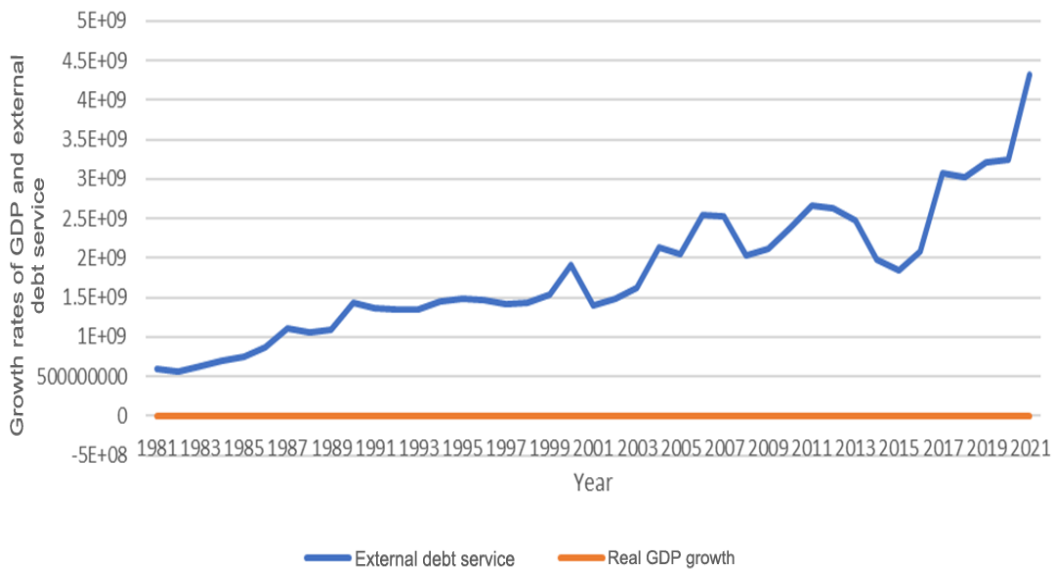


Figure 20. GDP growth rates and external debt service for Tunisia, 1981-2021.

Figure 20 depicts a rise in the debt service of Tunisia from 1981 to 2021. On the other hand, the real GDP growth revealed a declining trend throughout the investigation. The rising levels of debt service could be attributed to an increase in external debt accumulation for the period under review. The remarkable decline in real GDP growth could be a pointer that the contracted funds were not channelled to productive uses. The variables of interest maintained an inverse relationship throughout the period of study.

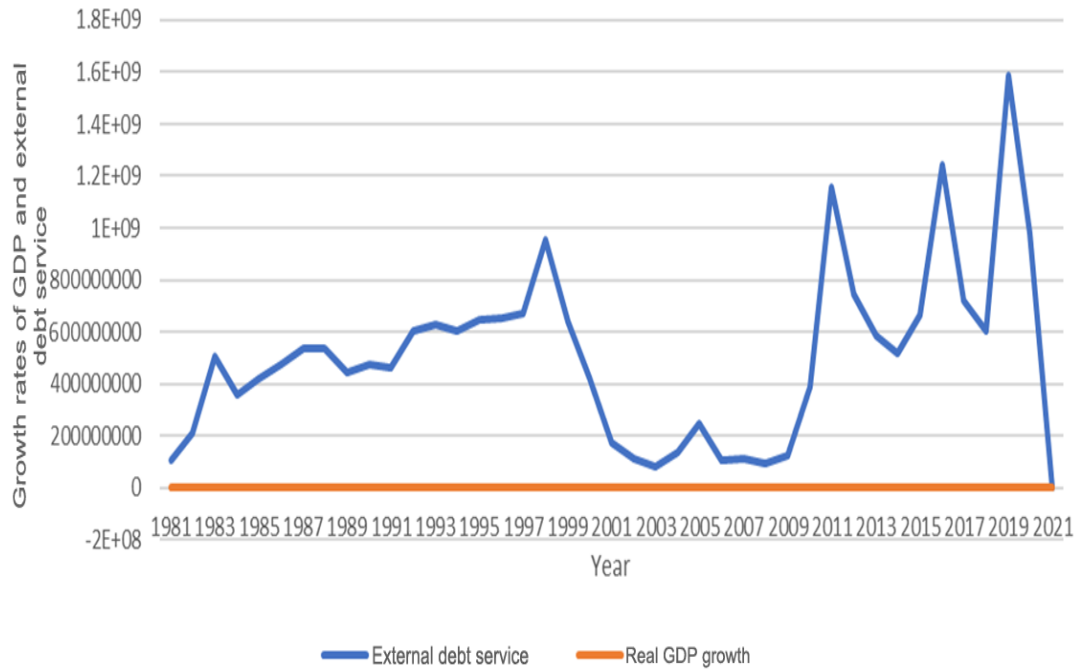


Figure 21. GDP growth rates and external debt service for Zimbabwe, 1981-2021.

Evidence from Figure 21 revealed that external debt service fluctuated from 1981-2021. The real GDP growth on the other hand exhibited a declining trajectory for the entire period under review. The real GDP growth and external debt service payment of Zimbabwe were equal in 2021.

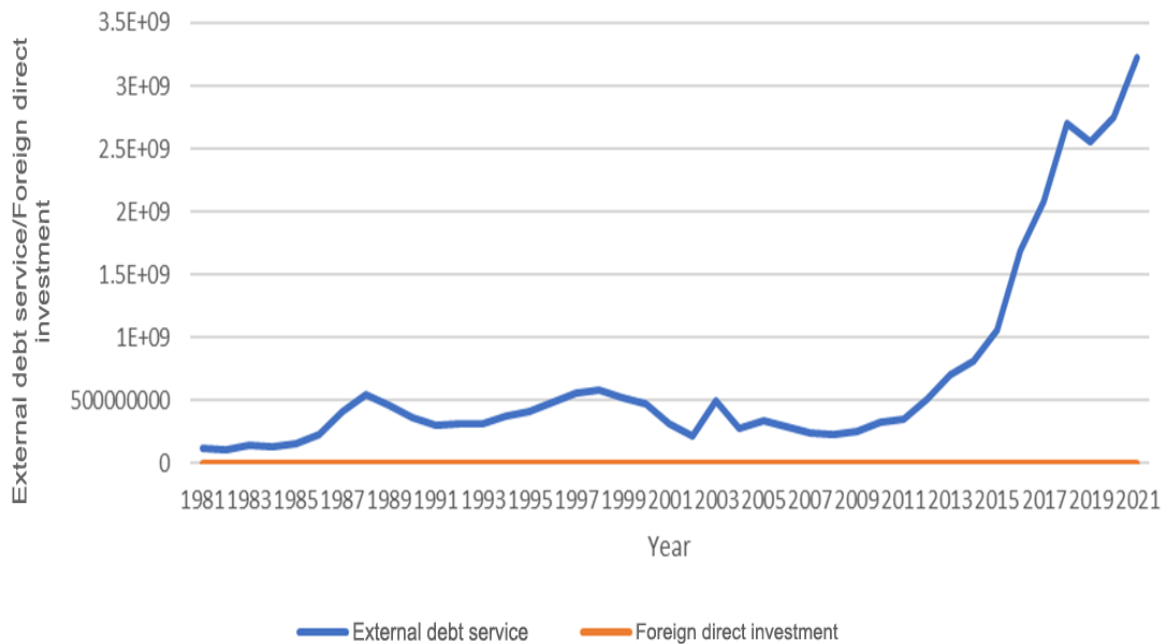


Figure 22. External debt service and foreign direct investment for Ghana, 1981- 2021.

2.4. External Debt Service and Foreign Direct Investment for Selected Countries, 1981-2021

The servicing of debt and the foreign direct investment of Ghana from 1981 to 2021 is depicted in Figure 22. Evidence from the figure showed that debt service reduced foreign direct investments from 1981 to 2021. This substantiates the debt overhang theory that maintains that domestic and foreign investments would be suppressed by debt service if the external debt is greater than the nation's ability to repay.

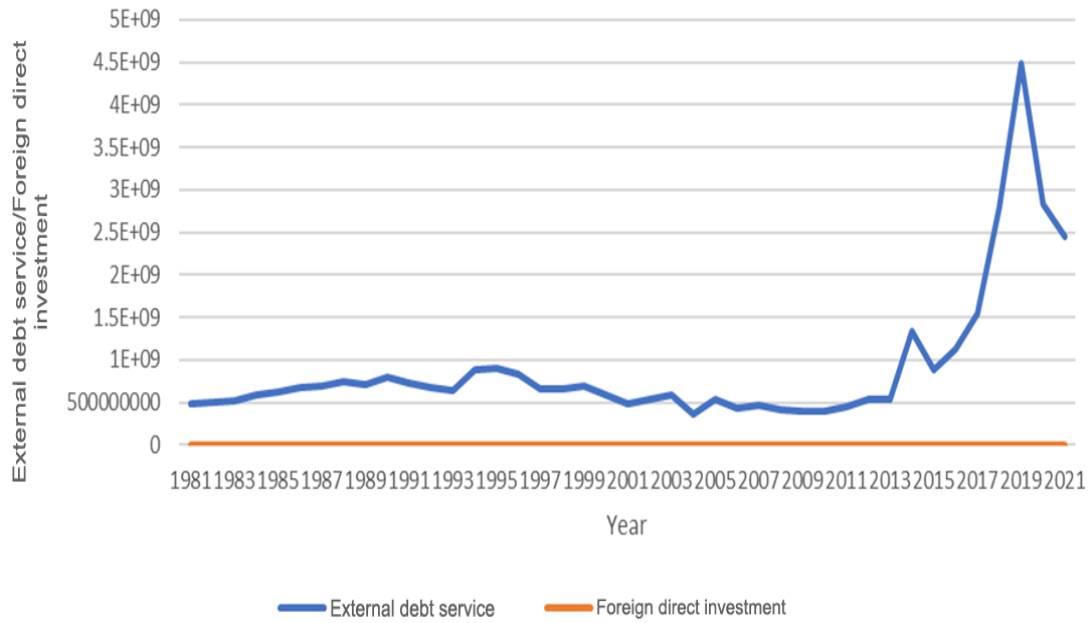


Figure 23. External debt service and foreign direct investment for Kenya, 1981-2021.

Figure 23 indicates the debt service and the foreign direct investment of Kenya from 1981 to 2021. It showed that foreign direct investments are diminished by debt service for the period under review. This is because the government will be forced to raise the tax level because of external debt accumulation to service the debt. Thus, foreign investors are expected to share in the tax increment. Also, it was evident that debt service and foreign direct investments in Kenya moved individually throughout the period under investigation.

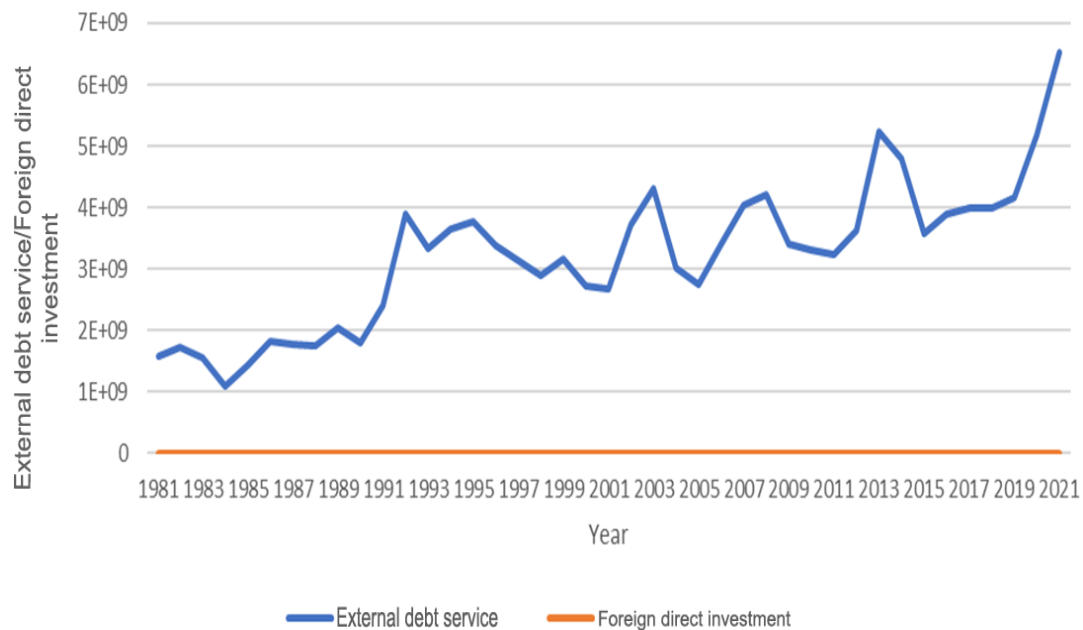


Figure 24. External debt service and foreign direct investment for Morocco, 1981-2021.

As depicted in Figure 24 external debt service and foreign direct investment moved in opposite directions. Figure 24 revealed that external debt service lowered foreign direct investment throughout the investigation. The foreign direct investment prospects in Morocco are weighed down by payments for debt service. This is because investors, especially private investors; would be expected to pay more tax to the government for the repayment of accumulated debt. The discouragement of domestic and foreign investments corroborates the postulation of the debt overhang theory.

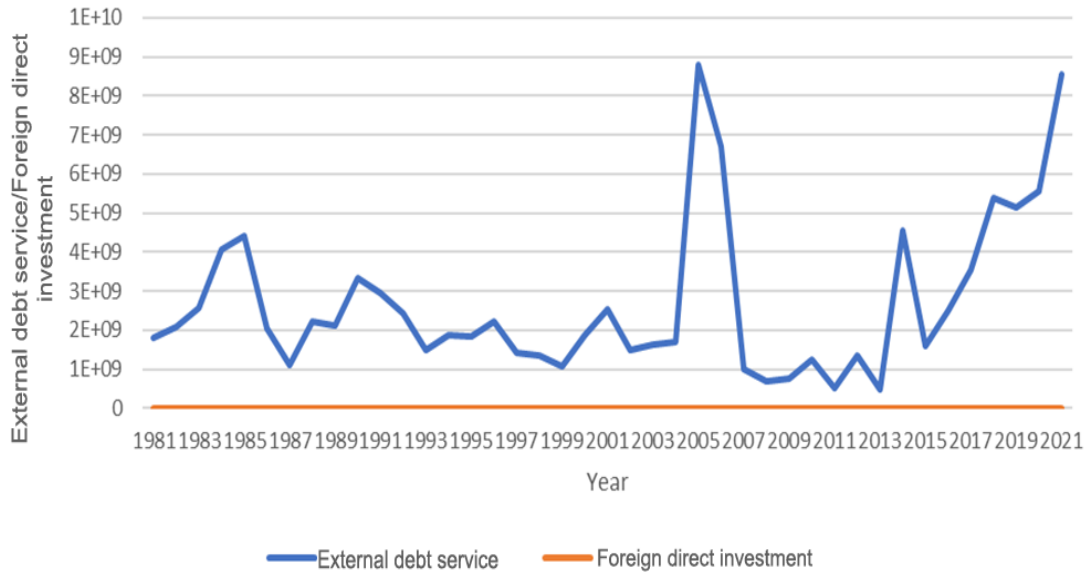


Figure 25. External debt service and foreign direct investment for Nigeria, 1981-2021.

The servicing of debt and the foreign direct investment of Nigeria from 1981 to 2021 is depicted in Figure 25. Evidence from the figure showed that debt service reduced foreign direct investments from 1981 to 2001. The foreign direct investment prospects in Nigeria are weighed down by payments for debt service.

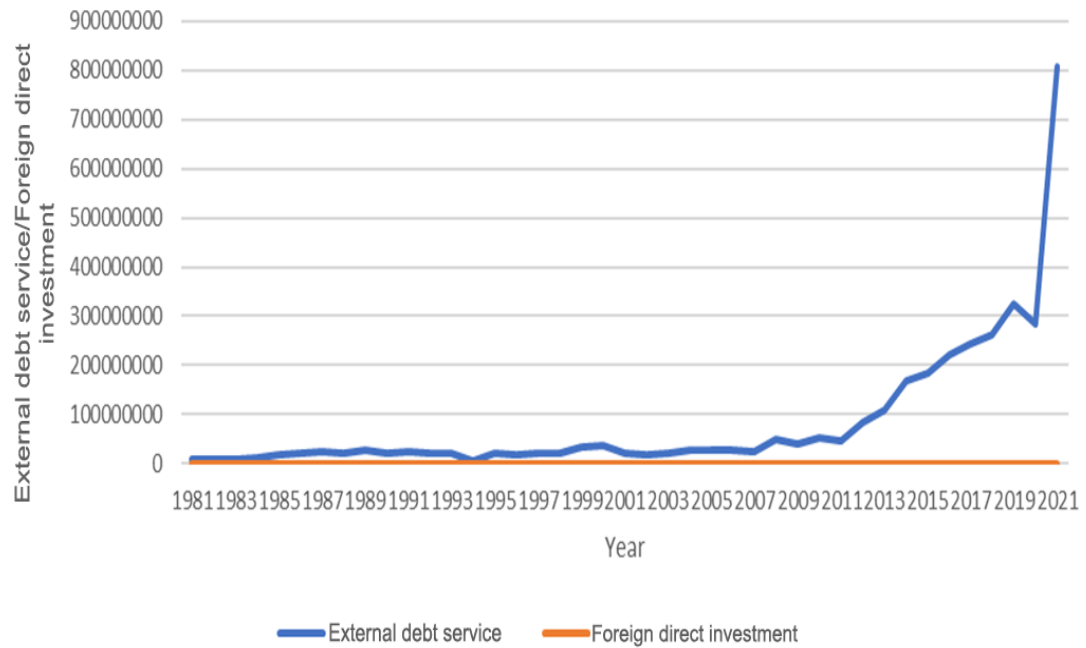


Figure 26. External debt service and foreign direct investment for Rwanda, 1981-2021.

Figure 26 depicts the relationship between external debt service and foreign direct investment in Rwanda from 1981 to 2021. Facts from Figure 26 showed that debt service reduced the foreign direct investments of Rwanda throughout the period under investigation. This confirms that fear of additional tax payments caused by tax increments by the government to service debt obligations discourages foreign investors from coming to invest in Rwanda.

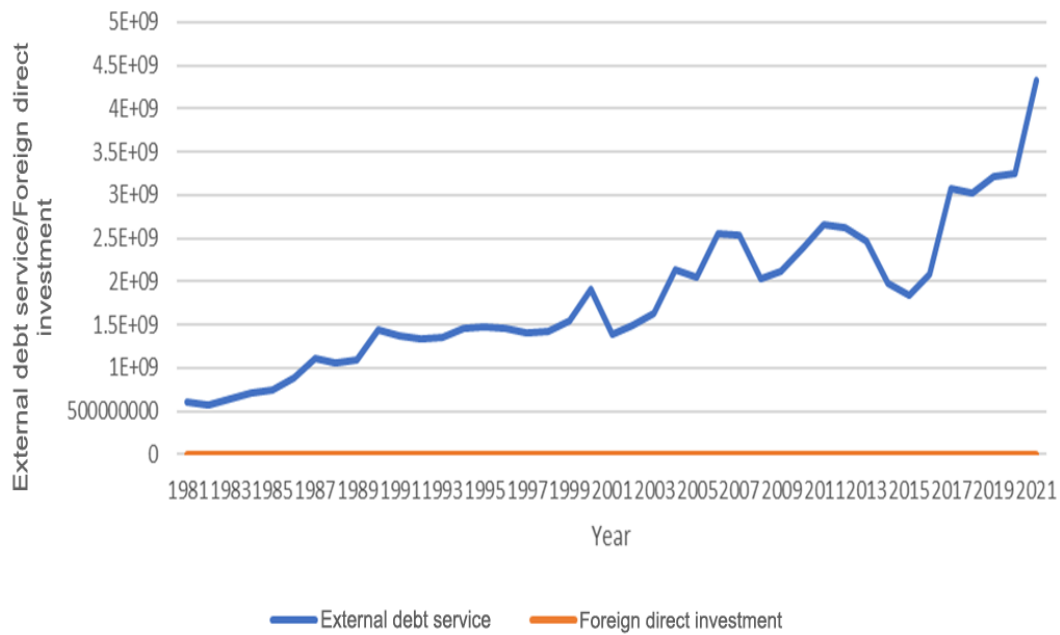


Figure 27. External debt service and foreign direct investment for Tunisia, 1981 – 2021.

The servicing of debt and the foreign direct investment of Tunisia from 1981 to 2021 is depicted in Figure 27. Evidence from Figure 27 revealed that debt service decreased foreign direct investments throughout the period under review. Foreign direct investment would be diminished because of fear on the part of foreign investors that unwarranted debt could result in tax increases to service it.

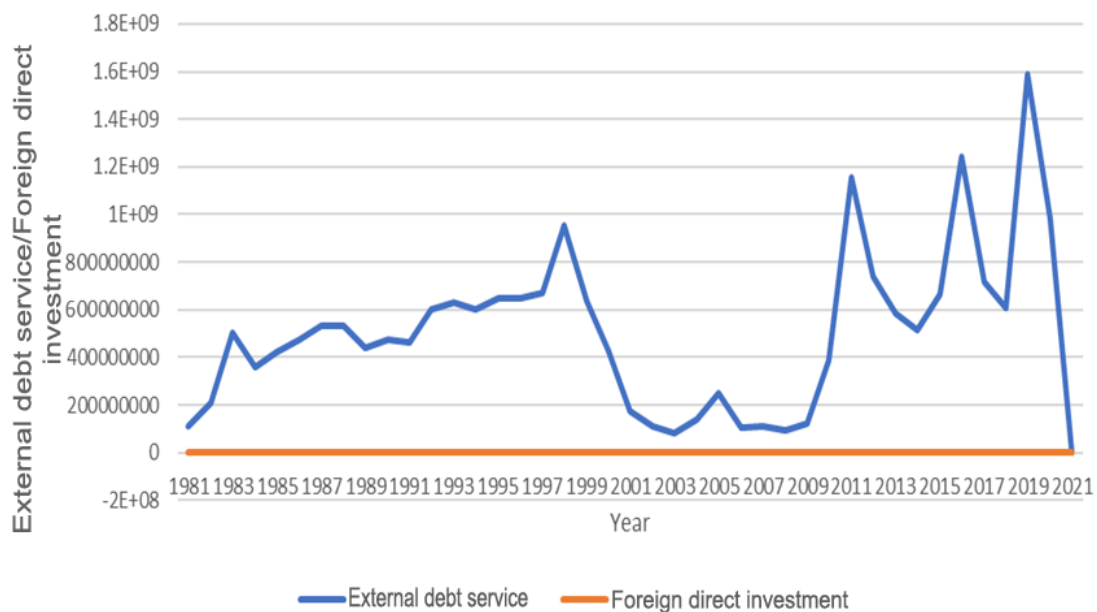


Figure 28. External debt service and foreign direct investment for Zimbabwe, 1981-2021.

Figure 28 indicates the debt service and foreign direct investment trends in Zimbabwe from 1981 to 2021. It is worth noting that debt service obligations reduced Zimbabwe’s foreign direct investment throughout the period under study. The damaging consequences of high external debt on foreign direct investment through tax increases by the government to service debt obligations which foreign investors are not ready to bear confirms the problem of debt overhang.

3. Theoretical Framework and Empirical Issues

Theoretically, the link between external debt and economic growth has diverse explanations. The propositions of the Neoclassical, the Keynesian and the Ricardian equivalence theories concerning the connection between external debt and economic growth were different. Thus, the theoretical foundation of this study would be anchored on the Neoclassical, the Keynesian and the Ricardian Equivalence theories. These three perspectives would explain the theoretical connection between our variables of interest. The first theory is the

neoclassical theory. This theory proposes that external debt has an unfavourable effect on economic growth. This is because it erodes private investment (Diamond, 1965; Panizza & Presbitero, 2013). Investors argued that external debt could be used by the government as an excuse for potential increment of taxes. It could also result in a rise in interest rates or crises motivated by external debt, which could dampen private investment and economic growth.

In contrast to the neoclassical theory, the second theory is the Keynesian theory. The Keynesian theory postulates that growing levels of external debt foster government expenditure, which supports economic growth in succession. Thus, external debt increases demand, increasing investment and production. The Ricardian Equivalence theorist advanced the third viewpoint on the nexus between external debt and economic growth. Barro (1979) advocated this theory and it overruled the Neoclassical and Keynesian standpoints regarding the connection between external debt and economic growth. It postulated that there is no connection between external debt and economic growth (Barro, 1989). In conclusion, the position of Neoclassical economists is that economic growth is affected negatively by external debt. However, the opinion of the Keynesians is that economic growth is affected positively by external debt. All the same, the Ricardian equivalence theory maintained that external debt exerted neither positive nor negative impacts on economic growth.

Numerous studies have investigated the connection between external debt and economic growth in industrialized and developing countries with different results. For example, Kharusi and Ada (2018) investigated the effect of government external debt on Oman's economic growth between 1990 and 2015 deploying the ARDL bounds test method of cointegration. The results demonstrated that external debt hindered economic growth. Furthermore, gross fixed capital formation impacted economic growth positively. In a related study, Festus and Saibu (2019) used the ARDL test technique to cointegration to investigate the link between external debt and economic growth in Nigeria between 1981 and 2016. The results indicated the detrimental effect of external debt on economic growth.

Due to the rise in foreign debt levels of several African nations, Senadza, Fiagbe, and Quartey (2018) conducted a related study to examine the relationship between external debt and economic growth in sub-Saharan Africa (SSA). They achieved this by employing the System Generalized Methods of Moments (GMM) and time series data for 39 SSA economies between 1990 and 2013. The findings in line with the assertion of the neoclassical economists showed that external debt impedes sub-Saharan Africa's economies from growing economically. The countries were grouped based on the GDP per capita, which had no bearing on the connection between external debt and economic growth. The results further indicated that growth and external debt do not have a non-linear connection.

Tefera (2019) examined the effect of external debt on the economic growth of SSA economies utilizing the panel threshold model of Hansen (1999) and a panel data group of 41 nations between 2000 and 2017. The capacity of the SSA region to repay its external debt was also looked at. The results indicated that the relationship between external debt and economic growth is non-linear. Nonetheless, economic growth reacted more strongly to negative external debt levels than to positive ones. The findings showed that, in terms of external debt as a percentage of GDP, there is just one threshold level in SSA. Beyond this point, which is set at 21.78 percent, the level of external debt became unmanageable and began to have a detrimental impact on GDP growth. Furthermore, the findings indicated that the external debt of SSA was unsustainable.

In order to investigate the causal relationship between public and private external debt and economic growth in developing economies, Zhang, Dawood, and Al-Asfour (2020) used 18 selected Asian developing and transition economies from 1995 to 2019 and the Dynamic Heterogeneous Panel Data methodologies, Pooled Mean Group (PMG), robust Cross-sectional augmented Autoregressive Distributed Lag (CS-ARDL), and Granger causality test. The results showed that there is a causal relationship between external debt and economic growth in the short and long runs, respectively, based on the PMG and CS-ARDL approaches. A bidirectional association between total external debt and economic growth, private external debt and economic growth and public external debt and economic growth was found by the Granger causality test results.

Didia and Ayokunle (2020) investigated the effect of public debt on Nigeria's economic growth from 1980 to 2016 deploying the Vector Error Correction Model (VECM). For this investigation, public debt was decomposed into external debt and domestic debt. The results showed that domestic debt exerted a positive impact on economic growth. However, external debt had a negative and insignificant impact on economic growth. Ideh and Uzonwanne (2021) in a similar manner analyzed the link between external debt and Nigeria's economic growth from 1985 to 2019 using the OLS methodology. The findings indicated that external debt exerted a negative and insignificant effect on economic growth. In Turkey, Uslu (2021) adopted the ARDL bounds test for cointegration and the Toda Yamamoto causality test to investigate the impact of external debt on economic growth from 1970 to 2016. The findings indicated that fixed capital stock, external debt, labour force and human capital had a positive effect on economic growth respectively. The causality result indicated a unidirectional relationship from the labour force and external debt to economic growth respectively. Furthermore, the findings revealed a one-way relationship from the labour force to fixed capital stock. Also, a one-way link from the labour force to human capital was established. The results further revealed a unidirectional relationship from external debt stock to human capital. Oteng (2022) investigated the impact of external debt on Ghana's economic growth from 1970 to 2019 using the Autoregressive distributed Lag (ARDL) model. The results showed that external debt had a negative and insignificant impact on economic growth in the long run. However, it exerted a positive and significant impact on economic growth in the short run. Due to

the methodologies used and the diverse geographical context of the reviewed empirical literature, mixed results were generated. The cross-sectional or panel studies conducted in the context of external debt were sparse. For example, [Deshpande \(1997\)](#) used the Ordinary Least Squares (OLS) methodology to execute work on heavily indebted economies of Algeria, Argentina, Egypt, Honduras, Cote d'Ivoire, Kenya, Mexico, Morocco, Peru, Philippines, Sierra Leone, Venezuela and Zambia from 1971 to 1991.

The results indicated that in all the economies, investment revealed an upward movement in the short-run. However, a downward course manifested with the buildup of debt. In the context of the problems of African external debt, [Edo \(2002\)](#) carried out a comparative analysis between Nigeria and Morocco. He deduced that external debt was not severely crowding out investment. [Schclarek \(2004\)](#) utilized data from 1970 to 2002 to examine the impact of debt on growth for some developing and industrial countries. The findings showed that lesser external debts resulted in high economic growth in developing countries. However, the nexus between external debt and economic growth in industrial countries was not significant. Using the panel data technique, [Fincke and Greiner \(2015\)](#) examined the impact of public debt on the economic growth of seven developed economies from 1970 to 2012. Their findings indicated that public debt exerted a negative effect on economic growth. [Nsonwu \(2016\)](#) investigated the impact of debt burden on investment and growth in fifteen sub-Saharan Africa (SSA) countries of Angola, Burundi, Cameroon, DR Congo, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Nigeria, Rwanda, Tanzania, Uganda and Zimbabwe from 1998 to 2013. [Kempa and Khan \(2016\)](#) utilized the extended Vector autoregressive (VAR) methodology to examine the causal link between public debt and economic growth in G7 economies. The findings showed a unidirectional relationship from economic growth to public debt. In another study, [Gomez-Puig and Sosvilla-Rivero \(2015\)](#) investigated the impact of public debt on the economic performance of European Economic and Monetary Union (EMU) economies. The result of the long run indicated that debt exerted a negative impact on economic growth. On the other hand, there is a likelihood of a positive effect in the short-term but it is contingent on whether debt is allocated to productive or unproductive outlay. [Saungweme \(2020\)](#) used the ARDL bounds test to cointegration and time series data from 1970 to 2017 to investigate the public debt, public debt service and economic growth connection in Southern African countries of South Africa, Zambia and Zimbabwe. In addition, [Fosu \(1996\)](#) employed OLS to explore the impact of public external debt on SSA economies from 1970-1986. He concluded that the debt burden in SSA accounted for a 33% drop in economic growth.

Most of these cross-sectional studies dwelt on public debt. In addition, some of the studies combined different economies and regions of the world. The studies that dwelt on external debt only were [Edo \(2002\)](#) and [Fosu \(1996\)](#). From the perspective of cross-section studies that were conducted in Africa with a focus on external debt, [Fosu \(1996\)](#) used the OLS which would result in biased and inconsistent results due to the bidirectional causality between public external debt and economic growth. Again, the scope of the study was short from 1970-1986. Furthermore, limited studies employed panel data in Africa. Our study would use extended time series data and improve on the previous methodology by employing the Heterogeneous Dynamic Panel Data Modelling Approach – Pooled Mean Group (PMG) to examine the effect of external debt on the economic growth of Ghana, Kenya, Morocco, Nigeria, Rwanda, Tunisia and Zimbabwe from 1981 to 2021. To the best of our knowledge, this is the first attempt to study this group of countries using panel ARDL, PMG technique.

4. Methodology and Model Specification

The study investigated the connection between external debt and economic growth of Ghana, Kenya, Morocco, Nigeria, Rwanda, Tunisia and Zimbabwe from 1981 to 2021. The data was derived from the World Bank (WB) World Development Indicators (WDI) database. The economies utilized for this study and period of estimation were informed by data availability. Moreover, numerous Least Developed Countries (LDCs) were affected by the debt crisis that started at the beginning of the 1980s. Also, the phase of the Structural Adjustment Programme (SAP) and the global financial crisis of 2008 were incorporated into our focus. The debt crisis informed the choice of 1981 as a start date. Following the study of [Mavhinga \(2015\)](#) with some modifications, the model is specified as follows:

$$\lnRGDPPC_{it} = \alpha_0 + \alpha_1 \lnEXTD_{it} + \alpha_2 \lnDEBTS_{it} + \varepsilon_{it} \quad (1)$$

Where:

α_0, α_1 and α_2 = Parameters in the model

\lnRGDPPC_{it} = Logarithm of real GDP per capita for country i at time t

\lnEXTD_{it} = Logarithm of external debt as a share of GNI for country i at time t

\lnDEBTS_{it} = Logarithm of external debt service for country i at time t

ε_{it} = Error term

All the variables were logged and the logarithm symbol is represented by ln. The country and time are denoted by i and t respectively. Before the estimation of the growth model, we employed the Im, Pesaran and Shin (IPS), ADF-Fisher Chi-square, Levin, Lin, and Chu (LLC) and PP-Fisher Chi-square panel unit root tests to examine the time series features of the data. The analysis was executed using the Heterogeneous Dynamic

Panel Data Modelling Approach, PMG introduced by Pesaran, Shin, and Smith (1999). The E-Views software was employed for the estimation of the statistical process of the panel ARDL. The standard model for the panel ARDL technique is specified in Equation 2 as follows:

$$\begin{aligned} & \ln RGDPPC_{it} \\ &= \sum_{j=1}^p \lambda_{ij} \ln RGDPPC_{i,t-j} + \sum_{j=0}^q \delta_{1ij} \ln EXT D_{i,t-j} + \sum_{j=0}^q \delta_{2ij} \ln DEBTS_{i,t-j} \\ &+ \varepsilon_{it} \end{aligned} \tag{2}$$

Where:

p = optimal autoregressive lag of the dependent variable

q = optimal distributed lag for the regressors

$i = 1, 2, \dots, 7$

t = number of years (1981 – 2021)

ε_{it} = error term

The reparameterization of Equation 2 yields Equation 3.

$$\begin{aligned} & \Delta \ln RGDPPC_{it} \\ &= \varphi_i (\ln RGDPPC_{i,t-1} - \gamma_1 \ln EXT D_{i,t-1} - \gamma_2 \ln DEBTS_{i,t-1}) \\ &+ \sum_{j=1}^p \omega_{ij} \Delta \ln RGDPPC_{i,t-j} + \sum_{j=0}^q \omega_{1ij}^* \Delta \ln EXT D_{i,t-j} + \sum_{j=0}^q \omega_{2ij}^{**} \Delta \ln DEBTS_{i,t-j} \\ &+ \varepsilon_{it} \end{aligned} \tag{3}$$

Where:

φ_i = speed of adjustment parameter for the group

γ_1 and γ_2 = coefficients of the long – run

ω_{ij} = short – run parameter of the lagged dependent variable

ω_{1ij}^* and ω_{2ij}^{**} = short – run parameters for other variables

Table 1. Panel unit root test results.

Variable	ADF-fisher		IPS		LLC		PP-Fisher		I(d)
	Level	First difference	Level	First difference	Level	First difference	Level	First difference	
lnRGDPPC	2.1956	90.6271***	3.4258	-8.5382***	0.3806	-7.1556***	1.5584	146.758***	I (1)
lnEXTD	8.6261	47.7788***	-0.0225	-4.9931***	-0.0888	-4.4835***	8.8009	104.158***	I (1)
lnDEBTS	6.3936	97.5917***	1.6768	-9.1314***	0.7614	-8.3917***	8.9067	186.913***	I (1)

Note: *** indicate statistical significance at the 1% level.

5. Empirical Results and Discussions

The results of the ADF-Fisher, IPS, LLC and PP-Fisher unit root test in Table 1 revealed that all the variables under investigation were stationary at first difference. This sort of integration supports the application of the panel ARDL modelling method. The ARDL model can investigate causal relationships at diverse orders of stationarity. Also, the estimate of the long-run for the ARDL model is consistent whether the explanatory variables are stationary at I(0), I(1) or a mixture of the two.

Table 2. Long-run coefficients results.

lnEXTD	lnDEBTS
-1.2950	0.5868
[-2.8693***]	[5.0582***]
(0.0045)	(0.0000)

Note: Probability values are in bracket - (.).
t-statistics are in [].
*** indicate statistical significance at the 1% level.

The results of the long-run coefficients are indicated in Table 2. The findings revealed that external debt had a negative impact on the economic growth of the group of countries under study. This result confirms the

proposition of the neoclassical scholars that debt is detrimental to growth. Thus, external debt has adverse effects on the economic growth of these bands of countries. Hence, there is evidence of debt overhang problems in these economies. The finding agrees with the submissions of [Kharusi and Ada \(2018\)](#); [Senadza et al. \(2018\)](#) and [Festus and Saibu \(2019\)](#). It, however, violated the findings of [Uslu \(2021\)](#). On the other hand, external debt services exerted a positive impact on the economic growth of these groups of economies. This implies that debt service payments in these groups of economies have a favourable impact on their economies. Thus, a 0.59 per cent per unit rise in debt service would increase economic growth. Thus, the crowding-out effect theory does not hold in these economies. This result finds an advocate in [Mavhinga \(2015\)](#). Nevertheless, it contravenes the results of [Nsonwu \(2016\)](#); [Oteng \(2022\)](#); [Atoulo \(2019\)](#); [Saungweme \(2020\)](#) and [Elikana \(2019\)](#).

Table 3. Short-run coefficients results.

Dependent variable: lnRGDPPC				
Variable	Coefficient	Std. error	t-statistic	Prob.
$\Delta(\ln\text{RGDPPC}(-1))$	0.0576	0.1181	0.4876	0.6263
$\Delta(\ln\text{EXTD})$	-0.0773	0.0270	-2.8613***	0.0046
$\Delta(\ln\text{DEBTS})$	0.0258	0.0236	1.0949	0.2746
C	0.0901	0.0377	2.3881**	0.0177
ECM_{t-1}	-0.0210	0.0112	-1.8751*	0.0619

Note: ***, ** and * indicate statistical significance at the 1%, 5% and 10% levels of significance, respectively.

The findings of the short-run dynamics are presented in [Table 3](#). The findings demonstrated that changes in external debt had a negative effect on the GDP per capita of the selected economies. This result is consistent with the findings of the long run. However, change in external debt service exerted a positive and insignificant effect on economic growth. The Error Correction Terms (ECT) had the right sign and was significant. The ECT coefficient value of -0.0210 implies that about 2.1 per cent of departures from long-run equilibrium are corrected in 48 years. Thus, this speed of adjustment is considered very low. We can draw some inferences owing to the negative and significant outcome of the ECT. It indicates that there is a long-term correlation among the variables. Also, it shows evidence of joint causality. Hence, EXTD and DEBTS jointly Granger cause RGDPCC in the long run. Nevertheless, the short-run coefficients per economy represented in [Table 4](#) indicated that except for Rwanda, where the ECT was negative and insignificant, the ECT in the remaining economies was negative and significant.

Table 4. Panel ARDL estimations results for short-run coefficients by country.

Country:	Ghana	Kenya	Morocco	Nigeria	Rwanda	Tunisia	Zimbabwe
Variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
$\Delta(\ln\text{RGDPPC}(-1))$	0.3482***	0.1702***	-0.4934***	0.3598***	-0.0813***	-0.1428***	0.2424***
$\Delta(\ln\text{EXTD})$	-0.0136***	-0.0207***	-0.1340***	-0.0551***	-0.1324***	-0.0026	-0.1824***
$\Delta(\ln\text{DEBTS})$	-0.0057***	0.0149***	-0.0075***	-0.0005***	0.1660***	0.0105***	0.0035***
C	0.1486***	0.2891***	0.0329***	0.0293*	0.0066***	0.0873	0.0370*
ECM_{t-1}	-0.0066***	-0.0149***	-0.0034***	-0.0003***	-0.0006	-0.0799***	-0.0417***

Note: *** and * indicate statistical significance at the 1% and 10% levels of significance, respectively.

Table 5. Results of Toda and Yamamoto multivariate causality test.

Dependent variable	Sources of causation	
	LNRGDP	LNEXTD
	χ^2	χ^2
LNRGDP	-	1.2866
LNEXTD	0.0064	-

Table 6. Results of Toda and Yamamoto multivariate causality test.

Dependent variable	Sources of causation	
	LNRGDP	LNDEBTS
	χ^2	χ^2
LNRGDP	-	0.4367
LNDEBTS	3.3250	-

The findings of the Toda and Yamamoto multivariate causality tests are indicated in Tables 5 and 6. The result in Table 5 revealed that there is no causal link between external debt and economic growth. This suggests that the policy objectives of external debt can be pursued separately from that of economic growth in this group of economies in Africa. This result agrees with the submissions of Iitula (2018). However, the findings of Musa (2015); Zhang et al. (2020) and Uslu (2021) violate it. The results of Table 6 also indicated that there is no causal link between external debt service and economic growth. This implies that the policy objectives of servicing of debt can further be pursued separately from that of economic growth. This result is in line with the submissions of Saungweme (2020) and Musa (2015).

6. Conclusion and Recommendations

The outcomes of this study supported the debt overhang effect theory by showing that the relationship between external debt and economic growth was negative. Hence, the debt overhang hypothesis is valid for these economies. This indicates that external debt has an adverse effect on these countries' economic growth. Also, debt service exerted a favourable effect on economic growth. This indicates that the crowding-out effect, time and again branded as the crowding-out hypothesis, is absent in these economies. Based on the outcomes of this study, the following were recommended: The capacity of these economies in terms of revenue generation and debt servicing should be reinforced by their governments through the channelling of external debt into long-term productive investments like industrialization among others for the realization of positive economic growth. The dependence on borrowed foreign funds could be reduced in the future through diversification of exports, improvement in internal mobilization of revenue and generation of sufficient returns to repay the external debt. Also, the policies on debt servicing in these economies should be sustained since it is yielding the desired results. Furthermore, the deficit gap could be filled through the introduction and execution of revenue-boosting strategies by policymakers as an alternative to borrowing. Thoroughly assessed projects of high significance should be the only yardstick for the contraction of foreign loans in these economies. As was stated by Iitula (2018) "effective and efficient utilization of public resources is needed to ensure that the future generation's welfare or economic production is not being mortgaged in continuous indebtedness". The governance question in these economies should be critically addressed. Sometimes, African leaders contract external loans for unproductive reasons and most of the borrowed funds are diverted to private accounts in Western countries. Also, the policy objectives of external debt can be pursued separately from that of economic growth in this group of economies in Africa. Furthermore, the policy objectives of debt service can be pursued separately from those of economic growth.

References

- Adepoju, A. A., Salau, A. S., & Obayelu, A. E. (2007). *The effects of external management on sustainable economic growth and development: Lessons from Nigeria*. Munich Personal RePEc Archive Paper No. 2147.
- Atoullou, R. (2019). *Public debt and growth in Tajikistan master of Asia pacific studies/International cooperation policy of the Ritsumeikan Asia pacific university*. Retrieved from https://ritsumeiki.repo.nii.ac.jp/?action=repository_action_common_download&item_id=12015&item_no=1&attribute_id=20&file_no=1
- Barro, R. J. (1979). On the determination of the public debt. *Journal of Political Economy*, 87(5), 940-971.
- Barro, R. J. (1989). The ricardian approach to budget deficits. *The Journal of Economic Perspectives*, 3(2), 37-54. <https://doi.org/10.1257/jep.3.2.37>
- Chen, L. B. S. (2019). *External debt and currency crisis: A global perspective*. Master in Public Policy Thesis of the Graduate School of Arts and Sciences of Georgetown University.
- Deshpande, A. (1997). The debt overhang and the disincentive to invest. *Journal of Development Economics*, 52(1), 169-187. [https://doi.org/10.1016/s0304-3878\(96\)00435-x](https://doi.org/10.1016/s0304-3878(96)00435-x)
- Diamond, P. A. (1965). National debt in a neoclassical growth model. *The American Economic Review*, 55(5), 1126-1150.
- Didia, D., & Ayokunle, P. (2020). External debt, domestic debt and economic growth: The case of Nigeria. *Advances in Economics and Business*, 8(2), 85-94. <https://doi.org/10.13189/aeb.2020.080202>
- Edo, S. E. (2002). The external debt problem in Africa: A comparative study of Nigeria and Morocco. *African Development Review*, 14(2), 221-236. <https://doi.org/10.1111/1467-8268.00052>

- Elikana, F. (2019). *The impact of public debt on economic growth of Tanzania 1990-2017*. M.Sc Economics Thesis of the Open University of Tanzania.
- Eshetu, A. (2021). *The effect of external debt on private investment in Sub-Saharan Africa*. M.Sc Economic Policy Analysis Thesis of the Department of Economics, College of Business and Economics, Addis Ababa University, Ethiopia.
- Festus, G. E., & Saibu, M. O. (2019). *Effect of external debt on the Nigerian economy: Further evidences*. MPRA Paper No. 92704.
- Fincke, B., & Greiner, A. (2015). On the relation between public debt and economic growth: An empirical investigation. *Economics and Business Letters*, 4(24), 137-150. <https://doi.org/10.17811/ebl.4.4.2015.137-150>
- Fosu, K. A. (1996). The impact of external debt on economic growth in sub-Saharan Africa. *Journal of Economic Development*, 21(1), 93-103.
- Gomez-Puig, M., & Sosvilla-Rivero, S. (2015). *Short-run and long-run effects of public debt on economic performance: Evidence from EMU countries*. University of Barcelona, Research Institute of Applied Economics IREA Working Paper No. 201522.
- Gono, G. (2008). *Zimbabwe's Casino economy*. Harare: Zimbabwe Publishing House.
- Government of Zimbabwe (GoZ). (1982). *Transitional national development plan, 1982/83 -1984/85* (Vol. 1). Harare: Ministry of Finance.
- Government of Zimbabwe (GoZ). (1998). *Zimbabwe programme for economic and social transformation (ZIMPREST), 1996-2000*. Harare: Government Printer.
- Hansen, B. E. (1999). Threshold effects in non-dynamic panels: Estimation testing and inference. *Journal of Econometrics*, 93(2), 345-368. [https://doi.org/10.1016/s0304-4076\(99\)00025-1](https://doi.org/10.1016/s0304-4076(99)00025-1)
- Ideh, T. O., & Uzonwanne, M. C. (2021). Impact of external debt on economic growth in Nigeria. *European Journal of Economic and Financial Research*, 5(2), 132-150. <https://doi.org/10.46827/ejefr.v5i2.1156>
- Iitula, A. T. (2018). *An analysis of the impact of public debt on economic growth of Namibia*. M.Sc Economics Thesis of the University of Namibia.
- International Monetary Fund. (2001). *Zimbabwe: 2000 article IV consultation, staff report; staff supplement country report No. 01/2001*. Washington DC: IMF.
- Iyoha, M. A. (1999). *External debt and economic growth in Sub-Saharan African countries: An econometric study*. AERC Research Paper No. 90.
- Kempa, B., & Khan, N. S. (2016). Government debt and economic growth in the G7 countries: Are there any causal linkages? *Applied Economics Letters*, 23(6), 440-443. <https://doi.org/10.1080/13504851.2015.1080797>
- Kharusi, S. A., & Ada, M. S. (2018). External debt and economic growth: The case of emerging economy. *Journal of Economic Integration*, 33(1), 30-39. <http://dx.doi.org/10.11130/jei.2018.33.1.1141>
- Mavhinga, P. (2015). *The impact of external debt on economic growth in Zimbabwe*. M.Sc Economics Thesis of the School of Development Economics, National Institute of Development Administration.
- Muhanji, S. I. (2010). *Mitigating the effects of external debt burden in Africa*. Ph.D. Thesis of the Faculty of Commerce, Law and Management, University of the Witwatersrand, Johannesburg.
- Mumbengegwi, C. (2002). *Macroeconomic and structural adjustment policies in Zimbabwe*. London: Palgrave Macmillan.
- Musa, I. I. (2015). *Impact of external debt on economic growth in Nigeria*. M.Sc Economics Thesis of the Othman Yeop Abdullah Graduate School of Business, Universiti Utara Malaysia.
- Nsonwu, M. C. (2016). *A longitudinal econometric analysis of the effect of debt burden on investment and growth in sub-Saharan Africa*. Ph.D. Economics Thesis of the Department of Economics, Delta State University, Abraka, Delta State, Nigeria.
- Nyarota, S., Kavila, W., Mupunga, N., & Ngundu, T. (2015). An empirical assessment of binding constraints to Zimbabwe's growth dynamics. *Reserve Bank of Zimbabwe*, 2(2015), 1-38.
- Oteng, N. (2022). *The effect of external debt on economic growth in Ghana, 1970-2019*. M.Sc Economics Thesis of the Faculty of Economics and Administration, Department of Economics, Masaryk University.
- Panizza, U., & Presbitero, A. F. (2013). Public debt and economic growth in advanced economies: A survey. *Swiss Journal of Economics and Statistics*, 149(2), 175-204. <https://doi.org/10.1007/BF03399388>
- Pesaran, M. H., Shin, Y., & Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, 94(446), 621-634. <https://doi.org/10.2307/2670182>
- Reinhart, C. M., & Rogoff, K. S. (2010). Growth in a time of debt. *American Economic Review*, 100(2), 573-578. <https://doi.org/10.3386/w15639>
- Richardson, C. (2004). *The collapse of Zimbabwe in the wake of the 2000-2003 land reforms*. New York: Edwin Mellen Press.
- Rugumamu, S. M. (2001). Africa's debt bondage: A case for total cancellation. *Eastern Africa Social Science Research Review*, 17(1), 31-52.
- Saungweme, T. (2020). *Public debt, public debt service and economic growth nexus: Empirical evidence from three Southern African countries*. Ph.D. Economics Dissertation of the University of South Africa.
- Schclarek, A. (2004). *Debt and economic growth in developing and industrial countries*. Lund University, Department of Economics Working Papers No. 2005:34.
- Senadza, B., Fiagbe, A. K., & Quartey, P. (2018). The effect of external debt on economic growth in Sub-Saharan Africa. *International Journal of Business and Economic Sciences Applied Research*, 11(1), 61-69. <https://doi.org/10.25103/ijbesar.111.07>
- Tefera, E. (2019). *The effect of external debt on economic growth and its sustainability in sub-Saharan Africa*. M.Sc Economics Thesis of the Department of Economics, College of Business and Economics, School of Graduate Studies, Addis Ababa University.
- Tomaselli, M. (2018). *Economic growth and public debt: Beyond debt-thresholds theoretical and empirical issues*. Ph.D. in Economics and Management Thesis of the Doctoral School in Economics and Management, School of Social Sciences, University of Trento.
- Uslu, H. (2021). Relationship between economic growth external debt: Application to Turkey. *Manas Sosyal Araştırmalar Dergisi*, 10(1), 272-294. <https://doi.org/10.33206/mjss.799985>
- Zhang, B., Dawood, M., & Al-Asfour, A. (2020). External debt and economic growth: A dynamic panel study of granger causality in developing countries. *Journal of Asian Finance, Economics and Business*, 7(11), 607-617. <https://doi.org/10.13106/jafeb.2020.vol7.no11.607>