AN ASSESSMENT OF FISCAL POLICY ON PUBLIC DEBT SUSTAINABILITY IN ZAMBIA

By

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ABSTRACT

Zambia, just like other economies, uses fiscal and monetary policies in regulating the economy to ensure sound liquidity and economic stability. This study is focused on the fiscal policy because it is associated with longer-term benefits if well implemented rather than the latter (Ikikii, 2017). The study aims at contributing to existing knowledge of the relationship that exists between fiscal policy implementation and public debt sustainability.

The main objective of the study was to establish an effective way of implementing fiscal policy that could ensure debt sustainability in Zambia. A review of Zambia's data for the period of 20 years (2002 to 2021) was done using an archival strategy and a mixed method to collect quantitative and qualitative data. It was supplemented by a questionnaire to collect additional qualitative data as this allows triangulation (Tashakkori & Teddlie, 1998). This method has been used by other researchers such as Mbaye, Badia and Chae (2018) and Li and Cowton (2021). Quantitative data was analyzed through inferential statistics using Fiscal Reaction Function (FRF) model coined by Bohn (1995; 1998) modified to incorporate specific variables. In estimating the model, the Multiple Linear Regression was used to link the outcome variable public debt to predictor variables fiscal balance and macroeconomic variables (growth, interest rates and inflation rates) in a linear function. Qualitative data was analysed by themtic method. Findings were that predictor variables had a high influence on public debt dynamics and this was clear with an adjusted R Square of 0.81. The specific variables responsible for this influence were interest rates having a higher influence on debt accumulation, giving a higher value of standardized beta of 350 increase in debt per unit of interest rates. However, fiscal balance had the significant influence on debt levels due to the strong negative standardized beta of 761 reduction in debt per unit of fiscal balance. The superiority of fiscal balance over other variables was confirmed by dominance analysis (DA) Table at 95 % significance values of correlation and regression coefficients. The study established that Zambia needs to raise its GDP to a minimum of 4.5 percent to support the fiscal balance and borrow at a 2.1 rate of interest in order for the Debt/GDP ratio of 60 percent to be sustainable.

The study recommendations were that measures needed to increase Fiscal balance/GDP ratio include: fiscal decentralization, creation of local millionaires, reforming the education system, control of mineral resources, among others. These findings indicate that fiscal balance, if well managed, is a key variable that Zambia can use to bring about public debt sustainability in the long-term.

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DEDICATION

This thesis cannot be of value if I fail to thank my spouse Peggy Mungala Chisala. This achievement is for you and our children Chibamba, Junior, Tashalesa, Santi and Nema. My wife, life has not been easy for us but you have been very supportive to me. I remember when I was almost hanging my studies after getting my Master's Degree, you encouraged me to enroll for the DBA program even when you knew the cost implication and our little resources. You on several occasions bailed me out by clearing outstanding balances at ZCAS University. Darling, you are my angel and may God bless you more and give you long life.

ABBREVIATIONS

FRF : Fiscal Reaction Function

NDP : National Development Plan

NTR : Non-Tax Revenue

GFC : Global Financial Crisis

MFNP: Ministry of Finance and National Planning

PMRC: Policy Monitoring and Research Centre

ZIPAR: Zambia Institute of Policy Analysis and Research

LMA : Loans Market Association

NPGC : No Ponzi Game Condition

IGBC : Inter-temporal Government Budget Constraint

DA : Dominance Analysis

ABB : Activity Based Budgeting

DSSI : Debt service suspension initiative

EU : European Union

GDP : Gross Domestic Product

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

Most countries in the sub-Saharan Africa face financial constraints due to small budgets, low export earnings and low tax revenue against desirable social and economic investment projects (Oloruntoba, 2022). In the past decade, Zambia experienced heavy borrowing to finance massive infrastructure projects in the social and economic sectors. Infrastructure development in the social sector include roads, health facilities, schools and accommodation while economic sectors include airports, water works and sewerage systems, hydro-electric power stations, and many more.

High expenditure through Infrastructure development was expected to have a multiplier effect on the economy through easing citizens' lives, creating employment, spur economic activities and contribute to economic growth (Siyanga, 2018). However, the country witnessed rising costs of debt servicing and low revenue (African Development Bank Group, 2021). This made the country's debt to reach unstainable limits and eventually a default in 2020 (The Economist, 2022).

Zambia has in the past used fiscal policy as a stabilizer of economic activities through tax and expenditure adjustment and regulating interest rates among other measures. These measures were aimed at redistributing income and efficient allocation of resources (Ikikii, 2017). Government uses a national budget to effect its fiscal policy to stabilize the economy. The role of the budget in this case is crucial because it states how much can be borrowed to cover the deficit. This then creates an obligation to service the debt.

Fiscal policy relates to government decisions regarding tax revenue, public expenditure and borrowing (Kuligowski, 2022; Keynes, 1936). Fiscal policy is not used as much as monetary policy by most poor countries because of the challenges they face in stabilizing their economies. The challenges are that fiscal policy has longer lags (commitments span over periods before conclusion), faces political constraints (because sacrifices are needed), it cannot be easily reversed (once funds are committed they cannot be recouped when the project is abandoned), it's not easy to measure, has crowding out effects (government plans tend to affect the private sector adversely), it takes time (that is, projects take longer to produce benefits) and so on (Nguyen &Truong , 2013, citing in Ikikii, 2017).

Recent literature indicates that monetary policy was successful in the 1970s and 1980s but after the financial crisis of 2008, most countries have resorted to fiscal policy dominance over monetary policy (Ikikii, 2017). Ikikki pointed out that fiscal policy is used more in developed countries than developing countries. Zambia, like other poor countries, has no specific position in this regard and it has been observed recently that the government is using monetary policy to curb inflation while at the same time issuing bonds and Treasury bills to mop up excess funds from circulation (BOZ, 2022).

Various studies have emphasized the importance of economic policies on real life economic activities due to their impact on the macro economy (Riverc, Ramirez & Del Rio, 2021). Because Policies affect growth and public debt (Bracheta & Ceci, 2021), economic failures can be attributed to wrong investment choices, ineffective fiscal and monetary policies and their weak implementation (Musonda, 2020). Ford & Roberts (2017) indicated that ineffectiveness of policies can create economic imbalance, liquidity problems and low reserves. Therefore, Zambia needs to fairly coordinate its economic policies to ensure economic stability and be able to sustain public debt.

This study looks at the need for effective implementation of fiscal policy due to the reason that Zambia has struggled with unsustainable debts for decades. Badia, Medas, Gupta and Xiang (2020) indicated that debt is a leading indicator of fiscal crisis. The lack of reliable income streams, among many reasons, calls to re-examine how the fiscal policy can well be implemented to boost government revenue, provide economic stability and to withstand shocks posed by global interest rates, impact of wars, recessions, natural disasters, and other factors.

1.2 Research Background

The relationship between fiscal and debt sustainability can well be traced from the post-independence period when the country had very low debt levels. The debt levels and fiscal crises can then be tracked according to decades.

The post-independence period between 1964 and 1970 saw the government with little control over the economy because mining was still in the hands of the colonial masters through the British South African Company (BSA). The BSA relinquished the mineral rights they had

signed in 1892 with the Litunga (King) of Barotseland after the government threatened expropriation in 1966 (Siyanga, 2018).

In the late 1960s, Zambia was amongst the wealthiest and most urbanized countries on the continent. It was classified as a middle - income economy in 1969 with higher per capita income than Brazil and South Korea (Webster, 2013).This was due to rising copper price on the world market and increasing copper output (IMFelibrary). The healthy economic situation compelled the government to embark on infrastructure development mainly aimed at opening up rural areas and also creating industries. The country had capacity to borrow and service debt at that time without problems. Zambia recorded the highest GDP growth of 16.6 percent in 1965 (Siyanga, 2018).

The period 1971 to 1980 proved difficult for Zambia due to a slump in copper revenue against the rising cost of fuel on the global market (IMFelibrary). The loans in 1970s were granted due to the economy's past prosperity (roape.org). However, loans for major projects such as the Tanzania-Zambia oil pipeline and railway line (1970-1976) were met with the world economic slowdown leading to low copper demand from 1973 to 1974 (Brautigam, 2021). This made Zambia to experience a balance of payments support crisis leading to a high debt burden by 1976 (Siyanga, 2018).

During the oil shock of 1973, Zambia experienced severe budget deficits and a sharp decline in reserves. The IMF provided the first bailout package of USD $19 million special drawing rights (SDRs), (IMFelibrary). This, however, did not lessen the economic problem at that time as the country continued recording fiscal deficits. By 1975, it had depleted it's reserves and was facing serious balance of payment problems. Zambia defaulted on its debt terms in 1976 at a debt to GDP ratio of 40 percent (Saungweme & Odhiambio, 2018) which was high at that time.

The impact of the economic crisis was deep as the global economy did not recover. In 1976 Zambia requested for further assistance from the IMF and World Bank and this was granted (Siyanga, 2018). The IMF special drawing rights (SDR) of USD$62 million were granted in 1976 and included the conditions that the country needed to curb money supply in the economy and devalue its currency by 20 percent, among other conditions (IMFelibrary). A third request was done by Zambia in 1978 and the amount of USD$317 million SDRs was granted with conditions requiring limiting borrowing and also currency devaluation of the Kwacha by 10

percent.

For the period 1981 to 1990s, there was a global recession referred to as the "black hole" which culminated into the rising deficits for most countries. Zambia recorded deficits in the 1980s as a result of falling demand for copper (Musonda, 2020; Cablamaci, 2018). The deep global economic crisis of 1980s lasted up to 1996 (IMF, 2021). Zambia saw the decline in its revenue capacity as the demand for copper dwindled and there were no alternative industries to cushion the economy.

Zambia faced further deterioration in copper exports and also failure of crops due to droughts of 1979/1980 and 1984 to 1989 (Dhagane, Murshed & Mourad, 2023). This situation caused the collapse of the economy which was partly exacerbated by poor economic policies of the command system of governance. State dominance in the economy made decisions such as subsidized mealie meal and use of price controls which made it difficult to recover the full costs of production. Further, total dependence on copper exports was risky as it was facing low demand due to the world economic crisis and this reduced the country's revenue capacity and economic growth (roape.org).

Zambia went for a fourth request of the bailout package and that time it was an extended facility. An extended facility (EF) of USD$800 million was granted in 1981 and was aimed at reviving the industrial sector to give hope for economic prosperity and stability (IMFelibrary). The EF was given over a three year period, 1981, 1982 and 1983. The IMF recommended a structural adjustment program (SAP) in 1983 (Siyanga, 2018) which involved removal of price controls, removal of subsidies, expenditure cuts, devaluation of the Kwacha and a curb on borrowing.

The EF was cancelled in 1983 when Zambia failed to limit it's debt ceiling and became unable to pay arrears (IMFelibrary). The alternative for Zambia was to revert to the SDRs facility. The fifth request of USD$270 SDRs was granted in 1983 but that time with more conditions which included a curb on money supply, strict following the debt ceiling, reducing budget deficit to 5.6 percent of GDP, abolishing price controls, wage freeze and devaluation of the Kwacha by 20 percent. This was at a time when the global economy was in deep crisis in the mid-1980s.

Zambia went for a sixth request of USD$225 million SDRs and was granted from 1984 to 1986

with an extra condition of “auctioning the Kwacha” (IMFelibrary). The currency auctioning caused shortage of foreign currency and made imports unaffordable. The economy was brought down to the extent that bitterness ensued in the citizens due to economic hardships as a result of increased cost of goods and services and ensued riots in 1986 (Saungweme & Odhiambo, 2018). This forced the government to abandon an agreement with lenders even when the debt ratio had reached 187 percent by 1987 (roape.org).

As the economic condition worsened, the Zambian government decided to peg debt servicing to economic growth (Lwazi 2022). This measure disrupted the relationship with the international community and led to withdrawal of bilateral donations (roape.org). In 1988, the government introduced a new program called 'growth from own sources' which required restricting debt servicing to 10 percent of exports (IMFelibrary). This program was successful in the first year it was introduced and recorded growth of 6.7 percent in 1988 due to retention of more resources.

The new 1988 program did not succeed due to economic isolation suffered at the hands of the international community. This compelled the country to go back to the IMF in 1989 (Siyanga, 2018). Following the endorsement of the economic and financial plan, Zambia was awarded the IMF and World Bank loan of USD $ 836.9 million SDRs in 1991 to cover the period 1991 to 1994. This was the seventh bailout package but was not disbursed due to change of government.

By 1990, the debt burden had reached USD$7.2 billion representing 260 percent of GDP (Siyanga, 2018). The new government managed to resume the economic and financial program which required liberalizing the economy. This included privatization of major mines, wage employment freeze and reducing workforce in the public sector. After commencement of these programs, donors resumed the balance-of-payment support to give the government space to implement other economic reforms (IMFelibrary). This led to reducing loan arrears.

Disbursement of the seventh package resumed in 1992. After success of the seventh package, Zambia was granted a three year enhanced structural adjustment facility (ESAF) and a one year structural adjustment facility (SAF) which together total USD$883.4 million SDRs for the period 1995 to 1998. These were the eighth and nineth bailouts (IMFelibrary). In an attempts

to improve cash flows, government of Zambia decided to use fiscal and monetary policies to stabilize the economy mainly through regulating tax and interest rates (Musonda, 2020). For example, the government introduced the Value Added tax in 1995 to reduce tax evasion in order to increase revenue collection (OECD, 2006).

Other measures included improving its legal framework guiding debt management in Zambia (Muleya et al, 2020), the Cash budgeting system introduced in 1990s (World Bank, 1993) and reintroduced in 2014 (Saungweme & Odhiambo, 2018; GRZ, 2013) limiting expenditure to disbursed funds was aimed at improving liquidity and allocations towards debt servicing. The activity-based budget (ABB) which was introduced in 2002 required justification of expenditure before it could be included in the budget (5th National Development Plan, 2002).

The liberalized economy of 1990s saw the issuance of high interest-bearing securities which attracted foreign investors and resulted into an increase in foreign debt (Saungweme & Odhiambo, 2018). Due to high debts globally, the World Bank and IMF and other multilateral lenders created the "heavily Indebted Poor Countries Initiative (HIPC)" in 1996 to address debt repayment problems of low-income countries and Zambia qualified to the HIPC initiative in 1999 (Chikalipah, 2021).

During the period 2001 to 2010, the country was still dependent on copper as the main revenue source. President Mwanawasa embarked on a fight against corruption crusade which led into increased investor confidence and Zambia saw the opening of new mines (Kansanshi and Kalumbila) in the North-Western province. During this period copper and cobalt demand had significantly improved on the world market (Siyanga, 2018) and this was boosted by high demand by China.

Under the theme "broad based wealth and job creation through citizenry participation and technological advancement", the government planned to make agriculture the main income earner for the country, increase infrastructure development while continuing supporting mining, tourism, youth skills empowerment, and all these were to be attained by linking them to the resource envelope (5NDP). To this effect, the activity based budget (ABB) was introduced in 2002, a measure required to justify an expenditure before it could be included in the budget (Saungweme & Odhiambo, 2018).

Zambia reached the HIPC completion point in 2005 which entitled the country to a debt relief. A debt relief of 60 percent of total debt was given and this improved the economic situation with indicators of a single digit inflation, increased GDP to 6.2 percent, and appreciation of the Kwacha ZMK to K3 per dollar (Bank of Zambia, 2007). Zambia saw the boom in copper demand as a result of increased manufacturing activities in China (Siyanga, 2018). This necessitated the opening up of new mines (Kansanshi and Lumwana mines) in north-western province.

The debt relief of 2005 created fiscal space and the country was able to borrow for infrastructure development such as the Ndola and Lusaka stadiums, Levi Mwanawasa hospital, Chembe bridge, rural schools and health centres, among other projects. Most projects were financed by the Chinese loans amounting to USD$56 million between 2000 and 2009 (Brautigam, 2021). The post-HIPC period was also backed by the record of economic booms as the country recorded high GDP growth which included a double digit growth of 10.3 percent GDP in 2010 (Siyanga, 2018) and the debt to GDP ratio as at 2012 was 20 percent (Kalikeka & Nsenduluka, 2023)).

During the period 2011 to 2020, the government harmonized salaries for government workers, built infrastructure such as roads, bridges, schools, health centres, accommodation and energy, among others. This government managed to access credit finance from the market, which had never happened in the history of the countries on the African continent. Market access is normally reserved for countries which satisfy the per Capita income threshold or it has a long-term financial capacity (worldbank.org). Zambia accessed the market partly due to improvement in GDP averaging 7 percent (Smith et al, 2016). The risk was that market access loans were on commercial terms with variable interest rates.

The first commercial loan of USD$750 thousand was acquired in 2012 through the issue of a Euro bond. Other loans with the same terms were acquired in 2014 USD$1million and 2015 USD$1.25 million (Brautigam, 2021; Kalikeka, Nalishebo & Muleya, 2019). However, the economic situation started souring as early as 2014 due to a drought which affected food security and electricity generation resulting into disruptions of mining operations and the manufacturing sector (Lwazi, 2022; Smith et al., 2016).

Other economic challenges such as rising global interest rates, high cost of debt servicing and

declining tax revenue due to lower copper prices on the commodity market diverted government's attention from important goals. This created deficits for subsequent years and made economic recovery difficult. The situation led the IMF to issue a warning in 2017 that Zambia's debt had reached unsustainable levels (Brautigam, 2021). The country defaulted on its $17.3 billion external debt in 2020 after the collapse of its public finances during the pandemic (The Guardian, 2022).

The difficult phase of COVID-19 was characterized with high deficits caused by consumption on health and pandemic control measures against low industrial production and low government revenue due to economic close downs (de Soyre, Santacreu & Young, 2022). Zambia is currently grappling with high debt levels, inflation, unemployment and poverty. Normally, the post-crisis periods cause job losses in the formal and informal sectors, scales back consumption for savers and non-savers, and these contractions lead to a recession (Sennoga & Balma, 2022).

The year 2021 saw the global economy reach its lowest point due to COVID-19 effects which included closure of borders, travel restrictions, industrial shutdowns, supply chain collapsing, further debt accumulation as a result of increased expenditure on pandemic control and prevention against declining revenue (Napo, 2022). This situation prompted the G20 to come up with the DSSI to save economies from accumulating further interest costs on debt. Zambia and other countries had to apply for debt suspension and it was granted in 2020 (IMF, 2022).

An extension of the DSSI initiative was given in 2021 as the international community saw the depth of the devastation caused by the pandemic and slow recovery of the economies. Zambia also benefited from the extension and after change of government in 2021 resumed the debt restructuring negotiations which were abandoned in 2020. Negotiations were speeded up in 2022 and were scheduled to be completed by June 2022 but due to a standoff by China and private lenders these dragged up-to the partially agreed deal in September 2022 (Komminoth, 2022).

To date, no full agreement has been done with private lenders let alone the bilateral lenders who opted for their debt to be rolled over to a period of 20 years beginning from 2026 (Bloomberg, 2023). This means that Zambia has a breathing space of three years (2023-2025) to prepare for a serious economic recovery before interest payments can resume on bilateral

and multilateral debt (Reuters, 2023, June 23). The current debt servicing cost accounts for 45 percent of the national budget (ctpd.org.zm).

Recently, the government of Zambia issued the 8th national development plan (8NDP) centered on debt reduction, economic growth and improving the rule of law (Parliament, 2022, May 26). This is going to guide the country in the next five years. Some of the Zambian government's policies towards fiscal sustainability include enhancing domestic resource mobilization, achieving annual real GDP growth rate of at least 4.5 percent by 2026 and maintain annual domestic revenue to GDP ratio of at least 21 percent, aim to achieve the targeted reduction in fiscal deficits to 3.6 percent of GDP by 2026

Other areas of the 8NDP include reforming the farmers support input program (FISP) by making it cost efficient, remove subsidies on fuel and electricity, use PPP as an alternative to funding infrastructure projects, contain domestic borrowing to less than 4.8 percent of GDP by 2026, keep external debt to 60 percent of GDP to ensure debt sustainability, strengthen fiscal decentralization, and to maintain inflation within the target range of 6-8 percent. By

1.3 Research problem

Zambia needs infrastructure to open up economic areas, increase economic activities and spur economic growth. However, despite massive infrastructure development in the last decade, Zambia witnessed the disappearance of economic gains made in the earlier decade (Smith et al, 2016), an increase in the debt burden, plummeting government revenue and depletion of foreign reserves (AfDB Group, 2020). The high cost of debt servicing is now hindering economic recovery (Makhoba et al., 2022).

Zambia, just like other poor countries on the African continent, has not done enough to improve its financial capacity through mobilization of local resources (Policy Monitoring and Research Centre, 2022). Despite being a wealthy country in natural resources, the country seems to be losing out in resource utilization and maximization of benefits particularly in the mineral extractive and forestry sectors. The country does not use these resources to diversify the economy for long term sustainable fiscal health.

This study identified the areas of concern which threaten fiscal health of Zambia. These areas include that mineral resources are wasting assets, population growth increases demand for Public and social goods, rising debt servicing costs, the risk that foreign aid will diminish, the country has low revenue sources, increasing number of private lenders, and the continuous threat from the COVID-19 pandemic (ERF World Bank Webinar, 2020).

The dangers are that minerals, forestry and wild reserves are wasting assets. This means that these resources will run out at some point in future. It is, therefore, important for the country to maximize revenue mobilization from these resources to create sustainable industries such as agriculture and manufacturing. The post- independence period has not witnessed diversification and movement from dependence on mining. Currently, the mining sector provides 75 percent of total government revenue (Pearce et al, 2022).

In the current state of the economy, it is hard to create more income streams to shield the economy from copper commodity price and demand shocks. Further, it is difficult to justify benefits from resources such as mining and lumbering due to high land degradation, deforestation, ghost towns, rising poverty levels and high debt levels (Lwazi, 2022). Despite having these resources, Zambia's unemployment rate is high at 13 percent (IMF, 2021).

Zambia's population is growing at 3 percent per year and is expected to double in 26 year's time (UNICEF, 2021). Population growth means that the demand for more infrastructure such as schools, health facilities and other amenities keeps on rising (Market Watch, 2022). For example, Zambia's population was at 13 million in 2010 (worldbank.com; unstats.un.org) compared to 17.8 million in 2023 (UNESCO, 2023; unesco.org).

This rise in population requires Zambia's budget to be increased to afford the provision of public goods and services. This, therefore, demands for efforts towards improving the fiscal capacity to meet needed public expenditure. However, economic growth has been on a decline since 2013 (Saungweme & Odhiambo, 2020) and the safe growth needed should be at least double that of population growth (Palatiello & Pilkington, 2022).

Due to lower economic growth, the country has struggled to raise adequate revenue needed for service delivery and also for public debt servicing. Another matter of concern is that sources for debt repayments are not well defined when accessing credit and this leaves Zambia's

capacity to repay debt in question. Reis (2021) suggested the identification of an income stream each time debt is issued but this is not the case for Zambia. Low revenue sources are a serious problem in that there is no desire to reduce deficit financing and increase sustainable tax revenue sources.

The coming of private lenders on board since 2010 (Kose, Ohnsorge & Sugawara, 2018) has advantages of providing quick credit to countries. Zambia accessed credit from private lenders in 2012, 2014 and 2015 (Kalikeka et al., 2019). These loans were acquired on commercial terms and interest has been rising rapidly. Commercial loans have proved costly for the country due to rising interest payment that has changed the country's credit risk (Calderon & Zeufack, 2020).

The problems of commercial loans are that they carry variable interest rates which have contributed to high debt servicing costs. Zambia saw it's debt servicing costs rise to 25 percent of revenue in the year 2017 (Saungweme & Odhiambo, 2020). This made the IMF to classify Zambia to be at high risk of debt distress (IMF, 2017) and this was exacerbated by the COVID-19 in the year 2020 forcing the country to default (Financia Times, 2022).

The debt servicing amount as a percentage of the budget indicates that it rose from 40.7% in 2021 to 47 % in the year 2022 (CSO Debt Alliance, 2022). This allocation is a demonstration that Zambia has serious fiscal problems and the situation was going to be worse if there was no debt service suspension initiative (DSSI) and the "G20 common framework" which halted further interest accumulation from the year 2020 to date (IMF, 2021; 2022).

The other problem with commercial loans are that they are difficult to be re-negotiated (SABC News, 2022, April 27). The recent stand-off between creditors in the restructuring process indicates that future defaults will not be easy to handle. The problem is that Zambia like any other country cannot avoid borrowing due to its limited revenue capacity (ERF-World Bank webinar, 2021). Moreover, revenue sources for every country are under threat by the lingering effect of the pandemic making planning difficult because it is not known when the pandemic will completely end and also whether more versions of it will arise in future.

Another matter of concern regarding alternatives to public debt is the declining foreign aid. In this post-COVID-19 crisis period, most countries are now focusing on re-building their

economies (Nzimande & Ngalawa, 2022). For example, China has its infrastructure debt crisis back home (Bloomberg, 2023) and other western countries are scaling back on their financial assistance to poor countries because of ravaged economies after pandemic as they keep on fighting inflation, economic stagnation and high unemployment (Market Watch, 2022). This means that aid is not guaranteed as an alternative to debt.

Further, it is worrying that the country cannot stand on its own without external support to negotiate and pay its creditors despite its long experience of borrowing and debt defaults. In most instances, Zambia defaults and the tax burden is imposed on citizens through fiscal adjustment and austerity measures which increase poverty in the country (Igwe, Abdullah, & Sherko, 2016).

1.4 Justification

In view of Zambia's past experiences of debt accumulation, debt defaults, debt relief initiatives and the current high debt level, Zambia needs workable policies and strategies adequate to deal with its fiscal problem. In this regard, fiscal policy implementation is a crucial factor in providing a long-term solution to address the liquidity problem. This entails a departure from past failures of implementation

Further, Zambia has no clear fiscal policy to enhance its revenue capacity particularly in widening the tax base because of its huge informal sector. Furthermore, the country has been struggling to extract reasonable taxes from the mining sector which is the main source of revenue (Pearce, Chibuta, Chiwele & Williams, 2022; Oloruntoba, 2022). These among other reasons are why Zambia has no good record of debt sustainability (Mbandlwa, 2020). The situation, therefore, requires the country to re-examine its fiscal policy implementation to ensure that local resources are used to create wealth, liquidity, employment and sustainable growth in the long-term.

1.5 Research Aim

This study aims at finding an effective way of implementing fiscal policy to ensure public debt sustainability in Zambia. Past fiscal policy implementations have led the country into defaults on debt terms due to failure to create sufficient liquidity in the economy (Raga, 2022). Badia, Medas, Gupta and Xiang (2020) stated that debt is a leading indicator of fiscal

problems. In this respect, Zambia has experienced challenges in servicing debt and higher debts have created serious fiscal problems in the past.

1.6 Research Objectives

Main: To establish an effective way of implementing fiscal policy to ensure public debt sustainability in Zambia.

(i) To relate fiscal policy implementation to Public debt Sustainability in Zambia.

(ii) To assess the adequacy of fiscal policy implementation on public debt sustainability in Zambia.

(iii) To establish factors affecting effective implementation of fiscal policy in Zambia.

(iv) To suggest how fiscal policy can be implemented to ensure public debt sustainability in Zambia

1.7 Research Questions

Main: What is an effective way of implementing fiscal policy to ensure public debt sustainability in Zambia?

(i) How is fiscal policy implementation related to public debt sustainability in Zambia?

(ii) How adequate is Zambia's implementation of fiscal policy on public debt sustainability?

(iii) What are the factors affecting effective implementation of fiscal policy in Zambia?

(iv) How can fiscal policy be implemented to ensure public debt sustainability In Zambia?

1.8 Dependent and Independent variables

The dependent variable for the study is the optimum debt ratio of 60 percent which has been recommended by the SADC region (Redda, 2020; Mbandlwa, 2020) while independent variables include the fiscal balance, the growth rate, interest rate and inflation rate.

1.9 Research Contribution

This study differs from other studies on the Zambian economy in that it specifically considered the relationship that exist between fiscal policy implementation and public debt sustainability, whilst other studies relate public debt to variables such as economic growth (Saungweme & odhiambo, 2018) or debt and a crisis (Pearce et al, 2022; Kalikeka, Nalishebo & Muleya, 2019).

This study also considered a broader range of macroeconomic variables which include fiscal balance, growth, interest rates and inflation rates. Most studies which look at debt sustainanability such as Khalladi (2019) in the study of Tunisia's debt sustainability considered the predictor variable exchange rate instead of inflation rate. Inflation rate was also used instead of exchange rate by Hilton (2021) who considered a wider range of predictor variables.

This research considered inflation rates to be more relevant because Zambia has foreign and local debt. The use of exchange rates ignores the effect on local debt component. Government can use inflation as a debt reduction method on local borrowing (Reinhart & Sbriansia, 2015) and this can also affect the exchange rate. This, therefore, makes it more suitable than the exchange rate in the study.

The research added a fourth stage to the three sustainability stages suggested by Ncube and Rajhi (2014) approach who suggested that the debt sustainability analysis should be conducted in three stages, being calculating the debt stabilization primary balance, establishing historical drivers of debt, and looking to the future prospects. This study added establishing the relationship between the outcome variable and predictor variables. Further, apart from an orthodox growth solution (Reinhart and Sbransia, 2015), this study has suggested to support growth with the budgetary and financial technical solutions (Petko and Zarkova, 2020).

The study also guides that contractionary fiscal policy in the post- crisis period can drive the country into a deeper crisis. This is supported by empirical literature that include Mtiba, Lahiani and Gabsi (2022), and Badia et al (2020). This study used Bohn (1995) fiscal reaction function (FRF) to arrive at an equation that reflects the suitable level of borrowing. The FRF shows a relationship between public debt and fiscal balance. The FRF model has been used by other researchers such as Staszewska-Bystrova and Bystrov (2022), Aldama and Creek (2021), and Ogbeifun and Shobande (2020). FRF has been used on Zambia's case in this respect.

1.10 Overview of research design

The research used the Saunders et al. (2016) research onion which outlines the stages to be taken in conducting the study. This provides a simple and effective way of addressing the research problem.

(i) Research philosophy

The pragmatism philosophy was chosen due to its flexibility because it allows the use of features of other philosophies in the same study (Bryman, 2006). The philosophy provides a coherent stance in a mixed-method research (Coates, 2021). It was needed in this study to satisfy the nature of the research problem, given that debt is sensitive and complex. Creswell (2014) suggested that a research design must be used as a tool to satisfy the nature of the research problem.

(ii) Research Approach

This study used an abductive approach which is a combination of inductive and deductive approaches. Inductive is related to collection of qualitative data (Haradhan, 2018) in order to develop a theory from the data analysis (Bergdahl & Bertero, 2015) while deductive approach involves moving from theory to data and is suited to quantitative data collection. Deductive starts with the general and finishes with the specific (Soiferman, 2010).

Deductive was used in this study because it is highly structured, requires control to ensure validity of data and the researcher is independent of the study. Inductive was also used particularly when obtaining supplementary data because the researcher needed to interact with the participants for the purpose of gaining an understanding of the phenomenon

(iii) Research strategy

This research adopted the archival and narrative strategies due to the reasons that the study was dealing with most data stored in written form (Das et al., 2018). This is always the case with data relating to debt and other financial matters because reports are produced annually. Main data sources included Bank of Zambia, the Ministry of finance, the IMF, and the World Bank.

(iv) Research choice

The mixed-method research was chosen because it suits all forms of data collection. The advantage with this choice is that it leverages strengths while reducing weaknesses of quantitative and qualitative research choices and reduces paradigm wars (Tashakkori & Teddlie, 1998). Fetters and Molina-Azorin (2017) stated that integration of the qualitative and quantitative approaches creates a more holistic understanding than achieved by one of them

alone.

The appropriateness of the mixed method choice is that it allows the application of at least one qualitative and one quantitative component of data in a single study (Cameron, 2015). This approach was taken in this study to meet different objectives as some objectives required evaluation of quantitative data while others were met through qualitative data from past records and the questionnaire.

(v) Time horizon

This study was a snap check of the longstanding debt problem and as such it suits to be within a cross section time period. Moreover, a cross-sectional study involves the collection of data at one point in time (National Institute of Health, 2016) and this was the case for this study.

(vi) Data collection techniques and data analysis

The study used a mixed-method that allows to use both quantitative and qualitative data collection techniques (Saunders et al., 2016). This has an advantage of sources complimenting each other (Masadeh, 2012). Secondary data was collected from websites of institutions, journals, magazines, news, and other publications. Primary data was collected through the semi-structured questionnaire.

Quantitative data (numerical data) included published annual reports from MFNP and Bank of Zambia. Published reports from main sources are more reliable because they lack influence, bias and personal judgement of the researcher. Denscombe (2007: 133) suggested it as one of the methods for data collection. Qualitative data (non-numerical data) can be collected through interviews and published sources. Use of documentary sources is permitted in social research (Mogalakwe, 2009: 221). Most qualitative data was collected from secondary sources such as published annual reports, journals, online sources, newspapers, television news and radio channels news and many more.

This study chose the thematic analysis to analyze qualitative data as appropriate because it allows collecting text data and interpreting it through narrations to meet research themes developed according to research objectives (Haradhan, 2018). Proudfoot (2022) stated that this approach enhances the quality of the analysis. More importantly, thematic analysis needs to meet the criteria of trustworthiness (Nowell et al., 2017) and this was met by extracting data from credible sources both from secondary sources and primary sources (questionnaire

responses from experts).

For Quantitative data, the study used inferential statistics as collected data was analyzed by expressing the relationship between variables. This study used SPSS and Excel software to analyze data. Results were obtained through use of the Multiple Linear regression technique which relates predictor variables and the outcome variable in a linear equation.

1.11 Scope of study

The study reviewed data collected from the two main institutions being the Ministry of Finance and National Planning (MFNP) and the Bank of Zambia (BOZ). The choice of the two institutions was based on the reason that the MFNP is the sole fiscal institution in Zambia and the BOZ is the reliable source of monetary data. The study involved collected past data related to the period 2002 to 2021.

1.12 Thesis Layout

The thesis consist of six chapters. Chapter one highlights and summarizes contents of the rest of the document and is followed by chapter two which reviews the literature concerning the relationship that fiscal policy has with public debt sustainability. Chapter three gives details of the method used in collecting data and analyzing data. Chapter four relates to the way data was actually analysed. Chapter five relates to interpretatation of data collected analysed in chapter four. Finally, chapter five relates to the conclusions reached on data from all the chapters and recommendations made to meet the research objective.

1.13 Chapter Summary

Zambia has in the past used fiscal policy as a stabilizer of economic activities through tax and expenditure adjustment and regulating interest rates among other measures. These were aimed at redistributing income and ensuring efficient allocation of resources (Ikikii, 2017). Government uses a national budget to effect its fiscal policy to stabilize the economy. However, budget deficits create debt. Fiscal policy is generally not used as much as monetary policy by most poor countries because of the challenges they face in stabilizing their economies. However, recent literature indicates that monetary policy was successful in the 1970s and 1980s but after the financial crisis of 2008, most countries resorted to fiscal policy dominance over monetary policy. Zambia has struggled with unsustainable debts for decades. Badia,

Medas, Gupta and Xiang (2020) indicate that debt is a leading indicator of fiscal crisis. The lack of reliable income streams, among many reasons, calls for re-examination of how fiscal policy can be effectively implemented to boost government rrevenu and stabilize the economy. This can help to withstand shocks posed by global interest rates, impact of wars, recessions, natural disasters, and other factors.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Authorities in developed and developing countries are responsible for raising resources needed for investment in projects, human capital and provision of goods and services to society (Ikue et al, 2021). This is where they need a fiscal policy to help in raising tax revenue, guide expenditure and access credit to meet the shortfall on the budget. Zambia in the last decade accessed more credit to afford financing infrastructure development to enhance economic growth. However, the anticipated economic growth was not sustained and this pushed the country into unsustainable levels of debt (AfDB, 2022).

This chapter reviews literature relating to the research aim of "finding an effective way of implementing fiscal policy to ensure public debt sustainability in Zambia". The literature is needed to give an insight of the research in the area of fiscal policy and public debt sustainability. Adequate literature is necessary to help the researcher to thoroughly know research gaps which are needed to be filled. In this regard, literature was collected around research themes for the possibility of identifying gaps in the past studies.

This chapter contains literature relating to the study "an assessment of fiscal policy on public debt sustainability in Zambia". The chapter contains 8 sections being the introduction (already given), relating fiscal policy implementation to public debt sustainability in Zambia, assessing the adequacy of fiscal policy implementation on public debt sustainability in Zambia, establishing factors affecting effective implementation of fiscal policy, suggesting ways to effectively implement fiscal policy to ensure public debt sustainability, conceptual framework, literature gaps and a chapter summary.

2.2 The relationship between fiscal policy implementation and Public debt Sustainability in Zambia.

To clearly look at the relationship between fiscal policy implementation and public debt sustainability in Zambia, this section is split into four sub- sections including the definitions of what fiscal policy is, what public debt sustainability is, then establishing the relationship between fiscal policy implementation and public debt sustainability, and then look at various studies on this relationship.

2.2.1 What is fiscal policy?

Fiscal policy is defined as the decision by the government to increase or decrease taxation and expenditure (Kuligowski, 2022). It can also be simply defined as government's decisions over tax and spending (UK Parliament). The definition adopted in this study relates to Kynes (1936) which states fiscal policy as 'government decisions relating to use of financial instruments such as budgets, taxation and borrowing'. In short, fiscal policy relates to government's decisions relating to revenue, expenditure and borrowing.

There are three main uses of fiscal policy in an economy. These include the control of inflation, providing full employment and meeting economic growth (GDP) target (study.com). Quite as these are the main focus of the economy, fiscal policy provides a number of challenges and it is why most countries do not use fiscal policy compared to monetary policy. Most poor countries do not use fiscal policy because of the challenges they face in its implementation. Nguyen and Truong (2013) citing in Ikikii, 2017) indicated three reasons.

The first one being 'time frame' as fiscal policy implementation takes a longer time than monetary policy to produce results. Some researchers have indicated that it is feasible in the medium and long term than short-term. Nevertheless, fiscal measures have produced long-term benefits in some countries such as Japan, the USA, Germany, among other developed countries (FitchRatings, 2022; Tran, 2020).

The second reason relates to 'Political constraints' because the policy is politically sensitive in that fiscal consolidation requires tough measures such as increasing taxes on citizens. This may impact on living standards of citizens and in most cases make government unpopular (Igwe, Abdullah & Sherko 2016). Another example includes the awarding of the contracts to foreign companies such as the construction of Lusaka-Ndola dual carriage way which has increased political debate (National Assembly of Zambia, 2023). The third reason relates to the fact that fiscal policy is 'Irreversible' as funds spent on ongoing projects may not be recouped once such projects are abandoned. Irreversibility is also common for Tax increases as they are normally irreversible.

There are three methods of implementing fiscal policy in an economy and these include increasing taxes to reduce income and investment for the citizens, reducing taxes to increase aggregate demand and investment opportunities, and increasing government spending to

increase aggregate demand in the economy (businessnewsdaily.com). For this reason, Fiscal policy is classified into expansionary, contractionary and neutral (Kuligowski, 2022; Muindi & Mukorera, 2022).

(i) Expansionary fiscal policy

Expansionary fiscal policy involves increasing public expenditure and reducing taxes to boost demand in the economy (Cartwright, 2020). This is consistent with Keynes (1936) 'functional fiscal policy' which includes increasing public expenditure and lowering taxes to increase aggregate demand. Expansionary fiscal policy has a multiplier effect and is said to triple the initial government injection as available funds are spent several times and has a repo effect on aggregate demand (Colombo, Furceri, Pizzulo & Tirelli, 2022).

Expansionary fiscal policy has been witnessed in Zambia through creation of new districts, schools and health facilities in rural areas which have seen the rise of working class in rural areas (JCTR, 2023). It is also used in a recession or in rebooting the stagnant economy. For this to be successful, the economy must be operating at below capacity and the government needs to fill this gap (output gap) by identifying idle resources which may be used to increase production.

Zambia has used the expansionary measure by employing over forty one thousand civil servants in 2022 (Lusaka Times, 2023). Expansionary fiscal policy can also have a negative effect on the private sector. This is because increase in government expenditure makes the government a major player in the economy posing unfair competition for credit and investment. This is an example of an elephant in a room crowding out private investors (Palatiello & Pilkington, 2022).

The government uses expansionary measures to Increase aggregate demand and economic growth. This can be achieved by cutting taxes and increasing government spending (economicshelp.org, 2019, Jun 14). However, where the economy has already attained full capacity, expansionary measures may lead to inflation because of no value creation amid high money supply. The other disadvantage is that expansionary measures can increase government borrowing and raise the cost of credit in the economy.

(ii) Contractionary fiscal policy

Contractionary fiscal policy involves reducing public expenditure and raising taxes (Cartwright,

2020). It is one way of reducing inflation and slowing economic activities to avoid overheating the economy (Kuligowski, 2022). It is useful in fixing booms and tends to lower output, increase unemployment and lower prices. However, contractionary measures are mainly successful in developed economies rather than in developing economies. For example, use of contractionary measures have proven catastrophic in most developing countries as the private sector fails to fill the void left by public expenditure. Therefore, Zambia as a small economy risks reducing economic activities and plunge into deeper financial crisis if the current measures persist (Kohler & Stockhammer, 2022).

(iii) Neutral fiscal policy

Neutral fiscal policy relates to a situation where there is no relationship between economic health and fiscal policy (Barro, 1974 citing in Muindi & Mukorera, 2022). Therefore, government intervention is deemed unnecessary to correct the economic dynamic and this requires leaving matters to the market forces. This approach is similar to the classic theorists' view of avoiding government interventions as they prove to be wasteful.

2.2.2 What is public debt sustainability?

This sub-section contains two parts being the definition of public debt sustainability and the main causes of debt accumulation.

2.2.2.1 Definition of public debt sustainability

There are various definitions of debt sustainability but the choice depends on the researcher's understanding. Examples include:

Domar (1944) as a pioneer of debt sustainability suggested that the primary deficit could be sustained as long as real economic growth is higher than interest rates. The World Bank and IMF (2010) came up with a standard definition of debt sustainability which states that "the ratio of outstanding debt and debt servicing, in a steady state, should not increase over time".

Ferrucci and Penalver (2003) cited in Khalladi (2019) stated that the debt is sustainable if there is a high probability that the debt balance at the end of the period does not become higher than at the beginning of the period. However, the definition by Ferrucci and Penalver (2003) ignores the fact that while debt can increase in a period, it may contribute to growth and improve the debt ratio. This has been clarified by the IMF (2010) definition which

emphasizes the steady debt ratio as an indicator of debt sustainability.

Hakura (2020) stated that a country's debt is considered sustainable if it is able to meet all its current and future financial obligations without help through exceptional financing or going into default. This definition clearly states the avoidance of exceptional measures which include acquisition of more debt to repay existing debt known as 'a Ponzi scheme' and other extraordinary measures like privatizing or selling national assets to shed- off the debt burden (Buchheit, 2021).

A better definition of Debt sustainability can be borrowed from (Omotor, 2021) who defined debt sustainability as the country's capacity to meet current and future obligations in full without affecting its economic growth, change conditions to debt scheduling or accumulate debt arrears. This definition clarifies the facets of debt sustainability as it clearly indicates the importance of economic growth, time schedule for payments and avoiding accumulation of arrears. This definition can be improved with that of Hakura (2020) by adding the terms "without help for exceptional financing or going into default".

From the above additions, a better definition should state debt sustainability as "The capacity of the country to meet current and future obligations in full without affecting its economic growth, change conditions to debt scheduling, or seek help or exceptional finance to avoid going into default". It, therefore, has a better definition scope than that of the IMF (2010) which emphasizes the maintenance of the debt ratio for the period.

Omotor did not mention the debt ratio in the definition but it is obvious that without impairing growth the economy can afford timely debt payments and avoid accumulating debt arrears. This can not only maintain the debt ratio but probably reduce the debt ratio as a result of meaningful economic growth which does not get adversely affected by debt.

2.2.2.2 Main causes of public debt accumulation

Most debt accumulation is caused by deficit financing. Riley (2017) identified factors causing a budget deficit which include recessions, decrease in consumer spending, rise in welfare spending, use of fiscal stimulus, rise in debt interest rates, and rise in pension costs.

(i) Recessions

When the global recession happens, economies find it difficult to survive especially fragile economies, like Zambia, which have limited resources. Zambia is highly vulnerable to the impact of local calamities like droughts and floods (Lwazi, 2022) and also exogenous factors which include foreign interest rates, global recessions, global inflation (Market Watch, 2022), copper demand, among many more.

On the African continent, the impact of the global recession affects most countries including Zambia. This is because Zambia as a developing economy depends on developed countries for most goods and services. For example, when the recession hits the USA, China and other big economies the impact of economic measures of these big countries affect Zambia. Their decisions affect foreign aid and the global supply chain (Market Watch, 2022). This ends up reducing economic activities and economic growth in developing countries like Zambia.
President of the Open Society foundation, one of the civil society members, Mark Malloch-Brown stated that 'countries should not be punished for external factors, (IMF, 2023, April 15). This is so for COVID-19, Russia-Ukraine war, and a surge in fuel price that exacerbated the debt crisis. Various studies have been conducted which indicate how countries create and deal with recessions. Examples include:

Castro (2017) studied "Fiscal Multipliers and Financial Crises" and was particularly interested in discovering the effects of the U.S fiscal policy response to the Great recession. The researcher (Castro) developed a macroeconomic model of fiscal policy with a financial sector that allowed to study the effects of fiscal policy tools such as government purchases and transfers. In addition, the model incorporated the financial sector interventions such as bank recapitalizations and credit guarantees. The researcher found that combination of the model with data indicated the saving of 50 percent due to fiscal interventions. Further, transfers and bank recapitalizations yielded the largest fiscal multipliers at the height of the crisis and this was supported by new transmission channels arising from linkages between house-holds bank balance sheets.
This study provides invaluable suggestion to Zambian's case in that it emphasizes the role of government interventions in the economy through expenditure and transfers. This supports Keynes (1936) view of government intervention in the economy. It is assumed that since fiscal multipliers were needed to solve the financial crisis, the expansionary fiscal policy was necessary to counter the recession (Carneiro, Nguyen & Odawara, 2016). However, it was not clear how far the government could go to subdue the recession through control of expenditure

and transfers and the type of investments necessary to create the multiplier effect.
In Zambia's case, the source of funding would be important because in most cases the country fails to come out of a recession without external help particularly from the international community (Hakura, 2020). This then means getting another external debt in a Ponzi fashion (Afonso & Coelho, 2022). The caution to this situation lies in the advice of Ricardo (1951) regarding the correct form of funding to sort out a crisis.

Wu (2023) carried out a study comparing the economies of China and Japan. The study compared how the two economies emerged from the 1946 bubble. When the western advanced manufacturing techniques were introduced into Japan, the country used it's own resources to promote scientific technology, improve production, improve trade surpluses and creating conditions for economic development. The Japanese economy went through rapid development which is referred to as "miracle blossoms". However, the economy burst in 1980s caused a recession because Japan used a loose monetary policy. After the recession, the country adopted tightening up to the year 1992 after which the country used expansionary fiscal policy.
China on the other hand, opened up after the reforms and came to the fore with rapid growth rate. This was not easily achieved but problems steamed from the difficult in merging the socialist and capitalist economic systems. The two countries, however, have similarities and differences between them. Similarities include that both countries have been used as world factories. Secondly, their industrial rise enabled them to record higher growth rates. For example, Japan recorded higher growth averaging 10 percent between 1950s and 1960s. Growth reduced to 5 percent after the oil crisis in 1970s and to around 0 in the 1990s. Chinese maintained a 10 percent economic growth after reform and when they joined the global market (Bloomberg, 2021, Dec 6). This has since plummeted to around 5 percent after the 2008 financial crisis.
The two countries, however, have differences in how they emerge from problems such as recessions. China has the advantage of vast land and huge population to develop it's manufacturing sector. China provides cheap labour and this attracts foreign investment and promotes the "Made in China" brand. Japan is an island and after the oil shock the country switched to frugal appliances and cars. Currently, the "Made in Japan" brand is deemed to be of higher quality than Chinese made because of China's underdeveloped technological limitations. Nevertheless, both economies have advantages that they can make products to promote growth for their economies.
Zambia can learn from the 'miracle blossoms' of Japan and from the use of a combination of

socialism and capitalism systems used by China. Wu (2023) study is relevant in that it has indicated the fundamentals required for a strong long-term economic recovery which lies in the required technological revolution (Mbandlwa, 2020). Further, Zambia has as higher advantages as China in terms of vast land and natural resources. The importance of utilization of own resources cannot be emphasized further. This places the Zambian economy in position to consider mobilizing resources for long-term growth and prosperity that may be used to cushion impacts of economic shocks including debt crises in future (Estevao & Essl, 2022).
Though the geographical and political situation of Zambia differs from China and Japan, it is not difficult to discover the link between resource capacity and the need to develop the country by the local citizens. Zambians currently lack ownership of processes for economic development. Not until citizens realize the importance of local participation in economic activities will shocks such as recessions seek home grown solutions (govt.nz).

Arestis et al (2021) in their study of the Brazilian "expansionary fiscal austerity" were interested in finding out the cause of failure for economic growth and development after an economic boom from 2005 to 2011 when the country entered the down turn and eventually a strong recession in 2015 and 2016. They found that the cause of the crisis was due to expansionary economic policy taken between 2009 and 2014. They recommended fiscal austerity and tight monetary policy though these measures did not give economic growth due to their restrictive nature and ended up into economic stagnation.
Zambia in this respect can avoid monetary tightening because of its restrictive nature. Normally monetary tightening in a small country, like Zambia, has an adverse effect because no substantial savings are created from the measure and it leads into economic stagnation, unemployment and increased poverty levels (Rehman, Cismas & Milin, 2022)) and may deepen a recession (Badia et al, 2020). Expansionary fiscal policy can be a good choice to get out of a recession but it needs to be aligned with investment in productive sectors to create income streams (Calderon & Zeufack, 2020).
Further, getting out of the recession cannot be done through minimum effort but requires active and continuous fiscal policy (Khalladi, 2019). In most cases, Zambia just like other developing countries invoke serious and painful fiscal adjustments whenever the crisis has hit the economy. This comes too late to make the difference (Carneiro, Nguyen & Odawara, 2016).

(ii) Stagnation

Stagnation occurs mainly when an economy reaches its bottom or top of the growth cycle.

Indications of stagnations are liquidity problems causing high inflation or deflation. There are different alternatives to solving the economic stagnation problem and the main ones include acquiring public debt, using fiat money (Al-Habashneh, 2023), and encouraging foreign direct investment (FDI). The choice of a solution depends on the circumstances of the country and the resource capacity.

The use of debt finance seems to provide a quickest method of rebooting the economy. However, researchers such as the classics strongly oppose the use of debt finance (Smith, 1776; Ricardo, 1951) because of inefficiencies in the use of credit and costs associated with interest and debt defaults. David Hume opposed public debt and stated that "when nations once began to borrow, they would be unable to resist, until they reached the point of bankruptcy" (eGyankosh.ac.in).

In most cases, countries are tempted to use "fiat money" (money printing) to boot-strap their economies (Worth, 2020). However, this practice ends up creating more problems such as inflation and there is also a temptation to repeat the practice in future (Turner, 2015). The success of using fiat money relies on productive investment to generate economic growth but if used in the social sector such as education, health and other non revenue generating assets, it creates inflation as free money is injected in the economy. This may have the same adverse effect on the economy like the effect of debt (Kim & Griffin, 2022).

The advantage of sovereign currency is that it saves the economy from public debt problems as funds are credited to the treasury account at the central bank and distributed into the economy through spending. Proponents of the modern money theory (MMT) including Professor of finance Robert Johnson have suggested "fiat money" as a solution to economic stagnation and an alternative to debt where the economy can borrow in its own currency (businessinsider.com). Vieira (2022) stated that fiscal policy can not be limited by money and the only things that limit it are employment and inflation.

The use of fiat money was also backed by Abraham Lincoln 16th President of the US (1847-1849) who stated that "The government should create, issue, and circulate all the currency and credit needed to satisfy the spending power of the government and the buying power of consumers. By the adoption of these principles, the taxpayers will be saved immense sums of interest. Money will cease to be master and become the servant of humanity".The success of the MMT, however, depends on whether funds are injected into productive sectors to generate economic growth most related to provision of goods and services (Al-Habashneh, 2023;

realvision.com).

The failure of MMT can, however, be caused where funds are channeled into the social sector such as social cash transfer and free eduction as this can increase inflation and crimp economic growth (seekingalpha.com). MMT is useful to developing countries wishing to take control of their macroeconomic focus for the benefit of the citizens (taxresearch.org.uk) and this also depends on whether inflation can be controlled through fiscal policy which emphasizes employment as the main reason (federalreserve.org; cato.org).

Various studies have been done on the cause of economic stagnation and solutions sought to resolve it. Some of the studies include:

Mian, Straub and Sufi (2022) studies on using deficit financing to stimulate the economy indicated that advanced economies had avoided secular stagnation due to lower interest rates. This led to a challenge on the view that there was a relationship between public debt and primary deficits. They suggested that raising current deficits may no longer require to be offset by lowering future deficits or raising taxes, and that deficits could be increased permanently without exploding debt and higher debt levels could be sustained without reduced deficits. All these possibilities were dependent on lower interest rates on loans below the growth rate. They argued to the view that raising deficits led to explosion of government debt by indicating that debt may not even rise if the economy's normal growth rate was sufficiently responsive to increased deficits.

Zambia is in a debt crisis created by deficit financing. Contrary to what advanced economies do in their decisions regarding deficit financing, Zambia is not guided by the interest rates-growth rates nexus. This approach makes it difficult for the country to make investment choices that can avoid debt crises and economic stagnations in future. It is a reason why Calderon and Zeufack (2020) advocated for prudent fiscal policies that require investments in growth enhancing sectors.

However, Mian, Straub and Sufi (2022) suggestion of solely depending on higher growth rates than interest rates cannot be the only solution. Ricardo (1951) and other classic theorists suggested the avoidance of deficit financing in secular stagnation as these can be resolved through creation of the surplus, and only necessarily using deficit financing in emergencies such as wars and natural calamities. Other researchers who indicated the use of alternatives to deficit financing include Domar (1944) who suggested the use of future surpluses to reduce the deficit and Bohn and Henning (1998) who suggested government's reaction by making

adjustments to the primary balance to make debt sustainable.

Mackiewicz (2021) in the study of 'The sustainability of fiscal policy in Southern African countries' performed a novel time varying analysis of fiscal sustainability on SADC countries. The author found that in Zimbabwe and Namibia, the formal condition of solvency was not fulfilled, resulting in the explosive growth of debt during the economic slowdown. This was in contrast with Angola, Botswana and Malawi which proved running sustainable fiscal policies and they were resilient to adverse economic development at that time, whereas for Eswatini, Lesotho, South Africa and Zambia the results were mixed. They concluded that despite the growing number of African countries contributing to the global economy, their fiscal sustainability capacity remains low.

Zambia in this study was included among other countries whose fiscal policy situations were not resolved to be sustainable or unsustainable. Because of this situation, it is not possible to decide how the country can solve economic stagnation. The reason behind this is that economic stagnation needs funding to bootstrap the economy (Frankel, 2019). Funding may not be easily accessed from lenders if the problem of fiscal unsustainability is not resolved (Afonso and Coelho (2022). This must have been caused by the unconcluded debt restructuring process and the debt crisis.

(iii) Welfare spending

This relates to social expenditure such as social cash transfer, free education, free Medicare, unemployed perks, food stamps and other discretionary expenditure. The influx of free money increases inflation and reduce economic growth. Zambia has extended the free-education policy, which was initially from grade 1 to grade 9, and has now been extended to grade 12. It is worth noting the cost implication of this policy as the country is going through financial difficulties. Athough a well-funded education system is important for the country's learned population but the cost needed to improve quality delivery (TrendMax, 2019) may not be met without donor support or government stretching its hand to securing long-term debt.

In addition, as the unemployment and poverty levels keep on rising Zambian government has a huge task of caring for the most vulnerable in society and this is done through social cash transfer (SCT). Although SCT is mostly donor funded, the burden falls on government especially that donor funds are not guaranteed (ERF World Bank Webinar, 2020) and government is compelled to cater for this expenditure in the national budget.

(iv) Stimulus packages

Stimulus packages are useful ways of rebooting the economy (Frankel, 2019) but may end up increasing inflation where investments fail to generate enough growth. Zambia's stimulus packages are through borrowing mainly for infrastructure development. Another measure include giving tax incentives to corporations to enable them re-invest profits. This measure, however, can have two opposite effects.

The first one is for the business to grow, help in creating more jobs and contribute to national GDP. The second effect is tax foregone by the government which may result into fiscal deficits and create liquidity problems. The effect of these two situations may depend on the judgement and expectations of the government. In some cases the longterm view is obscured by political ambitions (Reis, 2022) and this poses a huge financial risk as most corporations are foreign owned and prone to tax evasion and other unfair practices (Oloruntoba, 2022).

However, the benefits of tax incentives as stimulus packages need to be weighed against the lost tax revenue by the government (Kalikeka & Nsenduluka, 2023) which result into deficits and debt accumulation. Similarly, infrastructure investment as a stimulus package can be in the economic sector or social sector. In this circumstance, the source of funding matters most. Prudent stimulus packages would involve using debt finance for investment in economic sectors to align it with revenue needed for debt servicing, while aligning tax revenue with social investment and consumption expenditure (Ricardo, 1951).

Abdullah et al (2023) in their study of "Green fiscal stimulus in Indonesia and Vietnam" investigated whether the stimulus plans were aligned with the country's sustainable energy and climate targets. They found that despite ambitious country targets for green energy transition, they could miss opportunities for a green future due to limited fiscal measures directed to green recovery, and that the pandemic had exacerbated public fiscal budgets that may further limit the capacity to fund green projects. They concluded that due to uncertainty and challenges brought by the pandemic, it was critical to balance between promoting economic recovery and achieving sustainable energy and climate targets. The author's suggested to achieve these targets amid uncertainty brought by the COVID-19 pandemic for emerging economies.

This study made important contribution in terms of an approach to getting out of economic stagnation. Indeed, the post- pandemic period has proven difficult for big and small economies to recover (Elgin et al, 2021). Zambia needs also to balance between promoting economic recovery and achieving energy and climate targets. This is irrespective of the reason that Zambia is not among the emerging economies.

Censon et al (2023) in their study of the Philippines, Thailand, and Vietnam on MSMEs, investigated the effects of the fiscal spending on MSMEs in these countries and the relationship of the increase in the number of MSMEs to aggregate national GDP. They found that government's expenditure had positive significant relationship to the number of MSMEs in Philippines, Thailand and Vietnam, while MSMEs employment was negatively significant to it. They concluded that GDP growth rates of these countries were influenced by their MSME growth. Recommendations were that policy makers and institutions could formulate sound government measures and opportunities provided by MSMEs in these countries needed to be maximized.

The MSMEs driven GDP is common in countries where MSMEs are supported by their government's as they are deemed to be the backbone and future of the economies. The MSMEs in Zambia are reliable sources of 88 percent of employment, represent 97 percent of all businesses and contribute 70 percent of GDP (parliament.gov.zm).

This record is similar to countries like India where MSMEs contribute 70 percent towards GDP (boz.zm). Thus, MSMEs contribution can provide huge benefits if supported through stimulus packages such as tax incentives, access to grants, job guarantee programs, among others (Kim & Griffin, 2022).

Zambia has in this regard a ZMW 10 billion medium-term refinancing facility as COVID-19 stimulus package (boz.zm, 2023 Dec 31). Unfortunately, this stimulus package excluded the small scale businesses which face collateral challenges (onlinelibrary.wiley.com, 2022 Nov 28). This indicates lack of support to small businesses especially those owned by Zambians who cannot find cheaper sources of capital.

(v) Interest rates

Interest rates are major contributors to debt escalation especially where part of the national debt is foreign. Zambia's debt burden increased rapidly between 2014 and 2019 due to foreign debt particularly the loans on commercial terms (Kose, Ohnsorge & Sugawara, 2018; Brautigam, 2021). This resulted into a default in 2020 (Kalikeka, Nalishebo and Muleya, 2022).

The study by Mian, Straub and Sufi (2022) on 'A Goldilocks theory of fiscal deficits' on Japan and the USA described interest rates as secular stagnation. They stated that when interest rates lie below the growth rate, a "free lunch" is created (Blanchard, 2019). The situation in this case is that the fiscal cost of increased debt can be zero or even negative.

The idea of free lunch (higher growth than interest rates) creates a condition that allows economies to run large deficits temporarily and "grow out" of the resulting increased debt

levels without raising taxes. They concluded that deficits lead to an explosive government debt unless at some point deficits are reduced below their original level. They argued that debt may not explode where growth is higher than interest rates and the deficit is modest.

Government uses borrowing due to budget deficits and aims at stimulating economic growth. Borrowed funds go with a price that needs to be paid called interest and also the cost of redemption of the principal amount. Ricardo (1951) and other classics saw debt as a bad choice due to accumulation of interest on borrowing. Surprisingly, Keynesians also indicated that deficit financing may cause increase in money supply, inflation, high interest rates, depress private investment and eventually increase debt (Al-Habashneh, 2023).

This scenario has been evident in the Zambian debt accumulation as debt has been increasing since 2015 due to high interest rates while growth has been on a decline trajectory (UNICEF, 2016; IMF, 2017). Blanchard (2019) suggested that the country can avoid a debt crisis by achieving higher growth rate than interest rates. This, however, depends on the whether the borrowing decision can be guided on this basis.

(vi) Pension

Accumulated retirement benefits increase government indebtedness. Clearing pension arrears is in government's interest but there is a financial constraint especially where the population is aging, meaning that the country needs to cater for the increase in pension service allocation. Managing pension fund is critical because it affects costs and benefits of people for most of their lives (Burkhard, Pilito & Wickens, 2023).

Main challenges facing nations include ageing population, changing working systems such as the growing pattern of hourly rates and casualization, rising unemployment with low contributions and the need to continue funding old pension claims. There is also another problem relating to financing social welfare such as unemployment benefits, in most developed countries, and social cash transfers for the vulnerable in society which are funded from taxes extracted from a small working class given that unemployment in Zambia is at 13 percent (IMF, 2021).

Governments try to address pension indebtedness through two main ways which involve increasing direct taxes or raising the retirement age (Burkhard, Pilito & Wickens, 2023). The problem here is that increasing taxes may discourage hard work, reduce government revenue and reduce economic growth, while increasing retirement age is associated with resistance from the working class. Recent protests in France have been sparked by the government's

intention to raise retirement age from 62 years to 64 years (CNN, BBC news, 2023 February).

The main National Pensions schemes in Zambia include the Public Service Pensions Fund (PSPF) and the National Pensions Scheme Authority (NAPSA). Pension obligations include lumpsum and monthly payments. Lumpsum payments may be used to bootstrap the economy. Countries use this method to improve liquidity in their economies. In Zambia, it was noticed that the partial withdrawal of NAPSA contributed to an increase in expenditure in the economy particularly in the construction sector (ZNBC, 2023).

Despite the success of the US pension system, projections indicate that the fund will be unable to pay full benefits after 2034 (Chapter31: Deficits & Debt). Some plans to avoid that happening include raising payroll tax, raising the retirement age, and indexing benefits to inflation using techniques such as the chained CPI. However, measures such as raising retirement age are expected to harm some lower income individuals as they rely more on social security are the measure is likely to spark political opposition.

In Japan, people are compelled to work in their older ages partly because of longer life spans, lower population of the youth (Sano et al, 2023) and unemployment rate is low at 2.6 percent (worldbank.org, 2022). This is contrary to Zambia which has a huge portion of the youth population forming about one third (1/3) of the total population (UNESCO, 2023) and youth unemployment stands at 11.60 percent (Mileji, Magasu, & Lubbungu, 2023). Zambia's accumulated pension arrears are mainly caused by lack of resources particularly that government needs to provide these social benefits despite its low revenue, and partly that payments of pension involves more money than what individuals contribute (Li & Cowton, 2021).

Burkhard, Polito and Sickens (2023) studied the "Pension System (un) sustainability and fiscal constraints: A comparative analysis". Using an overlapping generation's model, they suggested two indicators of public pension system: being the pension space which measures the capacity to pay for pension expenditures out of labour taxation, and the pensions labour exhaustion probability reflecting demographic uncertainties.

The study revealed that pension spaces of developed countries were clearly different. Most economies had little scope to further finance pensions out of labour income taxation over the following thirty years. It was concluded that, there was no one-size-fits-all solution. It was

recommended that risk- equivalent pension reforms be undertaken to enhance welfare in the long run, particularly for rapid ageing nations, but also entail non- negligible transitional costs. This study is relevant to Zambia because the country also faces challenges in raising funds from taxes in order to afford pension payments. Demographic uncertainties, however, may not affect the Zambian economy in terms of rapid retirements. The major problem the country is facing is high unemployment which is around 13 percent (IMF, 2021).

Aguila, Zeewan and Wong (2021) in their study of "Migration, work, and retirement in the case of Mexican -origin population" looked at Mexico and the United States which were facing rapid population aging as well as an older population with high poverty rates. Among the most vulnerable populations of retirement age in either nation were Mexican immigrants to the United States.

The study used data from the US Health and Retirement study and the Mexican Health and Aging study to assess retirement decisions among persons born in Mexico and working in either nation. Findings were that social security system incentives matter for the retirement of Mexican immigrants in the US but not for return- immigrants in Mexico.

This study is relevant because it compared the impact varying social security incentives in two jurisdictions. Because countries can use pension payments to stimulate the economy, the allocations to such incentives matter. Similarly, Zambia's social security provision is low and this is due to low government revenue and is a cause for rising poverty level in the country. Zambia's pension allocation in 2022 was ZMW 2,067,042 making 1.19 percent of the budget (8NDP) compared to that of the USA at 20.9 percent in 2022 budget (US Budget, 2022). This indicates injustice to the retirees, push them into poverty and unproductive in the economy.

2.2.3 The relationship between fiscal policy and public debt sustainability

There are two methods of managing an economy and this is through macroeconomic tools called the fiscal policy and the monetary policy (Sim Institute, 2020). On one hand, the government uses monetary policy to regulate money supply to ensure price stability and also maintain the integrity of the Kwacha against other currencies, and on the other hand, the government can use fiscal policy for economic stability through supporting employment, growth and capital accumulation (Li, 2023).

Both methods are essential for macroeconomic stability and are means to ensuring that the economy is regulated to create adequate liquidity essential for government revenue and

expenditure including debt servicing (ERF World Bank Webinar, 2020). These policies can effectively adjust the structure of the national economy and promote development (Do, 2022). This study looks at fiscal policy implementation to ensure public debt sustainability. The relationship between fiscal policy implementation and Public debt Sustainability is complex and may better be understood through the requirement for a sustainable fiscal policy as a basis for debt sustainability (Buiter, 1985). An unsustainable fiscal policy can damage the macro-economy as it can expose the country to exogenous shocks. Most consesquences of an unsustainable fiscal policy include large fiscal deficits, high debt stocks, high inflation and generational debt, among others (Curtasu, 2011).

2.2.3.1 Using fiscal policy to sustain public debt.

Managing the economy through fiscal policy dominance is preferred to monetary policy due to past failures of monetary policy. Many developed economies have confirmed the importance of a sustainable fiscal policy as a basis for debt sustainability and a serious case cited is Greece (Curtasu, 2011). However, this could be more-clear by looking at the fiscal problem over specific periods. In this case, the main notable periods include the following:

(i) During the gold standard

Failure of monetary policy under the "gold standard": In the early 1900, before Bank notes were introduced, the gold standard represented the current monetary policy. High debts in the post-WWI period were resolved by default and debt restructuring. This was due to the reason that the gold standard was relied upon while economic growth and inflation played no significant influence (Reinhart & Sbrancia, 2011).

Another sign of failure includes African history of Mansa Musa once King of the Malian Kingdom (Ted-Ed, 2015). A richest person to have ever lived on earth. The King amassed gold, diamonds and other precious metals. This King was so generous such that he could carry wagons of tons of gold and distribute it to the poor in every country where he passed through on his journey to Mecca. Egypt has a history of experiencing financial crisis due to high inflation after this king passed through and dished out a lot of gold to the poor. The gold standard was abandoned after the US dollar became a global reserve currency (Worth, 2020).

(ii) During the "financial repression"

The 1945-1980 period saw the use of interest rates as a tool to repress debt. This period of financial repression saw most countries to lower interest rates to even negative percentages in

order to reduce debt burdens. For example, most developed economies spent half of the repression period with their interest rates in the negative especially on savings and higher interest rates on bonds. This was not the case for freer capital market before 1945.

The repression of interest led to the rise in bondholders and in the post-war growth was a key driver in reducing debt. However, the WWII debt crisis was liquidated through default and restructuring of foreign debt while financial repression and inflation were used on most debts denominated in local currencies (Reinhart & Sbrancia, 2011). For example, Finland which defaulted on the US debt during the economic depression of 1930s has never settled since then (Economic Raven, 2021).

(iii) During the financial liberalization period 1981-2008

This period is referred to as a "black hole" because of the prolonged crisis which stretched from 1980 to the middle 1990s. The crisis raised the debt to GDP ratio to 277 percent by the year 1993 (Saungweme & Odhiambo, 2018). During this post-period, Zambia decided to raise funds by issuing Treasury bills and bonds using an auction system at high interest rates of 200 percent between 1992 and 1993.

Liberalization of the financial market in 1995 (BOZ, 2015; Foreign Exchange Act 1994) saw interest rates reach 15.5 percent on average. Both measures by the year 2001, made debt to GDP ratio to reach 235 percent. This was due to the fact that most private investors including foreign nationals were attracted to this investment. This was a period of capital market liberalization.

(iv) The 2008 Financial crisis

This was caused by developed countries which embarked on an easy money policy reducing lending interest rates (Forbes, 2022). The 2008 financial crisis saw the synchronized surge in public debt globally. The financial crisis affected most countries in the world but the effect was more severe in developed countries than in developing countries like Zambia. This situation was not imaginable by most developed economies.

The post-2008 financial crisis exposed the inadequacies of monetary measures such as low lending rates of interest, securitization of assets in addressing the financial crisis (The Basel Accords) and realized the importance of combined strategies to smooth out the impact of the crisis (ECB Economic Bulletin, 2016). This led to the realization of the importance of fiscal policy.

(v) Current problems

Most countries in the world have relied on the use of monetary tightening as means of stabilizing their economies. This method was famous after successful records of the first pioneers Margaret Thatcher, former UK Prime Minister, in the 1970s and Paul Volcker of the US Federal Reserve Bank (Argawal & Kendall, 2022). The economic boom under President Reagan of the USA in the 1980s-1990s cannot be forgotten because of the mixture of the monetary and fiscal policy to create economic booms (Viala-Gaudefroy, 2019). However, after the financial crisis of 2008, most countries realized the inadequacies of monetary policy in dealing with complex problems in the face of lower interest rates and rising debt to GDP ratios (Bocconi, 2021). This changed the pattern of monetary policy dominance over fiscal policy.

Currently, monetary measures are failing in developed countries like the US. Because of inadequacies of the monetary policy, the US in 2021 had to raise a debt ceiling (CNBC, 2021: Nov 2) and this year 2023 has just passed the bill to raise the debt ceiling again (CNN news, 2023: April 27). The USA prints money to stimulate the economy without much trouble (Worth, 2020). The US can print it's way out of any crisis because it holds the world's reserve currency (Worth, 2020). This could also be a reason why China and other economies (BRICS standing for Brazil, Russia, India, China and South Africa) are aiming at coming up with another trading currency other than the US dollar (The Daily Hodl, 2023 April 15).

Turner (2015) indicated that money printing is used to escape a debt overhang and also to stimulate demand in the economy. The author stated that this measure is a technically possible alternative to pure fiscal or pure monetary policies but labeled it as the "work of the devil" because it is very easy to be repeated or be used in excess. Moreover, Turner (2015) stated that the essence of this method is to facilitate funds for the manufacturing industries, creation of industrial hubs and supporting exporting businesses rather than importing businesses.

2.2.3.2 Fiscal policy to public debt nexus

Fiscal policy anchors on liquidity because a sustainable fiscal policy is the basis for debt sustainability (ERF World Bank Webinar, 2020). Liquidity relates to national income which is measured as GDP (Frankel, 2019). Lack of adequate income streams may create a fiscal crisis and make it difficult to sustain public debt. Fiscal policy, thus, affects public debt and GDP growth rate and high debt tends to reduce liquidity in the economy because of high budget allocation towards debt servicing (Brachetta & Ceci, 2021).

(i) Debt and a fiscal crisis

Fiscal policy affects public debt and GDP growth rate (Brachetta & Ceci, 2021). This is because acquired debt finance needs to be invested to contribute to sustainable economic growth (Smith et al, 2016) and where this is not the case it may create a debt burden for the country. This is why Badia et al (2020) indicated that debt is a leading indicators of the fiscal crisis. This situation is common in most economies, including Zambia, where debt creates a fiscal problem. For example, the high cost of debt servicing now stands at 47 percent of total national budget (CSO Debt Alliance, 2022). This is making it difficult for Zambia to retain adequate resources for re-investment and also hindering economic recovery.

(ii) Debt and fiscal deficits

Zambia's budget deficits are financed by borrowing and grants, and this reduces the country's efforts towards generation of a budget surplus. Because of adopting the non-Ricardian approach, which allows debt rollovers among others, Zambia does not need to generate a surplus in order to make public debt sustainable (Willems & Zettelmeyer, 2022).

Afonso and Coelho (2022) indicated that the current fiscal regime does not need a balanced budget because of the availability of roll-over, re-financing, debt conversions and monetary issuing. Despite this alternative, high deficits can lead into debt escalating to unsustainable levels, create a debt overhang, and eventually a default. This is why Zambia has faced debt crises in the past and invoked extraordinary measures such as privatization (Siyanga, 2018; Saungweme & Odhiambo, 2019) and the IMF solutions. To date, Zambia has received 13 IMF and World Bank bailouts (IMFLive, 2022).

(iii) Debt and interest rates payment

High levels of debt are costly especially where interest rates on debt are higher than economic growth, as in the case of Zambia, (Blanchard, 2019). Interest payments on debt divert resources, reduce investment and may eventually cripple the economy (Hakura, 2020; IMF, 2016). This is a reason most economies including the US, Japan and European countries desire to reduce deficits because lower deficits and higher GDP growth rates than interest rates can help to reduce the debt burden (FitchRatings, 2022). For example, the European Union (EU) has pegged deficits for member countries not to exceed 3 percent of GDP (ECB economic bulletin, 202.2.3 Studies on debt sustainability.

(iv) Debt and growth

High government borrowing raises interest rates and increases the cost of borrowing for ordinary citizens. This ends up reducing private investment (crowding out effect) and economic growth (Egert, 2013). High debt can create a currency risk and eventually effect a financial crisis (Cablamaci, 2018). This scenario may affect productivity, reduce economic growth, disrupt tax policies, create inflation, and political risk of the economy.

2.2.3.3 Various studies have been carried out on debt sustainability and some of them are:

The study on Belize's debt sustainability (Central Bank of Belize, 2017) looked at the problem of frequent debt crisis in Belize. The country had restructured the debt three times in ten years. The research was aimed at finding the solution to avoid further restructuring. The IMF recommended fiscal consolidation but the government in Belize resorted to a gradual fiscal consolidation. The problem with this study Is that fiscal consolidation is a response to a debt crisis and once it is done there is no absolute guarantee that another debt crisis would not occur looking at the past experience of the country. Further, the linking of debt sustainability to GDP growth of a particular percentage seems not to be a better approach of sustaining debt.

Instead of being preoccupied with debt worries Zambia's main focus needs to be attaining targeted growth. A country can aim at recording a higher GDP growth rate than a debt growth rate to avoid the rising cost of debt burden on the budget (Petko & Zarkova, 2020). This is because a higher growth rate than interest rate is able to generate a surplus and a positive primary balance. In an attempt to realize fiscal sustainability and thus debt sustainability, Casey and Purdue (2021) suggested much attention to be given to economic growth, managing of inflation and interest rates.

Colombo et al. (2022) in their study of "fiscal multipliers and informality" investigated the role of informality affecting the magnitude of the fiscal multiplier in a panel of 141 countries. They found a strong negative correlation between the degree of informality and the size of the fiscal multiplier. They concluded that the relationship was not dependent on the country's level of development and quality of institutions but on country characteristic in terms of trade, financial openness and exchange rate regime. Their recommendations were that, since the larger informal sector raises the prices in response to fiscal shocks, there was need to separate between public goods and private goods to avoid raising prices in high informality countries.

This study is relevant to Zambia's case which has a huge informal sector compared to the

formal sector. Fiscal policy can indeed have a multiplier effect in a more formal environment than in a large informal environment. However, Zambia's environment is different as the informal sector has little impact on driving price change. Zambian liberalized economy is highly controlled by the formal private sector which dominates the supply of goods and services.

A typical example of their Influence can be noted on recent prices of mealie-meal by the milling industry which is dominated by private businesses. The hiking of the maize-meal price on the market was influenced by the rising cost of producing the product which was transferred to the consumer and thus, the informal sector had no effect on this. Further, there is no reason to doubt the importance of the quality of institutions in handling matters of trade, finances and the exchange rate.

UNICEF Zambia (2016) in it's study 'Zambia Political Economy and Fiscal Space Analysis found that Zambia's fiscal space was limited by slow economic growth, a high fiscal balance and high debt despite the existence of the opportunity to expand the resource base by investing in priority sectors. The other problems include a focus on economic growth rather than poverty reduction and also less involvement in the budgetary process by development partners. This forces development partners to concentrate on poverty reduction rather than developmental programs. UNICEF concluded that budget planning in this manner fails to make concessions to the public and also lacks advocacy from development partners.

This study highlights the major problem that restricts Zambia's capacity to improve the economy. Whilst the focus is on economic growth this is not translated into improvement of living standards of citizens (Mombiot, 2013). Moreover, Zambia's economic growth fails to exceed the cost of interest rates of 8.97 on foreign debt and this makes it difficult to sustain public debt (Brautigam, 2021). Indeed Zambia is endowed with massive resources which are being underutilized because of the rigid political system.

UNICEF (2023) in their analysis of the 2023 national budget stated that a good governance environment is essential for achieving macroeconomic stability and restoring fiscal and debt sustainability. They found that scarcity of resources was a calls for efficient use of resources, that tax concessions with mines cost Zambia I forgone revenue, that the economy was boosted by the IMF bailout. Recommendations were that the projected economic growth of 4 percent was feasible if proposed measures were implemented in the real sector, that need to increase allocations to social and agriculture sector to enhance the growth, and narrow the fiscal deficit

from the projected 9.8 percent of GDP in 2022 to 7.7 percent of GDP in 2023 in order to sustain fiscal and debt sustainability through contractionary fiscal policy

The projected growth of 4 percent Is still low as compared to the interest rates on bonds payable of 8.97 percent (Brautigam, 2021). Domar (1944) stated that for debt and fiscal to be sustainable, growth rate should exceed interest rates. The economy need not rely on the bailout package from the IMF because there is a risk that the country will fall in the same situation in future and will have no alternative solution to the crisis other than going back to the IMF for another arrangement (Turner, 2015). The bailout package is a monetary solution which has a short-term (Blanchard, 2020). Zambia need to realize that using a contractionary fiscal policy is not a correct choice. Research indicates that, austerity in the post crisis period can have negative impact on growth and worsen a recession (Kohler & Stockhammer, 2022).

2.3 Assessing the adequacy of fiscal policy implementation on public debt sustainability in Zambia.

In order to assess the adequacy of fiscal policy implementation on public debt sustainability, it is important to look at the advent of the fiscal problem. This section gives an explanation of the debt situation in Zambia by focusing on the period under review (2002-20210), provides debt threshold guidelines, and then suitable ways of assessing fiscal policy implementation.

2.3.1 The Debt situation

The major cause of the debt crises in Zambia have been reckless lending by western banks causing decades of debt accumulation against economic stagnation (debtjustice.org.uk). Even when China and the western countries know that Zambia and other African countries have a poor record of debt sustainability, they keep on lending to Zambia (Mbandlwa, 2020). However, Zambia had a low debt level after benefiting from debt relief in 2005 (Calabrese, 2021) but has seen its debt rise rapidly after acquisition of loans in 2012 on commercial terms (Saungweme & Odhiambo, 2019).

(i) Accumulated debt

As of the year 2022, Zambia's public debt reached US $31.74 billion including interest (Ecofin agency, 2022) out of which $17.3 billion was external debt (Bloomberg.com, 2022, Apr). Out of the external loans, $6.8 billion was owed to private lenders. Private lenders

included, $1.6 billion to Chinese private businesses and wealthy individuals, and the troublesome $3billion belonged to the Eurobonds which had accrued arrears of about $500 million (Reuters. 2023; Bloomberg, 2023).

Commercial loans are 53 percent of total external loans and have contributed to the rise in debt due to their variable interest rates. Commercial bonds were acquired in 2012 ($750 billion), 2014 ($1.0 billion) and $1.25 billion in 2015 ((Kalikeka et al., 2019). Commercial bonds principal totals USD$3 billion and are due as follows: $750 million in 2022, $1billion in 2024 and $ 1.25 billion in 2025 (Kalikeka, Nalishebo & Muleya, 2022).

These commercial bonds exacerbated the risk profile and now the aggregate of $3 Billion is associated with rapidly increase in interest due to commercial rates. This compounded into a default of USD $42.25 million interest on the first USD $ 750 million Eurobond in 2020. The problem is that the yield rates on the three Eurobonds keeps on increasing and was at 17 percent by September 2019 (Kalikeka, Nalishebo and Muleya, 2022). These debt interest payments were suspended when Zambia applied for debt suspension in 2020 (CGTN Africa, 2020).

(ii) Global trend

In the last decade most developing and poor countries borrowed heavily mostly for infrastructure development. Borrowing increased globally after the 2007-2009 financial crisis due to the lower interest rates and the availability of more creditors which included private lenders (IMF, 2021). The global record in 2020 indicated that global debt recorded a ratio of 263 percent of world GDP (Nazaryan & Minasyan, 2022). However, debt has affected most debtor countries through rising costs of servicing sovereign debts and has eventually triggered a global debt crisis (IMF, 2021).

Global debt has exceeded 90 percent of global GDP and this is more than the levels recorded during the 1980s debt crisis (Ahmed & Baroy, 2022). To this record, most of the low-income countries (LIC) were found to belong to the high risk of debt distress category before the Corona virus pandemic (IMF, 2017). By the year 2020 most developing and emerging countries were either in debt distress or at a high probability of debt distress (IMF, 2021). Zambia's debt level increased rapidly from 20 percent in 2012 to 120 percent in 2021 (Kalikeka, et al, 2023)

The IMF in 2015 indicated that Zambia's debt had reached a level of high distress (Ng'ambi, 2022). Within the same period LICs and emerging economies saw the cost of servicing their debts rising to higher levels as compared to their revenues. In the Global pandemic era, 58 percent of the world's poor countries were in debt distress or at high risk of debt distress (Estevao & Essl, 2022; IMF, 2022). The vulnerability of most LICs was also confirmed by the President of the Economic and Social Council (UN, 2022).

(iii) Risk profile

The Corona Virus Pandemic escalated the debt crisis and Zambia was the first African country to default in the COVID-19 period (Komminoth, 2022; yahoo.com, 2023). This was because even when Zambia was facing declining revenue, expenditure on health was not an option. This situation pushed forward a strong case for deficit spending (Blanchard, 2020). In the COVID-19 period we witnessed some emerging countries like South Africa and Brazil getting downgraded to lower status by the credit rating agencies such as Moody, Fitch, and Standards and Pours. Zambia is currently graded as 'restricted default' (RD) and the correct grading will be done after the debt restructuring process is completed (Fitch Ratings, 2022).

Zambia's debt, among other poor countries debts, had already reached unsustainable level even before the pandemic (Calabrese, 2021; IMF, 2017). Zambia was the first country on the continent to default during the pandemic and its debt ratio has now reached 124 percent of GDP (National Assembly of Zambia, 2022; World Economics, 2021). Ghana defaulted in December 2022 and other countries including Kenya (IMF, 2023), Tunisia and Egypt, among others, are at high risk of default (Financial Times, 2023 April 17).

The IMF has noted that developing countries' debts have continued to pile while economic growth and revenue are on the decline. This has also compelled the civil society and pressure groups to lobby the World Bank and the IMF to find a quick solution. For example, Malloch-Brown, President of the Open Society Foundation stated that countries should not be punished for external factors such as the Covid-19, Russia-Ukraine War and a surge in oil price which are factors beyond their control (The East African, 2023, April 15).

(iv) Multilateral support

The debt service suspension initiative (DSSI): With the support of the G20 and the Paris club, the DSSI was created on 15th April 2020 aimed at helping highly indebted poor countries.

Zambia in this respect was one of the 36 countries from Africa who benefited from the DSSI. This measure is with expectation of saving resources to help the poor economies get back on a sustainable growth path. The DSSI was expected to end in June 2021 but was extended to December 2021 to take care of more serious economic problems suffered by debtor countries which include Zambia (debt service suspension initiative (DSSI)).

The DSSI has since been replaced by the ' Common Framework' for Debt treatment beyond the DSSI and Zambia alongside Chad and Ethiopia have used this framework (IMF, 2022). The benefits from DSSI and Common framework are immense given the high liquidity problems which Zambia is facing. It should, however, be understood that the debt servicing suspension measures are only meant to halt payments due to cash flow problems and are not meant to provide solutions to accumulated debt but simply defers payments to the future period (Economist, 2022, April 30). Thus, the debt suspension initiative should not be taken as a silver bullet but a reasonable response to a debt crisis (IMF, 2021).

Service Suspension Initiative (DSSI) has now been succeeded by the "common framework" after consideration of the impact of COVID-19 on economies and also address shortfalls of the first framework (common principles). The G20 Common Framework recommends the restructuring process to include, possibility of extending the repayment period, reducing interest rate rather than their nominal value, in extreme cases writing off debt through joint assessment by creditors, the IMF and World Bank.

The worries with this framework are that Zambia is being used as a template before other countries can follow (Tran, 2022). Further, concerns are from lenders such as China who are objecting to preferential treatment given to IMF and World Bank (Financial Times, 2023 April 14). However, China seems to soften It's stance and willing to participate in the restructuring process. This is also backed by the IMF determination to support an inclusive debt resolution which is expected to be effective in this case (IMF, 2023 April 15).

(v) Zambia's efforts

Omotor (2021) suggested that the use of fiscal policy should result into creating more benefits than costs. However, Zambia's fiscal policy fails to create enough liquidity to afford public expenditure and debt servicing over the medium to long-term. Zambia and other countries (Lebanon, Srilanka and Suriname) have defaulted due to liquidity problems (Reuters, 2022:

July 16).

Zambia's economic recovery was in deep doubt before the corona virus pandemic and this is a reason why Estevao and Essl (2022) stated that countries defaulting on their debt contracts need not put the blame on the Corona virus Pandemic because it just exacerbated the debt crisis. History also shows that the cost of debt escalates after a crisis (Napo, 2022; Reinhart & Rogoff, 2009). Currently, Zambia has no capacity to deal with the debt crisis on its own because of low revenue sources (Hakura, 2020; Omotor, 2021).

The Zambian government's efforts towards restoring debt sustainability include: sustainable fiscal adjustment by reducing inefficient spending and raising domestic revenue, cutting back inefficient public investment, eliminating fuel subsidies, reform agriculture subsidy program by reducing procurement costs, and domestic resource mobilization to increase revenue through increasing corporation tax, VAT and excise tax by improving tax administration (IMF, 2022).

The government is using both fiscal and monetary measures to resuscitate the economy. For example, the first thing that the new government embarked on in 2021 was to reduce inflation down from 25 percent to under 10 percent (Reuters, 2023, Dec 23). This has been achieved through fiscal and monetary measures. The fiscal measure is through issuing government securities such as bonds and treasury bills to the public at competitive rates thereby reducing excess money from circulation whereas monetary measures have been carried out through raising the monetary rate by the central bank.

Contractionary fiscal policy is evident in measures such as the removal of subsidies on fuel, removal of subsidies on electricity and review of the farmers input program to reduce government expenditure (IMF, 2022). Other measures include suspension of some infrastructure projects and the adoption of PPP as an alternative of funding public infrastructure development (8NDP). The use of CDF is also helping in reducing borrowing for some infrastructure development of small and medium sized projects such as schools, health posts, police posts, among other projects.

The government of Zambia planned a budgetary allocation in the year 2022 towards debt servicing at 45.35 percent of the total budget of ZMW 173 billion (GRZ Budget, 2022). The

debt burden comprised ZMW 27.36 billion for domestic debt and ZMW 51.31 billion for foreign debt (ctpd.org.zm). To address this, the government opened up negotiations with the IMF for a USD$1.4 billion three-year extended credit facility (Finance Minister, 2022) and to this effort, a USD$1.3 billion bailout package has been approved by the IMF (Bloomberg, 2022, Sept 1) before conclusion of negotiations with creditors.

Zambia has become the first LIC to agree a debt restructuring deal under the G20 common framework. This has led to a USD $6.3 billion bilateral debt deferred for settlement in 20 years (Bloomberg, 2023). Terms on how this deferred debt will be restructured are yet to be agreed with lenders. There are also expectations that debt obligations to private lenders be treated in the same way to enable the country get back on the sustainable path. This is because private lenders hold USD $6.8 billion which make about 40 percent of total debt (Reuters. 2023).

The Zambian government is also making strides in strengthening the law relating to debt acquisition. These include repealing the amended Constitution No.2 of 2016 with its supplementary guidelines such as the Public Finance Act No.15 of 2004 which guides each minister on borrowing limits and financing of deficits and the Loans and Guarantee Authorization Act (LGAA) regarding who is authorized to contract debt (Muleya et al., 2020). Recently, the government of Zambia sought to repeal the law regarding loan approval by taking the bill to parliament (Parliament, 2022).

2.3.2 Debt threshold guidelines

No country can survive without borrowing (ERF World Bank Webinar, 2020). Reinhart et al (2003) citing in Cablamaci (2018) indicated that low debt ratios were associated with adverse growth in emerging countries. This is contrary findings of Modigliani (961) and Saint-Paul (1992) who stated that low debt level favour economic growth. Recent findings by Mohanty et al (2016) supported an understanding that debt can enhance the country's capacity to generate needed growth for the economy and fiscal health.

When economies reach their debt ceilings, however, high debt may call for painful fiscal adjustments (Buchheit, 2021). This cannot be in the interest of debtor countries, creditors and the international community. Because of this risk, the IMF provides guidelines to protect these interests (Hakura, 2020; worldbank.org). However, wealth and poor countries face challenges

in sustaining public debt levels and eventually default on loan terms irrespective of the size of the economy (Wong, 2022).This problem raises concerns over measurement of the relationship between fiscal policy and public debt sustainability.

Hakura (2020) stated that the debt burden depends on the country's capacity to maintain it. Capacity may depend on national budget size or other measures such as debt per Capita which denotes the distribution of public debt burden on the citizens. For example, the debt per Capita for Zambia is expected to reach USD$1,355 compared to the EU average of USD$31,722 by the end of 2023 while GDP per Capita is at USD$1,137 compared to the world average of USD$ 12,183 (worlddata.info). However, the international community has provided debt ratios as guidelines for the country's capacity to sustain debt (IMF, 2018)

(i) Debt ratio

The debt ratio is the relationship between debt and GDP growth (Rassure, 2022). It represents the amount of debt that the country can carry (Hakura, 2020). The recommended debt ratio for vulnerable and weak countries like Zambia is 35 percent (IMF, 2018). However the recommended debt ratio for SADC member countries stands at 60 percent (Redda. 2020).

(ii) Debt threshold

Policy makers, lenders and borrowers face the challenge in determining the right debt level of an economy (Naraidoo & Raputsoane, 2015). A debt threshold is a debt ratio that acts as a guide to ensure that countries do not do little towards fiscal and debt sustainability (Hakura, 2020; Ikue et al, 2021). This is why the international community has guided countries and regions to follow the debt to GDP ratio thresholds to ensure that borrowing and economic management are in the interest of their countries and also save the interest of lenders (Hakura, 2020).

The levels of debt in most countries, however, raised alarm and this prompted the international community to issue debt limit guides particularly to vulnerable countries to avert over-borrowing (Market Watch, 2022). These suggested levels of borrowing are called debt thresholds (debt to GDP ratios). Rogoff and Reinhardt (2010) suggested that a ratio of 90 percent is the maximum beyond which debt begins to be unsustainable as the economy starts to slowdown. In the SADC region, of which Zambia is a member, a debt to GDP ratio of 60 percent has been recommended to ensure that member states avoid falling into deeper debts

which can affect sovereign economic stability and that of the region (Mbandlwa, 2020).

The recommended debt to GDP ratio "threshold" is, however, dependent on the various circumstances pertaining to each country (IMF, 2018). For example, Zambia's threshold cannot be the same as that of developed countries like Japan 263 percent (Reuters.com, 2023 Feb 10) or small pacific nations which rely solely on tourism (UN, 2022). This makes the 90 percent threshold unreasonable. Rasure (2022) advised that a country reaching 100 percent debt to GDP ratio is breaking-even, just making enough to pay its debt and at 101 percent ratio debt becomes unsustainable. All these thresholds put the effective use of debt ratio into question.

(iii) Debt overhang

Theory shows that most countries with good economic policies and institutions face debt overhang when debt rises above 15 to 30 percent of GDP but the marginal effect of debt on growth becomes irrelevant above 70 to 80 percent. Many researchers have stated that there must be a debt irrelevant ratio beyond which debt ceases to be unsustainable and growth starts rising. Zambia's current debt to GDP ratio is 120 percent (Reuters, 2022, May 9). It is, however, worth mentioning that Zambia has been in this situation before in the 1970s with a ratio of 44 percent regarded as too high at that time, 187 percent in 1987, 277 percent in 1993 and in 2001 with a debt to GDP ratio of 235 percent (Saungweme & Odhiambo, 2018; Lwazi, 2022,; tradingeconomics.com).

(iv) Debt irrelevant threshold

Cordella (2010) indicated a "debt irrelevant" threshold of between 70 and 80 percent of GDP. Mupunga (2015) also suggested a debt irrelevant threshold of 70-80 percent of GDP. The debt irrelevant threshold must be above the acceptable threshold. This phenomenon is common in developed countries with high levels of debt such as the USA at 134 percent (Reis, 2022), Japan at 160 percent (FitchRatings, 2022), and others. Mbandlwa (2020) stated that these developed countries are able to maintain high levels of debt because of their experience in debt management capacity and their ability to generate meaningful economic growth due to their industrial capabilities. Zambia and other poor countries need much lower thresholds than 40 percent (Chikalipah, 2021).

Further, Beetsma (2022) stated that economic theory cannot guide on the level of debt

because what matters are the insolvency risks, reasonableness of projections, the political weight and what is achievable within the common framework. The problem with high debt is that it gets more allocation from the budget thereby depriving the country of resources needed to be invested in important sectors such as education and health and thus makes the economic recovery process difficult. Zambia has seen the cost of debt servicing increasing causing a debt overhang (IMF, 2016). The serious jump in debt burden in 2020 led the country into a default and this was exacerbated by the COVID-19 pandemic (Estevao & Essl, 2022).

2.3.3 Assessment of fiscal policy

Assessment of fiscal sustainability is difficult because most countries' fiscal targets involve looking at the known expenditure against the projected revenue which may not be attained. Beetsma (20220 stated that economic theory cannot give an answer to what the optimal debt level should be as this depends on the political weight attached to the current, future risk of solvency and what is achievable within a common framework. This then is inferred by the intentions of the fiscal authorities which Bohn (1998) described as exercising economies of control.

Economics of control are exercised through adjusting the primary balance (Bohn and Henning, 1998). Bohn suggested that in an uncertain environment, a risk averse investor will not consider the government interest rate but the condition of the economy as government's are pro-cyclical and run deficits in recessions. However, there are principles which guide how well this implementation of fiscal policy can be carried out.

2.3.3.1 Easing public debt sustainability

Though knowing when public debt is high is simple, assessment of public debt is difficult. Debt sustainability assessment is carried out to check whether the country's financial situation is adequate to guarantee future debt servicing (Vinakurov, Lavrova & Petrenko, 2019). In more cases, methodologies are used but may not fairly produce reliable results. The challenges are that while debt thresholds guide the levels of debt, each sovereign country may pose different economic risks. For example, the debt ratios for the USA and Japan may exceed 180 percent but can still sustain debt while Russia and Srilanka defaulted at lower thresholds of 15 and 117.4 percent respectively (World Bank, 2022).

Debrun, Ostry, Willems and Wyplosz (2019) in their article ' The art of assessing public debt sustainability' indicated that establishing whether debt is sustainable provides challenges which include analyzing the fiscal policy and deciding on future policy targets. This means assessing debt sustainability involves making predictions of future events without absolute certainty.

In order to deal with the problems surrounding the credibility of a debt sustainability assessment, Debrun et al. (2019) suggested three principles to guide the design and implementation of a better debt sustainability assessment and these include relevance, simplicity and transparency. In addition, timely should regarded as important. Relevancy is important to get the right information. This means that both up to date information and past information is critical to give a thorough understanding and aid decision making.

In addition, information needs to be timely to ensure that information is received on time to aid right decisions to avoid costly mistakes on the part of lenders and other stakeholders. The presentation needs to be clear and avoid complexity to enable stakeholders understand it. The assessment should be transparent and not obscure certain information to avoid other stakeholders and the non-specialist or general public from interpreting the information in form of ratios, graphs, charts, and so on. These must be clear to ensure that readers are able to make an informed judgement.

Other recent studies have recommended that DSA need to incorporate effects of climate change, low-carbon economy, resource mobilization and environmental friendly practices (Gallagher & Maldonado, 2022). This, therefore, gives room for inclusion of each country's specific factors which impact on debt sustainability. In Zambia's case, pollution from mining activities has an effect on health and safety of citizens and thus affecting output. There are also plans to audit all natural resources to assess their economic value. This measure may help to increase the balance sheet and solvency of Zambia (ZNBCradio, 2022, June 16).

Debt sustainability analysis is carried out because the market for debt is inefficient to be relied upon to give the true value of debt as sovereign rating agencies rely on market based external debt (IMF, 2020). The approach to debt sustainability analysis differs from one country to another. However, key fundamentals exist which are deemed to be linked to debt sustainability and seldom exceed simplicity, relevance and transparency (Debrun et al., 2019).

2.3.3.2 Assessment stages

Assessment of fiscal policy on debt sustainability is not an easy task because of variations in each sovereign country's problems. This is why the IMF (2018) came up with the debt sustainability frameworks to assess the country's risk to specific factors, and among these is a framework for low income countries (LIC). LIC is used as a tool to help low income countries to achieve their goals while averting "the risk of debt distress and debt crises which are costly to the debtor, creditors and the international monetary and financial system" (worldbank.org).

However, the IMF's framework is too restrictive to allow the researchers to explore thoroughly new ways of assessing public debt sustainability. This is because it restricts the researcher to prescribed threshholds and concentrates on external debt (IMF, 2018). Guzman and Heymann (2022) indicated that there is no one absolutely perfect way of assessing debt sustainability because the views of the analyst on the capacity of debt repayment differ. Major difference concern the use of market interest rates and on the projections.

This study, therefore, considered Ncube and Rajhi (2014) approach who suggested that the debt sustainability analysis should be conducted in three stages, being calculating the debt stabilization primary balance, establishing historical drivers of debt, and looking to the future prospects.

This chosen approach is more flexible as it does not prescribe limits such as income and debt thresholds. This approach accords the study to assess debt sustainability through various stages. This is consistent with (Pamies & Reut, 2020) who suggested that the assessment of debt sustainability should be done through multiple measures other than one measurement and to also accommodate new developments.

However, instead of using three stages suggested by Ncube and Rajhi, this study extended the stages to four, being the relationship between fiscal policy and public debt, assessment of the adequacy of fiscal policy implementation (debt stabilization primary balance), establish factors affecting effective implementation of fiscal policy (historical drivers of debt), and suggesting ways of implementing fiscal policy (the future prospects). These were developed as sub-objectives to the main Objective and assisted in the formulation of the four research themes.

2.4 Factors affecting effective implementation of fiscal policy in Zambia.

There are many factors which affect the Zambia's capacity to sustain fiscal policy. These can be grouped into local constraints and global constraints.

2.4.1 Endogenous factors

(i) Small tax base

Zambia has a small formal sector and a huge informal sector. The informal sector proves difficult in tax collection because of the administrative costs which outweigh the revenue to be collected. Measures aimed at closing tax loopholes seem to be inadequate looking at massive tax evasions where government is losing K3 billion annually (Pearce, Chibuta, Chiwele & Williams, 2022). Oloruntoba (2022) suggested acquisition of adequate technology to assist in collecting right taxes in the extractive industry.

Deshmukh, Mohan & Mohan (2022) on their study of goods and services tax (GST) implementation in India wanted to find out the effectiveness of new tax reforms. India discarded it's complex and inefficient tax regime to embrace a new tax system called Goods and Services Tax which was a significant move in the post independence period and this required validation of facts after it's introduction.

This study was aimed at presenting a general Macroeconomic analysis of the GST on whether it improved the tax administration and improved economic and political economy. The researchers adopted the situation- actor- process; learning- action- performance analysis framework for the case analysis. Their findings revealed that India recorded tremendous increase in tax base vis-à-vis revenue collection. They, however, noted that efforts were required to improve low tax to GDP ratio, skewed GST payers base, negative perception of GST and tax evasion.

Zambia's tax system has gone through changes as well particularly from sales tax to now value added tax (VAT) introduced in the 1990s (Saungweme & Odhiambo, 2018) Despite these changes, the country has not sorted out the problem of low revenue against increasing expenditure. VAT has been used since 1995 but still offers a number of challenges which in 2018 raised debate to replace it with sales tax. Just like in the Indian case, it is not yet clear whether Zambia's current tax system requires to be changed.

However, the Indian case seems to be different in that their tax base was expanded by the new system while in case of Zambia the tax base remains smaller partly due to huge informal sector

and partly due to lack of investment in key areas, such as technology, innovation, manufacturing and human capital, which can enhance economic growth in future (Ncube & Rajhi, 2014).

Another problem is that Zambia's manufacturing industry is at it's infant stage and lacks capacity to improve and grow in order to compete with foreign manufacturers (Mbandlwa, 2020). Lack of capacity to compete on the market markets it difficult for businesses to grow increase employment opportunities and contribute to tax base expansion.

(ii) Wrong investment choices

Some investment choices are not priorities in Zambia (Musonda, 2020). Zambia lacks a development model that can help in channeling resources towards intended targets. Some investment choices such as stadiums and bridges are done without consideration of urgent needs of the citizens and the capacity to create wealth. This has now resulted into under-utilization of such infrastructure (Furlong, 2020).

Kim and Griffin (2022) on their article titled "Why sovereign money and job guarantee?" focused on the sovereign money system and suggested a radical solution to the de-privatization of money creation. They pointed out that the unstable monetary system was the root cause of credit and debt bubbles, and consequently recessions. They argued that a "job guarantee "program would help policy makers to use a sovereign money system and determine how much money to create and where to supply it in order to counter an economic cycle.

They emphasized that for this to succeed required discipline, set targets and these needed to be non-discretionary expenditures that create value. In this way it would be possible to avoid inflation. Their article argued that sovereign money system with a job guarantee program supported the earned income of citizens and their spending and welfare without raising concerns about debt issues. This mitigated against excessive private debt.

The essence of fiscal policy is the creation of employment which is the pre-requisite for a functional fiscal policy (Keynes, 1936) irrespective of whether funds are from taxes or borrowing. Sovereign money and Job guarantee is one method suggested to ease unemployment in the economy. In a situation where borrowing in foreign currency becomes expensiv, a sovereign state can use a monetary solution such as injecting local currency to support economic activities.

Sovereign money as a measure has been tried and proved successful in some countries like the US while in some countries it has resulted into high inflation. Success in some countries may be alluded to prudence and partly for economic power. The US in this regard uses economic power because of controlling the world's reserve currency (Worth, 2020; CNBC, 2021). All things being equal, sovereign money as a measure will depend on two major factors, namely production, and low imports.

The first one is that funds are used on production rather than consumption to avoid inflation, and secondly that production facilities do not depend more on imports to compromise the value of the currency (Holtham, 2021). Indeed, sovereign currency can provide an alternative to borrowing but the critical success factor is the investment. This method can be used to help Zambia get out of an economic crisis provided the right investment is well evaluated and is capable of contributing to economic growth needed to counter an economic cycle (Hilton, 2021).

(iii) Failure to create and sustain income streams

Another problem is failure to sustain income stream portfolio (Azzarello, 2016). Zambia heavily relies on copper exports which makes up of 75 percent of total revenue (Pearce et al, 2022). For example, UNICEF (2023) report indicates that in 2021 mining accounted for 75 percent of total exports, 20percent of GDP, 33 percent of tax revenue and 50 percent of foreign direct investment (FDI).

Limited and weak income streams tend to be shaken by any adverse factors and thus making planning difficult. For example, over-reliance on copper exports makes the economy vulnerable to fluctuations in price on the world market. This would be different if diverse income streams were available. This is also caused by failure to maximize the benefits created by new investments (Blanchard, 2020).

Nzimande and Ngalawa (2022) in their study titled "Tax-Spend or Spend-Tax?" wanted to find out whether increasing taxes or cutting spending would help in saving economies in the Southern Africa region from consequences of the COVID-19 pandemic. They focused on the relationship between revenue and expenditure in the Southern African Development Community (SADC). This was because concerns were raised regarding high debts and deficits in member states of the SADC region.

The study found no evidence of the relationship between revenue and spending in eleven SADC countries. This suggested that governments in this region could balance their budgets by altering either spending or revenues, or both. However, in Botswana they found evidence

of the tax- spend hypothesis, implying that governments needed to consider altering revenues to eliminate budget imbalances. Also, evidence of the Spend-Tax hypothesis was found in Mauritius and Mozambique, suggesting that past and current expenditures were responsible for driving revenues in these countries. The study recommended that cutting spending was the best policy to solve budget imbalances.

One reason the country fails to manage debt and sustain income streams is because of ambitious plans beyond the country's capacity. These tend to make public expenditure to outstrip public revenue leading into fiscal deficits (Riverc et al., 2021). Another reason is that Policies may be as good as they are pronounced but the problem is in their implementation. Failing to implement policies create economic imbalance, liquidity problems and low reserves (Ford & Roberts (2017). An effective and efficient government not only reduces the need to tax, but also maximize spending on government priorities to achieve economic growth (treasury.govt.nz).

(iv) Lack of growth sustainability

There is evidence that Zambia records economic growth but fails to sustain it (Lwazi, 2022; Smith et al, 2016). For example, Zambia recorded growth averaging 7 percent between 2006 and 2014 (Bouabdallah, 2017)). The importance of high economic growth is that high growth can be used to create reserves needed to curb debt accumulation (Estevao & Essl, 2022). However, the debt to growth nexus may have a positive or a negative effect on the economy.

Cablamaci (2018) stated that this relationship may depend on effect of fiscal and monetary policies on the macroeconomic environment of the country. This is because the extent to which these policies are used influence changes in aggregate demand and thus affect economic growth. It is, therefore, essential that the economy accumulates debt according to the pace of economic growth.

(v) Lack of control of strategic assets

Liebenthal and Cheelo (2018) in their study of " Understanding the implications of the boom-burst cycle of global copper prices for natural resources in Zambia" wanted to get an understanding of the effect of global trends over Zambia's economic history. Their interest was to explore how the mining sector was managed during the boom periods.

They found that successive Zambian governments did not use copper revenues to accumulate productive assets but they focused on financing consumption such as subsidies and sustaining inefficient state owned industries. It was noted that Zambia had accumulated high levels of

debt and there was no prospective solution to it. They found that Zambia had no capacity to use mineral revenues to invest into productive sectors and concluded that consumption expenditure and political agenda dominated the fiscal landscape.

This study was a specific Zambia's case regarding it's main source of revenue which is controlled by foreigners. Palatiello and Pilkington (2022) indicated that loss of control of local resources has a negative impact on the economy in terms of correct taxes to be paid by foreigners, limitations of investment opportunities for local people, the risk of repatriation of funds to foreign countries and loss of control of the direction of the economy.

(vi) Political constraints

Arestis et al (2021) in their study of the Brazilian "expansionary fiscal austerity" were interested in finding out the cause of failure for economic growth and development after an economic boom from 2005 to 2011when the country entered down turn and eventually a strong recession in 2015 and 2016. They found that austerity measures failed to improve economic growth due to the political factors which created two shocks which led to economic crisis and stagnation.

The first shock was created by a 'car wash Lawsuit' which hit the biggest Brazilian companies such as Petrobas and other contractor firms in the infrastructure development industry. The second shock emerged when government abandoned countercyclical macroeconomic policies of 2012-2014 which were meant to deal with the recession caused by the 2008 financial crisis and introduced the neoliberal fiscal and monetary policies. The researchers concluded that fiscal austerity, tight monetary policy, and the impeachment of President Rousseff affected agents' expectations and consequently investment decisions.

This study is relevant to Zambia in that economic policies change whenever there change of government. The trend indicates a mixture of contractionary and expansionary fiscal policies. For example, there was a dominant contractionary policies from 1991 to 2011 while expansionary fiscal policy was witnessed from 2012 to 2021, and then contractionary after change of government in 2021. However, the situation regarding impeachment and removal of President from office has never happened to Zambia.

Melosi, Morita and Zanetti (2022) in their study of the "The signaling effects of fiscal announcements" on the macroeconomic economy. They constructed a novel data set that combined the daily data on Japanese stock prices with narrative records from press releases about sets of extraordinary fiscal packages introduced from 2011-2020. They used local

projections to show the fiscal stimuli.

They found that government's view of the macroeconomic outlook were interpreted as negative news by the stock market. Exogenous fiscal interventions that did not convey any information about the business cycle fostered bullish reactions. Negative effect on the stock market prices were common when fiscal stimuli announcements were made against the backdrop of macroeconomic uncertainty causing panic in the private sector. This reduced the effectiveness of fiscal policy. These findings are consistent with the theory of signaling effect.

This case is relevant to Zambia as political pronouncements both from the ruling party and the opposition parties influence investor confidence. Examples include partial appreciation of the Kwacha against the dollar after the new President was sworn in in 2021, the loss in foreign bonds after debt relief request of USD$8.4 billion was made (Bloomberg, 2022, Sept 7) and the gain after first restructuring agreement of USD$6.3 million with bilateral and multilateral lenders (afdb.org).

Rehman, Cismas and Milin (2022) in their study" The Three Evils" identified Inflation, poverty and unemployment as hindrances on economic progress in Pakistan. They indicated that policy makers are worried about these three Evils because they affect macroeconomic development. They indicated that depending on what the government chooses, fiscal and monetary policies may be used in tandem. Here, there is a challenge of a trade-off between inflation and employment (Wulandari et al. 2019). Poverty is another factor affecting every society globally. Inflation and unemployment are the main factors affecting countries today because they affect savings, investment, exports poverty reduction, and economic growth.

They categorically indicated that inflation affects the purchasing power of the currency and thus affects the living standards of citizens and the unpredictable price rise may have a negative impact on the economy (Behera & Mishra, 2017). Unemployment was singled out as the main cause of poverty. This is because poverty levels rise as unemployment rises. Using series data from 1986 to 2020, they found that inflation and poverty had negative effect on economic growth while unemployment had a positive association with economic growth. They concluded that unemployment had a harmful effect on economic growth and recommended that the new government needed strategies and policies to tackle this problem in order to boost economic progress.

Zambia's economic situation is highly similar to that of Pakistan as the three factors inflation, unemployment and poverty levels are high (usaid.gov). The characteristics are similar in that the local currency keeps on losing value and therefore create uncertainty over the cost of goods

and services.

2.4.2 Exogenous factors

(i) Natural disasters

Zambia fortunately does not experience perennial natural disasters like tornadoes of the US, tyfoons of the Philippines, volcanoes and earthquakes (UN, 2022). However, the common intermittent disasters include droughts (Smith et al., 2016). The devastating effect of drought causing crop failure, power shortage and water shortage cannot be forgotten. Pests affect crops and this reduces output, raw materials, exports and economic growth (National Assembly of Zambia, 2017). In addition, the outbreak of animal diseases such as corridor disease, bird flu and swine flu affect livestock increasing mortality and shortage of output which eventually reduces sales and thus revenue.

Recently, the COVID-19 has not spared any country on the globe and Zambia experienced the most difficult pandemic period and has not yet recovered from its adverse effects. Elgin et al (2022) indicated that highly informal countries struggle to make meaningful economic recoveries after the adverse effect of the pandemic because they tend to be pro-cyclical rather than countercyclical.

(ii) Global commodity prices

Kilian and Zhou (2019) studied the relationship between oil prices, exchange rates and interest rates since 1980s. This study was necessitated by the interest in the relationship between the crude oil, the U.S dollar, and the U.S interest rates. It has been observed that the surge in the real price of oil in the 2000s was attributed to the declining real value of the U.S dollar and low U.S interest rates together with the increase in global economic activities.

They found problems in quantifying the relationship between interest rates and exchange rates and also the fact that demand and supply shocks in the oil market could affect the value of the dollar and interest rates. They proposed a novel identific strategy for separating the causal effect of oil demand and oil supply shocks from the effects of exogenous shocks to the U.S interest rates and exogenous shocks to the real value of the U.S dollar.

The researchers carried an evaluation of views about the role of exogenous real exchange rate shocks in driving the real price of oil, and examined the extent to which shocks in the global oil market drive the U.S real exchange rate and U.S real interest rates. Evidence indicated empirical support for the theoretical models that there is a link between oil prices, exchange rates, and interest rates.

This study is relevant to Zambia particularly that the country is highly dependent on copper exports but whose price is controlled by the global market. Just like oil exporters, Zambia earns most of its revenue from the copper commodity export (Pearce et al, 2022). The rise and fall in the price of the commodity create uncertainty and makes it hard for the country to plan for it's future.

However, oil exporting countries have an advantage in that they can leverage the price of oil by cutting output because the commodity is highly demanded. However, oil booms and also copper booms hamper diversification of expoerts (Karanfil & Omgba, 2023). Fluctuations in demand hinders exports and foreign exchange earnings resulting in low foreign reserves (Mbandlwa, 2020),

(iii) Global interest rates

The influence of interest rates on debt is well known especially debt denominated in foreign currency. This is because any adverse movement in global interest rates increases the cost of interest payments on debt (Devarajan, 2018) and the impact is high where debt was contracted on variable interest rates. Zambia's debt servicing costs escalated due to high interest accumulated on Eurobonds contracted on commercial terms (IMF, 2017).

2.5 How fiscal policy can be implemented to ensure public debt sustainability in Zambia.

The use of fiscal policy should be to prevent economic collapse, stabilize the economy and facilitate continuous economic growth (Tamplin, 2022). In normal circumstances debt finance is invested in key economic sectors to enhance economic growth. Meaningful economic growth should be expected to increase productivity in the economy and create a broader tax base to translate into fiscal stability. The World Bank (2020) indicated that borrowing is unfavourable where it leads into tax increase and cause reduction in aggregate demand.

The best way to effectively handle the case is to know the root of the problem. Most problems highlighted in previous sections affect Zambia and increase the country's indebtedness. The major causes of fiscal crises include inefficient use of fiscal deficits (FitchRatings, 2022), failure to counter adverse economic cycles (Carneiro, Nguyen & Odawara, 2016), and failure to sustain income streams and growth (Lwazi, 2022; Smith, 2016).

2.5.1 Managing the fiscal balance

Zambia's fiscal problem does not stem from borrowing or spending, but from attached motives

when generating the fiscal balance. Staszewska-Bystrova and Bystrov (2022) stated that the availability of debt encourages deficit financing. Deficit financing has advantages such as affording funding that cannot be supported by tax revenue but can also create the main disadvantage of increasing the debt burden. It is why Badia et al (2020) stated that government should be wary of debt even when the cost of borrowing is low. The motives in deriving the fiscal balance can be classified into Ricardians and Non-Ricardians (Afonso &Coelho, 2022).

2.5.1.1 The Ricardian approach

Ricardo (1951) as one of the Classic theorists promotes the view of maintaining a balanced budget and avoiding debt where it cannot be sustained by taxpayers (Ricardo, 1923).
Ricardo just like other classic theorists advocate for avoidance of debt as much as possible because governments are wasteful in using borrowed funds and yet debt burdens the taxpayers. Where public debt is considered as a source of funding, Ricardo suggests the following:

(i) Debt should cost the same as taxes especially in the short-term: Where government needs to meet expenditure, it has taxes and debt at its disposal and can use debt if it costs the same as raising taxes. In Zambian's situation, the tax revenue is low compared to desired capital projects. This means that Zambia cannot risk going for short-term debt because of its low revenue base. It is why the country goes for long-term debt to insure the economy from immediate payment commitment (Ellison & Scott, 2022).

(ii) In the long-term debt costs more than tax due to interest rates: Whilst Zambia prefers long-term bonds to short-term bonds, it overlooks the long-term consequences of debt. Pushing debt repayment schedule further in the future may be expensive and there is also a danger to create a debt burden for future generations (Ricardo, 1951).

(iii) Perking order: Because of interest payments on debt, taxes are prioritized to debt. This can be seen in what the Zambian government is doing as it has increased Constituency Development Fund (CDF) to cater for some infrastructure development. This, however, is not enough to meet most capital projects such as tarred roads, power generating plants, and others, because tax revenue is low (Ikue et al, 2021).

(iv) Debt signals future taxes

Ricardo (1951) indicated that issued debt today signifies taxes to be paid in future. This was

also supported by Afonso and Coelho (2022). Badia et al (2020) stated that debt is not free as it has to be paid at some point in future. Zambia's debt accumulation and debt servicing problem started in 1976 (Siyanga, 2018) and each successive government borrows and services debt including generational debts. The system of financing projects by public debt shifts the burden to future generations (Unit-13pdf).

(vi) Debt pushes the burden to future generations

Ricardo stated that where expenditure is financed by taxation, the forst generation hands over to the second generation nothing but tax receipts. However, if the forst generation hands over bonds to the second generation, then this represents an obligation to be redeemed or amortized where bonds are not perpetuities (Unit-13pdf). Zambia has restructured the USD $6.3 billion but this debt has been pushed forward for settlement in 20 years' time (Reuters. 2023).

Conditions for Ricardian approach to fiscal balance derivation

The Ricardian theorem is one of the classic theorists and advocates for avoiding borrowing and recommends maintaining a balanced budget. To achieve this, an economy needs to:

(i) Generate a fiscal surplus

When there is need to spend more, a fiscal surplus should be a solution. Hamilton and Flavin (1986) as pioneers of the primary balance came up with two situations of fiscal sustainability being the elimination of debt by future surpluses or where the present value of debt is expected to zero in infinity. This is similar to Keynes (1923) who suggested that the government can run deficits during recessions and should be able to eliminate deficits by generating surpluses during expansion.

In the study of debt sustainability for the US government no ponzi government constraint was found (NPGC). This meant that the US debt was sustainable. The earlier result indicated that deficits of the 1980s were merely inter-temporary budget constraints awaiting future surpluses to return debt to sustainable level. However, results from other researchers such as Hakkio and Rush (1991) indicated that the US debt during the 1980s was unsustainable.

Bohn (1998) indicated that government exercises economics of control which is necessary to the economic cycle and includes tax smoothing during recessions and emergency expenditure during wars. This is synonymous to Ricardo's suggestion that both taxes and budget surplus may not be available in an emergency such as a war, droughts, floods and others. For example, Zambia accessed debt to afford fighting the pandemic (Calabrese, 2021). This ended up

increasing the debt burden, fiscal deficit while recording negative growth of -2.8 GDP in 2020 (Beetsma, 2022).

(ii) Use a cash budget

This requires the country to spend according to revenue generated in the fiscal year. Zambia introduced a cash budget in 1993 in order to avoid acquiring debt but this did not last long before the country issued high interest bonds in 1995 (Saungweme & Odhiambo, 2018).

(iii) Use modern alternatives to the balanced budget

In order to support the classics view of the balanced budget, modern theorists have suggested methods of ensuring that the balanced budget is maintained. For example, Hilton (2021) guides to borrow for well evaluated and self-sustaining projects, and Reis (2022) recommends that the country needs to create an income stream each time debt is issued.

2.5.1.2 The Non-Ricardian approach

These include Keynesians and post-Keynesian theorists who do not support the balanced budget. The current fiscal regime is that government runs the economy through the discretionary budget rather than a balanced budget. This is done by deciding the primary balance without reference to the debt level and thus avoids matching public debt with future taxes (Afonso & Coelho, 2022). Authorities use this method because of the availability of debt roll-over, refinancing, conversion, and monetary issuing.

Most economies have been experiencing debt crises caused by motives aligned with the Non-Ricardian approach to deriving the fiscal balance. This is a reason Bohn and Henning (1998) cautioned that a sustainable fiscal policy is one where government reacts systematically by adjusting the primary balance in line with public debt changes to make debt sustainable.

Conditions for the non-Ricardian approach to fiscal balance:

This approach requires the country to achieve some of the following: to generate higher growth than interest rates, macroeconomic stability, managing bonds in the secondary market, and avoiding Ponzi schemes.

(i) Generation of higher growth rates than interest rates

Domar (1944) as a pioneer of debt sustainability suggested that the primary deficit could be sustained as long as economic growth is higher than interest rates. For debt to be sustainable, a country needs a record of higher GDP than interest rates (Westphal & Semeano, 2020).

Easterly citing in Kablamaci (2018) stated that a reduction in economic growth leads into a budget deficit. This view tallies with Bohn's (1998) reason of the growth interest differentials. In Zambia's case, the situation is difficult in that the country has the capacity to generate economic growth (Lwazi, 2022) but yet it is much lower than interest rates payable on debt. For example, interest on foreign debt stands at 8.97 (Brautigam, 2021) against average growth of 4 percent (8NDP).

Initially, debt management was not a stand-alone policy but was part of the monetary and fiscal policies (Hodula & Melecky, 2020). The IMF and World Bank issued guidelines to separate debt management from other policies in 2001 and revisions have been made to align it with financial sector regulatory changes and macroeconomic development to formulate a sound debt management strategy (IMF & Work Bank, 2014). This, further, enhanced the use of a non-Ricardian approach to deriving the primary balance.

The use of lower Interest rates than growth rates needs a medium to longer-term strategy on the economic outlook and should be focused on productive fiscal expansion. Where there is a tighter monetary policy and fiscal expansion, it may increase the risk that government will default or roll-over debt at high cost (Hodula & Melecky, 2021).

Zambia in this respect is using monetary tightening currently at 10 percent (BOZ, 2023, July 27) and contractionary measures. It is not clear whether these measures will sort out the fiscal crisis. Badia et al (2020) stated that reducing public expenditure in the post-crisis period may hurt the economy as this reduces economic activities and may cripple the economy's capacity to generate growth. This understanding is also consistent to empirical findings on Tunisia by Mtiba, Lahiani and Gabsi (2022).

Bohn (1995; 1998): Bohn in 1995 contributed on the literature which has brought a revolution to the field of debt sustainability. He focused on an understanding of the situation where interest rates become lower than economic growth ($r < g$). Bohn suggested that in an uncertain environment, a risk averse investor will not consider the government interest rate but the condition of the economy as government's are pro-cyclical and run deficits in recessions.

Most developed countries had much lower interest rates before the 2008 financial crisis but this measure did not avoid debt explosion (Forbes, 2008). Zambia was not badly hit by this

crisis partly because the economy was recording a high GDP because of copper export booms due to the rise in demand in China (Dathe, muller & Helmold, 2023) and partly because smaller economies had little investment in derivatives and properties. These shielded the Zambian economy from serious housing bubbles and financial crises.

In order to record higher growth than interest rates the country will need to meet two possible goals, namely:

The projects must yield "higher rates of returns on investments". This is a normal practice and signify prudent borrowing. However the country is not run like a business with profit motive or else the government may fail to take care of the vulnerable in society. Nevertheless, debt requires to be repaid at done point in future and the government should be worry of debt even where the cost of borrowing is low (Badia, Medas, Gupta and Xiang, 2020).

Several projects which are successful in Zambia include toll gates, power generating plants, water works and sewerage systems, and phone towers among many more. For example, the Toll Gates have raised a total of ZMW 35 billion since it's inception in 2014 (Zambia Daily Mail, 2022). Other infrastructure projects which are vital but not of commercial benefits include health centres, schools, roads, bridges, housing units, among others.

The economy needs to be "frugal" in utilization of debt funds. Argandona (2010) defined "frugality" as a virtue that determines the value of decisions in a society. In this regard, it refers to using less to produce quality and is linked to efficient utilization of resources. This is used as a guide to the borrowing decision in that it is not worth to borrow if debt cannot be used efficiently especially on the basis of higher return or at least breaking even. Zambia and other developing countries do not take this as a guide as most debt is acquired for social expenditure projects which do not generate revenue but are essential for improving living standards of citizens. This quality is highly associated with developed countries which have efficient ways of utilizing debt finance to yield higher returns than the cost of servicing interest (FitchRatings, 2022).

(ii) Macroeconomic stability

This relates to the stabilization of macroeconomic shocks (growth, interest rates and inflaton rates). Khalladi (2019) indicated that these variables are highly vulnerable and sensitive. They are capable of disrupting economic gains and thus the fiscal health of a country. Refer to 2.5.2.3 (iii).

(iii) Managing the secondary market of bond

This requires that the country ensures that bonds remain attractive in the secondary market so that investors do not get rid of them (Corey et al, 2018). This may be done by keeping the securities in the secondary market active through the money market method (MMM). The MMM involves continuous marketing and selling of securities in an active market (Fastenrath, Schwan & Trampusch, 2016). Unfortunately, this method is not used in Zambia as the country holds debt to maturity without any intermediate measures to secure a smooth roll-over or refinancing.

(iv) Avoiding Ponzi game

Normally, government has a belief that it can borrow more and roll-over debt with low risk (Blanchard, 2019). In any case, government must not be seen to do nothing towards improving the fiscal capacity (Ikue et al, 2021). Thus, the Zambian government should not be seen making debt repayments from new debt (Saungweme & Odhiambo, 2020). This practice of acquiring new debt to settle retired ones is termed a "Ponzi scheme" (Afonso & Coelho, 2022). This system creates a lot of problems including generational debt, and create roll-over and refinancing risks.

2.5.2 Managing economic cycles

The Zambian economy experiences turbulence of booms and slumps which form the economic cycle. Growth has been declining since the severe drought of 2014/2015 (Lwazi, 2022; Smith et al., 2016). Just like in other countries the COVID-19 ravaged the Zambian economy by causing a deficit of -2.8 GDP while increasing the debt burden (Beetsma, 2022). The major cause for Zambia's debt accumulation is deficit financing. There are two types of deficits, namely cyclical and structural deficits (Riley, 2017).

(i) Cyclical deficits

These are caused by booms and slumps in the economy forcing the government to change it's appetite towards spending. For example, high demand and favourable price of copper leads to high economic growth and increased foreign reserves in Zambia. Whereas low demand and low price for copper reduces economic growth and foreign reserves. These situations result in low tax revenue and budget deficits. Cyclical deficits may be eliminated by fiscal surpluses where the government is able to create excess revenue on budgeted expenditure (Flavin, 1986).

Where this is achievable in the medium-term, deficits are referred to as “intertemporal budget constraints”.

(ii) Structural deficits

These are not related to the state of the economy and do not disappear even when the economy recovers. OECD-library defines a structural deficit as that excess spending over revenue which persists even when an economy was to grow at a highest rate (OECDilibrary). The nature of a structural deficit is that it is created as a built-in stabilizer rather than an inter-temporal budget constraint but cannot be eliminated with other discretionary budget changes when a cyclical gap is closed (when revenue expands to eliminate the deficit). Structural deficits span over business cycles and are in excess of public revenue meaning that it is being financed by borrowing and borrowing is also becoming unsustainable (Economics.help.com, 2019, Nov 21).

2.5.2.3 Responses to deficits

(i) Cyclical deficits and stabilizers

A debt crisis is created by deficits, particularly where they accumulate over a period of time. The IMF (2021) recommends that the deficit should be eliminated within two fiscal years. Cyclical deficits are caused by booms and slumps in the economy. For example, high demand and favourable price of copper leads to high economic growth and increased foreign reserves in Zambia. Whereas low demand and low price for copper reduces economic growth and foreign reserves.

Government normally responds to these cycles by providing stabilizers (hamiltonproject.com). Stabilizers are government intervening measures to mitigate the adverse effect due to the state of the economy. Where automatic stabilizers are in place, they go into effect as revenue and expenditure levels change without government effort. Stabilizers include discretionary and non- discretionary. Discretionary stabilizers include: social cash transfers, food stumps, subsidies, and tax-cuts, among many more. Non-discretionary stabilizers include: infrastructure investment, tax rebates, tax holidays, wage increase, unemployment benefits, subsidized jobs (for low wage workers), and others.

(ii) Cyclical deficits and no stabilizers

The Zambian economy goes through an economic cycle with periods of booms and slumps. Normally, debt financed growth is cyclical as it creates booms and bursts and debt overhangs

(Kohler & Stockhammer, 2022). The state of an economy can be categorized into four, namely: expansion (GDP is increasing), peak (GDP starts declining), contraction or recession (GDP declines deeply), and trough (GDP stops declining and starts rising), (ec.europa.eu). In such situations, government's response can be one of the following:

Counter-cyclical measures which involve conducting an opposite action to fight an adverse economic cycle. For example, increasing spending and reducing taxes to stop economic slowdown, and also reducing spending and raising taxes in an economic boom and bust. There must be opposite movement in the indicator and the state of the economy before countercyclical can be used. Zambia's economy is in a contractionary state and it requires an aggressive fiscal policy to come out of this state (Sennoga & Balma, 2022). However, counter-cyclical fiscal policy is more useful in an economic crisis (Raghuvansham, 2020) and proves effective in developed countries (Carneiro, Nguyen & Odawara, 2016).

Pro-cyclical measures relates to government's support to an econopmic cycle. It involves expansionary during economic booms and contractionary during recessions. Normally, booms are aligned with indicators such as GDP growth, employment and marginal cost. Zambia and other developing countries often use pro-cyclical fiscal policy because they have no choice in crises and are unable to borrow from international credit market, they delay to use the correct fiscal policies on time to make a difference and during good economic times they keep spending high and run fiscal deficits (Carneiro, Nguyen & Odawara, 2016).

ACyclical measures are used where an indicator has no relevance to the state of the economy and is generally of little use (imf.org). For example, hosting of an expo in Luapula province has no relationship to the health of the economy nor cause significant change to GDP. Another example is where constant budgetary expenditure and constant tax rates are maintained. This cannot stabilize or strengthen the economic cycle (sciencedirect.com).

(iii) Structural deficits

Structural deficits span over business cycles and are in excess of public revenue meaning that they are being financed by borrowing and it (borrowing) is also becoming unsustainable (economics.help, 2019, Nov 21). This is a common problem in many poor countries, including Zambia. In most cases, government's performance in many developing countries is very poor in terms of service delivery such as public amenities (roads and other infrastructure), and merit goods (health and education). However, the principles of sound finance recommends that

structural deficits must be avoided (Curtasu, 2011).

Prolonged deficits signify poor accountability in government institutions (Rafindadi & Abdulazeez, 2019).and this even makes it difficult for them to sustain public debt because of persistent budget deficits (Akongwale, 2020).Structural deficits may create long-term benefits where debt finance is used in assets which provide returns after completion. Examples of such investments include electric power plants such as lower Zambezi and the International Airports which took several years to be completed before they started generating revenue. However, deficits may create serious fiscal consesquences that can lead into a debt crisis (Cablamaci, 2018).

In order to avoid this trend, a country needs **Macroeconomic stability.** Macroeconomic stability forms a primary pillar that can ensure that the country has needed economic fundamentals "just enough" to keep the economy running and affording public expenditure including debt servicing. Macroeconomic stability guarantees the country's capacity to generate liquidity at least in the medium term. The World Bank (ERF-World Bank Webinar, 2020) stated that macroeconomic stability are priorities in debt sustainability.
Whether the country has taken up the growth or poverty reduction policy, macroeconomic stability is a pre-condition to ensure that countries do not do little (IMF, 2020). Khalladi (2019) indicated risks that affect debt sustainability in developing Countries to stem from fiscal and macroeconomic shocks (growth, interest rates and exchange rates). Makhoba, Kaseeram and Greyling (2022) indicated that economic growth, improved fiscal balance and lower interest rates can reduce chances of default and help to reduce debt to low level.

Fiscal stability relates to the ability of an economy to generate liquidity in the medium to long-term. It is reflected as a fiscal surplus of revenue over expenditure. FB is a target for policy intervention to secure liquidity and is why government strives to achieve a surplus in order to increase its net wealth (Ncube & Rajhi, 2014). Fiscal policy can stabilize the economy when the fiscal balance increases as output rises and decreases as output falls (weforum.org).
In most cases Zambia, just like other developing countries, raises less tax revenue than public expenditure causing a trend record of negative fiscal balances (Ikue et al, 2021). The importance of recording a positive fiscal balance is that it can be used to build up reserves and the current account balance (Pamies & Reut, 2020).

Growth stability refers to economic growth that is sustainable and can provide an assurance of potential growth that the country needs to put efforts towards fiscal sustainability. Frankel (2019) stated that economic growth simply represents national income that an economy makes in a fiscal year. This was also supported by Rassure (2022) who added that growth is Gross Domestic Product (GDP) and indicates annual income in an economy. Most economies borrow to finance projects needed to stimulate economic growth. Growth, therefore, generates debt and the cost of debt may be justified by the positive and sustainable growth induced through the right fiscal policies. It is, therefore, important to curb declining growth that may influence fiscal shocks, budget deficits and higher debt (Cablamaci, 2018).

Interest rates stability is where interest rates help to keep debt at predictable levels making it easy to plan for their servicing. Interest rates can provide a double edged sword (two opposite effects) on the economy. On one hand, high lending rates can cause the government to become a big borrower in the country. Zambia has high lending rates averaging 25 percent in the year 2022 (BOZ, 2022, mar). The high cost of borrowing is prohibitive to private borrowers (crowding them out) and thus reduces private borrowing and investment.

On the other hand, high borrowing rates increases the cost of debt. Zambia's foreign debt interest rates are higher than the growth rate of the economy. Foreign rates are as high as 8 percent (Brautigam, 2021) and local borrowing averages 25 percent (BOZ, 2023). Borrowing at high rates may see the debt burden increase (Blanchard, 2020). The situation needs to be monitored cautiously so that it does not lead into a debt crisis.

The problem with interest rates is that it makes the mix-up of fiscal and monetary policies. However, the use of both fiscal and monetary policies and expansionary and contractionary is not new as this was also adopted by the Chinese government although China adopted these policies at different stages (Yang et al., 2022). Badia et al. (2020) indicated that there is a likelihood that a debt crisis can occur without a rise in interest rates. In any case, use of interest rates to control inflation is a gamble as it may not turn into fortunes such as Reagan booms of the 1990s after interest rate tightening of the 1980s.

Inflation rates stability relates to having stable rate of inflation**.** Control of inflation was not possible through central banks until high records of 1970s. Pioneers of inflation control through central banks were Margaret Thatcher of the United Kingdom and Paul Volcker of the US

(Argawal & Kendall, 2022). After this revolution, other countries followed in the mid-1980s. Control of inflation requires deciding on a targeted inflation rate which should be able to regulate the money supply in the economy and safeguard the integrity of the Kwacha (Holtham, 2021). Higher rates of inflation in extreme cases can create a financial crisis (Barrow, 2013; Khalladi, 2019). Stable inflation can help to preserve the value of the local currency and thus provide a stable exchange rate against other currencies. In this way, foreign denominated debt is kept at the same value.

High inflation is not good to the economy because imports become expensive. This can affect the price of imported goods and raw materials. It is a reason why the government of Zambia has aimed at reducing the inflation rate to a single digit. The benefits with low inflation are that it becomes easier to plan ahead and also easier to manage the economy. Zambia has forecasted inflation rate to reduce further to 9.2 percent in 2023, 8.2 percent in 2024 and 7.3 percent in 2025 (Reuters, 2022, Sept 1).

2.5.3 Managing economic growth

Economic growth is measured as GDP and incorporate economic indicators which include consumption, investment, international trade, central government budget, the monetary policy (money supply), and balance of payments (tradingeconomics.com). Zambia generates economic growth but the problem lies in failure to sustain it (Lwazi, 2022). Economic growth is dependent on investment and savings (Solow, 1956) but savings are at the heart of economic growth (Saungweme and Odhiambo, 2020).

Most political economies have emphasized competitiveness (export vs imports) as a driver of growth, but this has changed since the Global Financial Crisis (GFC) of 2008. Growth dynamics are now strongly shaped by fiscal policy reaction (Kohler & Stockhammer, 2022). It is now that fiscal policy (not monetary policy) is used as a tool to stabilize the economy after a crisis. This is why Staszewska-Bystrova and Bystrov (2022) emphasized use of timely fiscal adjustment to smooth economic recovery.

There are four pillars of public spending that can enhance economic growth (library.fiveable.me-unit-5, 2023 Jan 7). These include supporting employment, education, infrastructure and innovation:

Increasing “employment” is necessary where the economy is operating below capacity, as in Zambia’s case. This requires putting resources, including human capital, to work in order to increase output and enhance economic growth. Providing citizens with “education” to acquire knowledge and skills form the basis for productive and effective human resource.

Public “infrastructure” investment ensures that economic wealth reaches a broader citizenry (whitehouse.gov). Building infrastructure such as roads, technology and communication systems, health facilities, and others, tend to ease life and businesses of citizens. Infrastructure is key in enhancing economic activities in Zambia. Examples are the road networks and electricity supply reaching rural areas.

Further, Innovation is a basis for development in most countries wishing to advance the economies. Zambia in this regard need to be innovative in order to put its immense natural resources to good use (TrendMax, 2019). This requires support to education, research institutes and other professionals to enable them maximize their potential and add value to the local resources so that the country can rip full benefits. Innovation can result into substituting some imports with locally made goods. Examples, can include manufacturing agricultural tools locally in order to avoid importing these tools from China, India and Brazil.

2.5.4 Debt reduction methods

IMF staff Carmen Reinhart and Belen Sbransia (2015) citing in de-Rugy & Kling (2022) have suggested five channels for reducing the debt to GDP ratio by classifying them into orthodox solutions (economic growth, substantive fiscal adjustment or austerity plans, explicit default or restructuring of debt) and heterodox solutions (surprise burst in inflation, and financial repression).

2.5.4.1 Economic growth

The best approach to reduce debt is to generate economic growth. Estavao and Essl (2022) advised that achieving economic growth is the only way to get out of a debt trap. However, this needs innovative transformations to achieve reasonable growth. Zambia records lower economic growth rates and even medium- term prospects indicate a rate of 4 percent GDP which is far below that of interest rates on debt averaging 8.97 percent (Brautigam, 2021). This situation makes it difficult to reduce the debt to GDP ratio.

2.5.4.2 Substantive fiscal adjustment or austerity plans

General literature shows that austerity measures involving spending cuts leads to lasting debt reduction than measures involving tax increases (de Rugy & Kling, 2022). Currently, Zambia is using both spending cuts and tax increases and this is causing a strong debate about the impact of austerity measures on the economy. It is because of the history regarding government priorities in good economic times and running of budget deficits.

This decision faces political challenges because it involves cutting public expenditure and tax increases leading to reductions in disposable incomes (wages and social security) of citizens. Austerity measures involving cutting public expenditure are not likely to be reversed and are more successful than tax increases. Cutting public expenditure in this sense is associated with savings to be used on other viable projects and debt servicing and thus help in reducing the debt to GDP ratio (Abuselidze, 2021).

Buchheit (2021) suggested to avoid reaching a decision to invoke fiscal adjustment because of its painful effect especially on weak economies like Zambia. However, a tendency of increasing spending in healthy periods makes it difficult to introduce expenditure cuts because the authorities may become politically unpopular. Another reason is that fiscal consolidation is treated as a rule rather than an exception to sort out an impending crisis. This mistake has been repeated many times in Zambia.

2.5.4.3 Explicit default or restructuring of debt

Normally, governments try hard to avoid a default because of its costly consequences in terms of loss of access to further credit and damage to a country's reputation (Hakura, 2020). Explicit default happens when a sovereign state declares its inability to carry debt either when it fails to remit debt service obligations or calls for debt restructuring as a result of deteriorated economic conditions.

Zambia in this case has not defaulted for the first time. For example, in 1976 and 1987 Zambia's defaults were exacerbated by harsh global economic trends. Recently, the impact of the COVID-19 forced Zambia and other countries (Argentina, Belize, Ecuador, Lebanon, and Suriname) to become first defaulters in the pandemic era (Financia Times, 2022) .

2.5.4.4 Surprise burst in inflation

The persistence of inflation indicates future bursts of inflation in future and may not be good news for investors. In case of local investors, the depreciation of the Kwacha will cause a reduction in the value of their investment. High inflation benefits issuers of bonds and other securities because the monetary assets and liabilities values remain unadjusted at the balance sheet. This may influence changes in the behaviour of lenders (investors).

High inflation may may dilute the value of local investment. For example, expected high inflation may cause most investors to go for short- term investments such as treasury bills and short-term bonds of say one year. This practice may make long-term bonds to become unattractive and in the long run require raising the rates to higher levels to attract potential investors. Reducing debt through deliberate inflation is only possible to local debts rather than foreign debt.

2.5.4.5 Financial repression

This relates to control measures that the government takes to ensure that bondholders have no alternative to get rid of their investments. These measures may include control of capital markets to avert getting rid of government securities for private securities. These also include wage and price controls, caps on interest rates (low interest rates reduce servicing costs and erodes the real value of debt), ceiling on bank deposit rates, high reserve ratios, securities transaction taxes, prohibition of gold purchases, among others.

Recent acts of financial repression have been seen by actions of the British government's central bank buying back securities from holders in 2022 (Reuters, 2022, Sept 28). This was meant to lower interest to be paid and the value of debt. This study has recognized the relevance of economic growth known as the “standard fare of officialdom” which is an orthodox solution as pertinent to the Zambian economy. Growth is a progressive and sustainable way where it is active as other orthodox measures come too late to rescue the economy.

Heterodox measures are successful in developed countries rather than developing countries (de-Rugy & Kling, 2022). Economic growth can then be supplemented by the two active ways of debt management suggested by Petko and Zarkova (2020) which include budgetary and financial-technical methods. Thus, the main ways through which Zambia can effectively implement fiscal policy to sustain public debt are:

(i) Generating economic growth

Use measures that can generate higher growth than interest on debt (Blanchard, 2020; Frankel, 2019). This method requires the borrowing decision to be guided by economic growth. High

economic growth is a best method to escape debt troubles for countries, like Zambia, which use the non-Ricardian approach to deriving the fiscal balance.

(ii) Budgetary allocation

To be mindful about the debt level and derive the primary balance in line with Bohn and Henning (1998) suggestion that a sustainable fiscal policy is one where government reacts systematically by adjusting the primary balance in line with public debt changes to make debt sustainable. Literature indicates that lower deficits are ideal for lower debts (FitchRatings, 2022). The best option is to strike a balanced budget by generating a surplus as this can avoid debt problems (Ricardo, 1951).

(iii)Technical financial methods

This includes measures such as issuing irredeemable debt that involves debt perpetuities that retire after the last instalment (Corey et al, 2018), using the money market method (MMM) such as running open debt contracts that can permit buying and selling bonds on the market without committing to debt maturity (Fastenrath, Schwan & Trampusch, 2016).

2.6 Conceptual Framework

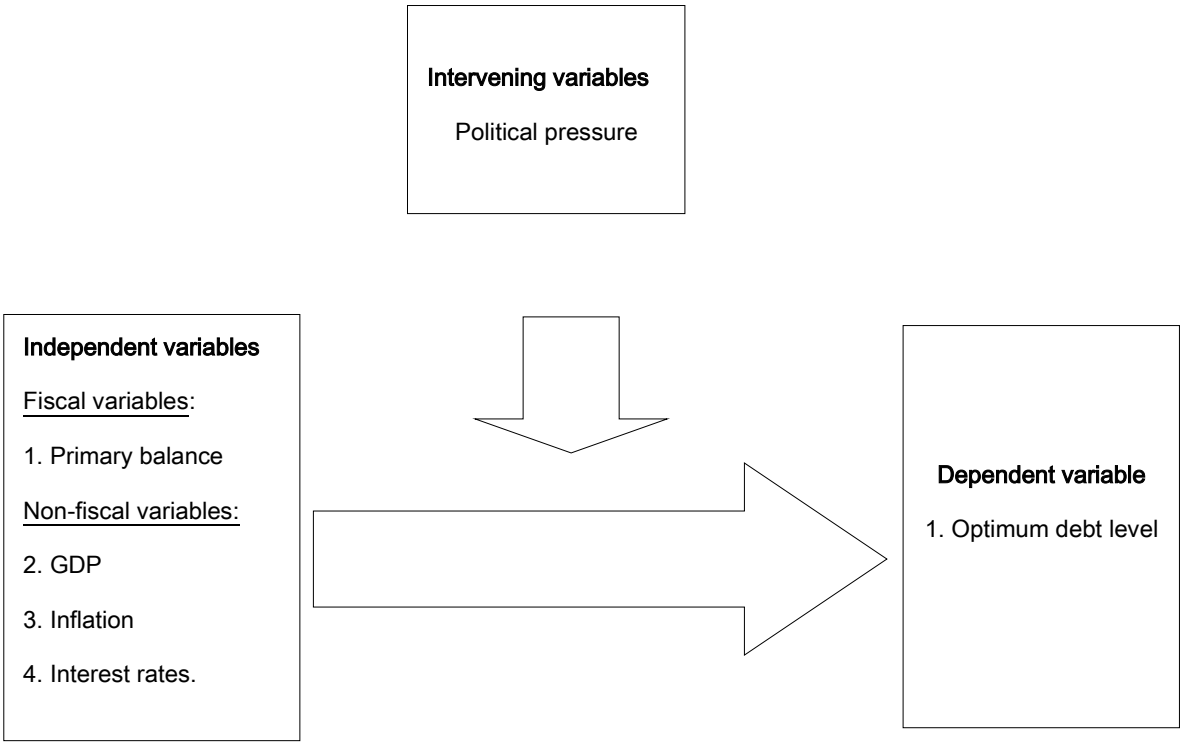


Figure 1. Conceptual framework

This study involves assessment of fiscal policy on public debt sustainability. In order to sustain debt, Zambia needs a sustainable fiscal policy and this needs to meet the definition of debt sustainability which is "the capacity of the country to meet current and future obligations in full without affecting its economic growth, change conditions to debt scheduling, or seek help or exceptional finance to avoid going into default" (Omotor, 2021; Hakura, 2020). To ensure effective implementation, fiscal policy must be functional to increase aggregate demand through increasing expenditure and lowering taxes (Keynes, 1936). This, however, needs to be monitored to avert inflation and a recession (Holtham, 2021).

A sustainable fiscal policy is one which gives the country capacity to generate economic growth, improve the fiscal balance, lower taxes and lower interest rates (Makhoba, Kaseeram & Greyling, 2022; Omotor, 2021. This then requires stability in fiscal balance, GDP growth, interest rates and inflation rates as a prerequisite (ERF World Bank Webinar, 2020).

Dinh (2022) stated that modern debt sustainability analysis requires an explanation of a country's changes in the debt to GDP ratio which depends on economic growth, interest rates, inflation rates and the fiscal balance (fiscal deficits less interest payable on debt). These form fundamental elements of a good debt sustainability analysis.

2.6.1 Dependent variable

(i) Debt ratio

This relates to what debt Zambia can afford to manage (Ghosh et al., 2013). The SADC region guides its member states to maintain a debt to GDP ratio of 60 percent (Redda, 2020; Mbandlwa, 2020). This debt ratio is aimed at ensuring member states behave responsibly in their economies by not over borrowing because the impact of a debt crisis in any of the member states may spill over into others. This reason arises because countries depend on one another in trade, and any disruption in one country can affect the supply chain.

2.6.2 Independent variables

These include fiscal variables and non-fiscal variables.

2.6.2.1 Fiscal variables

(i) Fiscal Balance (FB)

FB is a fiscal adjustment determined by the government and is calculated as government revenue less public expenditure (OECDilibrary, 2021). Normally, primary balance is used to

represent fiscal balance and is calculated as revenue less expenditure and less interest payable on debt (Khalladi, 2019). Zambia normally runs on the fiscal deficit and this is caused by the budget deficits financed by borrowing. For example, the 2022 budget had 20 percent of the budget financed by borrowing (GRZ Budget, 2022). It is this deficit financing that causes debt accumulation.

2.6.2.2 Non- fiscal variables

(i) GDP as a proxy for "Economic growth"

GDP is a dominant measure of economic growth. Growth is what every government desires because it represents the national income generated in a year (Frankel, 2019). This GDP should be expected to grow higher that interest rates because it is from the national income that government gets funds from to service debt. However, Zambia's growth rate has been lower averaging 4 percent in the last decade against commercial interest rates of 8.7 percent (Brautigam, 2021). This indicates that GDP has not been growing at the same rate as interest rates, hence, making debt unsustainable. Estevao and Essl (2022) stated that economic growth can be used to curb debt accumulation and is also the right method of escaping a debt trap.

(ii) Interest rates

High global interest rates increase cost of external debt servicing. Zambia's rapid rise in debt has been caused by rising interest rates on commercial debt (Kose, Ohnsorge & Sugawara, 2018; Brautigam, 2021). Egert (2013) stated that high interest rates indicate high cost of borrowing. In the local economy high interest rates averages 25 percent (BOZ, 2023) and can go as high as 40 percent. This makes it hard for citizens to borrow from financial institutions and thus acts as a ploy to investment. Further, government borrowing locally is high at a minimum of 10 percent (boz.com, 2023) and foreign interest rates are at 9 percent (Brautigam, 2021)

(iii) Inflation

The impact of inflation on the Zambian economy is twofold, it affects the value of foreign debt and also the value of local investment. A rise in inflation causes Kwacha depreciation and makes foreign debt servicing more expensive. This situation was observed in the period 2018 to 2021 when inflation rose at a faster rate to reach as high as 22 percent (Ministry of Finance, 2021).

2.6.3 Mediating factors

Political pressure is found in many countries and foreign lenders consider political stability as a key feature of a good borrower (Elamer, Ntim & Abdou, 2020; IMF, 2016).

2.7 Theoretical Framework

Major theories on debt sustainability were developed by Classical, Keynesian and post Keynesian researchers.

2.7.1 Classics

Classical theorists: Smith (1776) in his book 'the wealth of nations' discussed the economic effect of public debt which is caused by government budget deficits. He argued that accumulated deficits and public debt are injurious to economic growth because the government diverts public resources into unproductive expenditure and then raises taxes to redeem public debts. Smith suggested a balanced budget as a solution to avoiding deficits.

Ricardo (1951) shared Smith's view that debt causes tax increases and depresses private investment. He came up with the 'Ricardian equivalence theorem' which suggests that taxation and borrowing are both methods of financing public expenditure. Ricardo indicated that borrowing creates future taxes. Ricardo's view was shared by Mill (1976). Ricardo argued that when the deficit is financed through taxation it may cost the same as debt finance in the short-term.

Ricardo 91951) stated that in the long-term borrowing proves costly as compared to taxation because it reduces government's future income and investment. Ricardo cautioned that taxation is preferred when raising money for consumption, or for wars, or for natural disasters because no future interest payments are needed, but for public investment into economic sectors such as public infrastructure, taxation or borrowing are appropriate.

The classical theorists share the view that the economy should be run on the basis of the free market and government intervention needs to be avoided (Pettinger, 2019). They stress the importance of reducing government borrowing and also avoiding deficits through a balanced budget.

2.7.2 Keynesians

According to proponents of the classical theory, the economy will have full employment and

attain meaningful development without government intervention (Modiglian & Miller; Solow, 1956). In contrast to this view, the Keynesian economists saw the free market principle as inefficient because of stagnation to supply and demand equilibrium theory (Keynes, 1936). They suggested that the economy was capable of operating at full capacity and this required government intervention to create a 'functional fiscal policy'. Functional fiscal policy includes increasing public expenditure and lowering taxes to increase aggregate demand. Other measures involve use of financial instruments which include budgets, taxation and borrowing.

Government Intervention to create a functional fiscal policy is important to avoid 'a paradox of thrift' which forces the economy to spend less as this reduces aggregate demand in the economy (m.econimoictimes.com). Low aggregate demand in an economy can cause a recession (Pettinger, 2019). This can be avoided through use of government's fiscal policy to increase aggregate demand. Keynesian economists did not totally reject the free market policies but pointed out it's inadequacy in difficult economic situations such as a recession. Pettinger further stated that the use of fiscal policy can avoid not only a deep recession but also the possibility of austerity measures.

2.7.3 Post Keynesian theorists

The post Keynesian theorists Lowe (1965) and Lerner (1943) cited in Forstator (2014) also opposed the laissez-faire free market forces optimal view of no government interventions in the economy. They indicated that the real world requires government participation as it (government) desires macro outcomes. Rather than taking conditions as they are and taking economic analysis, a vision was important to determine the macro-outcomes. Lowe (1965) stated that macro-goals are not determined by economic analysis but by the political process and economic means are only deployed for attainment of political goals.

Lowe's political goal theory was backed by Lerner's (1943) 'functional finance theory' which refers to sound finance. Lerner stated that sound finance is inextricably linked to the balanced budget which is a stipulated political goal. However, Vieira (2022) backed the principle of functional finance and stated that fiscal policy cannot be limited by the financial limits as the only limits for fiscal policy stem from the level of employment and inflation. Lerner (1944) saw the effect of politics and referred it to as "economics of control". Lerner concluded that the budget, the fiscal and monetary policies have a huge effect in determining the

macroeconomic goal. Government, therefore, determines macro goals, the budget, monetary and fiscal policies through the use of the democratic political process. In essence, it requires using policies to shape the outcomes.

2.7.4 Chosen theory for this study

(i)Definition of debt sustainability

This study has adopted the definition of debt sustainability by combining that of Omotor (2021) and Hakura (2020) as "the capacity of the country to meet current and future obligations in full without affecting its economic growth, change conditions to debt scheduling, or seek help or exceptional finance to avoid going into default" (Omotor, 2021; Hakura, 2020).

(ii) Adopted theory

The adopted theory is the Ricardian equivalency theorem which asserts that "when the deficit is financed through taxation it may cost the same as debt in the short-term. However, in the long-term borrowing proves costly as compared to taxation because of the need to pay interest". Ricardo stated that debt and taxes are both methods of financing expenditure but suggested that taxes are suitable for consumption while debt is needed for capital projects.

(iii) Reasons for the choice

Modern economic theory may have overlooked the classical economists' theories but non-classical theories have failed to deal with pertaining economic challenges such as the 2008 financial crisis. Further, despite maintaining lower interest rates than economic growth even big economies have failed to deal with high deficits, huge debts, stagflation and now the COVID-19 pandemic (Wong, 2022; Market Watch,2022). This makes a case for the classical economists' ideas such as the Ricardians to be more relevant now than they are perceived to be (Tsoulfidis, 2007).

The Ricardian theorem recognizes that both taxes and debt are forms of financing public expenditure. This is a flexible form of financing public expenditure and is consistent to the Zambian situation because the government uses both taxes and borrowing as forms of funding public expenditure.

2.8 Gaps in the literature

Studies on Zambian economy (Appendix 8) revealed that there was no research which specifically looked at the relationship between fiscal policy and debt. It was, however, noted that some studies such as Saungweme and Odhiambo (2020), Siyanga (2018) and UNICEF (2016; 2023) provided valuable insights into the existing relationship between fiscal policy and public debt sustainability. Studies on foreign economies (Appendix 9) provided further essential information to this study and were needed to satisfy the research objective. Thus, it was necessary to relate literature to the following research objectives:

2.8.1 The relationship between fiscal policy and debt sustainability

There was no study on Zambia which specifically stated the relationship between Fiscal policy implementation and public debt. However, a critical look at Saungweme and Odhiambo (2020) study on the impact of public debt on economic growth revealed recommendations involving active fiscal adjustment, avoidance of budget overruns and avoidance of a Ponzi game. All these signify the relationship between fiscal policy and public debt. The study on the public debt trends, reforms and challenges (Saungweme & Odhiambo, 2018) indicated debt sustainability problems perpetuated by rising interest rates and also non-concessional loans.

These findings were not different from Siyanga (2018) who found that a debt overhang exists in Zambia due to long-run relationship between public debt and economic growth. UNICEF (2016) on the study of political economy and fiscal space noted the rise and fall of growth and indicated that lower growth from 2015 correlated with declining revenue. UNICEF concluded that fiscal space was constrained by low growth, high fiscal balance and high debt. UNICEF (2023) on the analysis of the 2023 national budget indicated that government was using a contractionary fiscal policy by reducing the budget deficit from 9.8 in 2023 to 7.7 of GDP in 2023. This indicated the desire to reduce borrowing.

Literature relating to the studies on Zambia lacks a general view to specifically relate fiscal policy to public debt sustainability, as public debt has been related to single macroeconomic facets such as economic growth and debt servicing, among them. Fiscal policy encompasses revenue, expenditure and borrowing (Keynes, 1936). This study, therefore, takes a broader way of looking at Zambia's debt problem through fiscal policy implementation.

Smith (2020) indicated that there is a relationship between debt, expenditure, growth, interest rates and inflation and advised for the construction of a structural model to deal with fiscal instability. This broader approach can help to create a reliable and solid framework for fiscal sustainability and Zambia needs a study that can relate debt to public expenditure and macroeconomic variables (growth, interest rates and inflation rates). Other important issues which were not adequately addressed include:

(i) Deficit reduction

Deficit reduction (UNICEF, 2023) seems to be a good decision in the current debt crisis as the national budget provides a better avenue for taking a commitment especially where revenue fails to support expenditure (Abuselidze, 2021). Narrowing deficits is a main method of reducing debt unsustainability (Gazali, 2020; FitchRatings, 2022). However, it should be noted that deficit reduction can be effective where it is coupled with financial discipline (Hamad & Abarahim, 2022).

(ii) Guide on the level of borrowing

Saungweme and Odhiambo (2020) and Siyanga (2018) studies on public debt – economic growth nexus failed to guide on the level of borrowing that affects economic growth. Empirical evidence indicates that an economy is able to generate growth when the debt ratio is low (Ford & Roberts, 2017). This was, however, noted by UNICEF (2016) indicating high debt, high fiscal balance and low growth relationship.

The study by UNICEF made valuable contributions regarding opportunities for investment and priority sectors. However, the essence of the study was solely based on fiscal space requiring debt acquisition for a specific purpose of financing investment in children. Child focused programs are in the social sector and such non- revenue generating investments may well be funded by aid or taxes rather than public debt (Ricardo, 1951).

This study considers the relationship between fiscal policy and public debt sustainability according to Smith (2020) who indicated the existing relationship between debt, expenditure, growth, interest rates and inflation but with classification into fiscal balance (difference between revenue and expenditure) and non-fiscal variables (growth, interest rates and inflation rates) according to Khalladi (2019).

2.8.2 Factors affecting debt sustainability

Some studies on the local economy include Saungweme and Odhiambo (2020) who found that Zambia's economy suffers from the lack of macroeconomic stability, no growth sustainability and recommended the active fiscal consolidation to avoid budget overruns also avoid Ponzi game. Saungweme and Odhiambo (2018) found that debt was escalated by high interest on domestic and foreign debt, and that Zambia had high non concessional loans. These findings were not different from other researchers such as Siyanga (2018) and UNICEF (2016). However, some of the influential factors which were not tackled on debt include:

(i) Derivation of fiscal balance

Many studies have indicated a number of factors which include interest rates, calamities, dependence on single commodity export, lack of diversification, import dependence, among others. These studies ignore the major cause of debt unsustainability which fundamentally relate to motives in deriving the Fiscal balance for deficit financing. This is an important element because there is no free debt (Badia et al, 2020).

(ii) Monetary tightening

Arestis, Ferrari-Filho, Resende and Terra (2021) in their study of the Brazilian fiscal austerity indicated that the failure of the policy was due to tight monetary policy alongside political instability. Local studies have completely ignored the adverse effect of monetary tightening and a misfit to a poor economy like Zambia.This is a reason that the use of interest rates to lower inflation is not moving in tandem with the cost of living crisis which is deteriorating (Cochrane, 2022).

(iii) Pro-cyclical policies

Countries with large shadow economies follow pro-cyclical fiscal policies as opposed to countercyclical policies (Elgin, Williams, Yalaman & Yalaman, 2021). This finding is consistent with (Carneiro, Nguyen & Odawara, 2016) who stated that developing countries are pro-cyclical because counter-cyclical as an alternative comes too late to make a difference and this forces pro-cyclical as they have no other choice. Zambia's economy falls in this category and it is worth emphasizing this scenario.

(iv) Lack of technology and industrialization

Lack of industrialization as suggested by Mbandlwa (2020) who indicated how other countries such as China take advantage of this situation by advancing loans to trap most African countries with debt with an ulterior motive of gaining control of strategic assets. Mbandlwa, however, failed to recommend how this scenario can be changed. This study looks at alternatives such as gaining control of strategic assets by the locals in order to maximize revenue especially from the mineral extractive industries in order to avert more fiscal problems including high debt accumulation. This is consistent with what countries such as UAE, Saudi Arabia have been doing (Cool Vision, 2020).

(v) COVID-19

Abuselidze (2021) in the study on Georgia indicated the influence of Covid-19 on the public debt growth and default risks: A fiscal sustainability analysis. The effect of Covid-19 cannot be ignored looking at it's lingering effect and this study considered looking at the continuous challenges poses by the pandemic.

(vi) Inadequate assessment of debt sustainability

IMF (2018, July 13) and UN (2022, March) have indicated that each country faces different threats and debt sustainability assessment. Pamies and Reut (2020) indicated the difficulties in distinguishing liquidity crisis from solvency problems. Zambia in 2020 defaulted due to liquidity problem and not solvency problem. The IMF rushed to declare a default and prescribed the painful restructuring process and yet the better solution should have been re-profiling in order to ease cash flow problems (Buchheit, 2021).

(vii) Compatibility of fiscal adjustments

Fiscal adjustment could be a better solution if the country had success in the past but this was not the case. In this case the country needs long-term debt to ensure its fiscal capacity. Ellison and Scott (2022) stated that Long-term debts are attractive & suitable for countries with history of defaults. In order to alleviate wrong assessment of debt sustainability, Pamies and Reut (2020) suggested the debt sustainability analysis not to rely on a single calculation but on a number of tools as an analytical framework and this was supported by recommendations from Kaur, Mukherjee and Ekka (2018).

(viii) Economic growth

A measure of growth is misleading where a poor country records higher growth than a rich

country and yet no enhancement in the quality of citizen's lives (Zingel & Moder, 2022). Literature did not indicate that countries have different levels of industrialization for meaningful GDP to improve every economy (Mbandlwa, 2020; byjus.com). This means that the economic growth in most poor countries like Zambia is driven by consumption mostly of imported goods (Kohler & Stockhammer, 2022).

Mombiot (2013) referred consumption GDP as "eating growth" and suggested the good measures of growth to relate to more employment and improvement in living standards of citizens. GDP linked to improvement in living standards was also advocated for by Kundu and Cabrera (2022). Positive growth is recorded in efficient countries like Japan where a mediocre average economic growth rate of around 1 percent is achieved and translates into improvement in wealth of the economy (Tran, 2020).

(ix) Lack of Diversification

Zambia depends on mining for 75 percent of its revenue and this requires diversification of the economy through a well-funded agricultural sector (Pearce et al, 2022). This study enhances this idea by suggesting that diversification is needed to avert the financial risk by creating sustainable income streams. This can not only be achieved by increasing agricultural output but also boosting the manufacturing sector for value addition and employment creation (Hassan, Ahmed and Thabet, 2022).

2.8.3 Effective ways of implementing fiscal policy

Most literature has recommended widening the tax base as a solution to Zambia's fiscal problem (8NDP; Pearce et al, 2022). Although widening the tax base and local resources mobilization are used interchangeably, they are both good suggestions. Moreover, opportunities are available in key sectors to expand the resource base (UNICEF, 2016). Considering that Zambia's economy is largely informal, measures can be taken to support the small scale and medium enterprises (SMEs) industries so that their potential is maximized (Censon et al, 2023) to drive Zambia's economic growth. However, fiscal space is constrained by low growth, high fiscal balance and high debt (UNICEF, 2016).

However, Literature lacks specific suggestions and methods of improving tax revenue. This study looks at specific methods than can improve tax revenue collection from sustainable

income streams. For example, Redda (2020) on the study of South Africa's debt sustainability suggested the identification of self-sustaining enterprises that can contribute to economic growth. This requires government support to ensure graduation of the informal sector into formal sector. Colombo et al. (2022) indicated that the size of formality in an economy contributes towards effective delivery of public goods.

In the light of the suggestions postulated by other researchers, this study identified the following:

(i) Increasing mining output

UNICEF (2023) contradicting the government's intention to increase mining output, from 800 to 3000 metric tons of copper in ten years' time, by indicating that there is depletion in mineral ores. Kalikeka and Nsenduluka (2023) noted that tax concessions represented forgone particularly revenue from the mining sector. UNICEF (2023) in the study on Zambia suggested to scale back on tax concessions.

Literature has omitted the fundamentals of how revenue can be maximized with increasing output from the mining industry. This increase does not guarantee revenue increase considering the past experience of foreign control, repatriation of profits, tax evasion and non-transparent transfer pricing practices. Ackah et al (2020) on their study on the Ghanian economy indicated that the oil extractive industry failed to yield positive results due to weak institutions which included the revenue authority and the oversight auditor general's office. This problem is common in developing countries having extractive industries such as mining (Oloruntoba, 2022).

(ii) Effectiveness of fiscal adjustments

Empirical evidence suggests that fiscal adjustment does not produce positive results for poor countries (Igwe, Abdullah & Sherko 2016) but Saungweme and Odhiambo (2020) suggested active fiscal consolidation. Saungweme and Odhiambo (2020) suggested that Zambia should take up fiscal consolidation to avoid budget overruns.

This measure is not tenable by Zambia looking at the past experience where fiscal adjustments and austerity measures did not amount to more revenue generation and servicing of debt. For example, despite the DSSI and the extension of the debt service suspension under the G20 framework for three years, Zambia has failed to raise adequate revenue to reduce it's debt burden. Zambia, just like other developing countries, has a small economy and therefore low revenue. This situation makes it difficult for fiscal adjustment to have a meaningful impact on

local resource mobilization and thus any stringent fiscal and tax admistration reforms futile (Ikue et al. 2021).

(iii) The role of politics

Pearce et al, (2022) suggested de-politicizing debt contraction. This study considers the role of politics as important in shaping policies which include fiscal policy implementation (Beetsma, 2022).

(iv) Fiscal decentralization

The 8NDP suggested fiscal decentralization without indicating how it can be effective in the current political divide in Zambia. This ignores the fact that decentralization in the multiparty political system means that the ruling party takes an active role in service delivery while members of the opposition take a back seat. This situation creates animosity and thus no or little participation from most stakeholders and sections of society.

This study considers the use of decentralization according to the suggestion of the pioneer of decentralization Samuelson (1995) which encourages empowering provincial governments with decisions regarding revenue generation and expenditure. Qin (2022) identified centralization as the cause of excessive expenditure. UNICEF (2023) indicated that CDF has been under-utilized due to the centralized system. Akongwale, (2020) indicated the need for fiscal transparency and participation and these can well be addressed by a well-structured fiscal decentralization.

(v) Creation of employment

Using expansionary fiscal policy as suggested by UNICEF (2023) is contrary to what is obtaining in Zambia. Zambia is using contractionary fiscal policy currently instead of expansionary fiscal policy to counter the economic crisis. Expansionary fiscal policy is necessary in the post-crisis period as using contractionary measures in this period may deepen the crisis (Badia, Medas & Gupta, 2020).

The study, therefore, looks at the correct policy in this circumstance. Talvis and Vegh cited in Carneiro, Nguyen and Odawara (2016) in their study in 2005 who found that reducing spending even in the short-term can have long-term adverse impact on productivity, human capital development and likely to increase an economic downturn. The Japanese government in

difficult economic times used a loose fiscal policy to support the supply chain, manufacturing, export and service industries (Tran, 2020). This is more needed in the economic recovery period such as the survival in the post-COVID-19 pandemic (Nzimande & Ngalawa, 2022).

2.8 Chapter Summary

Zambia has many plans to develop but faces financial constraints. This forces government to access credit from local lenders and foreign lenders. The major reasons that make it necessary to borrow include, the desire to develop infrastructure, the availability of lenders on the world financial market and the available of low interest rates (Staszewska-Bystrova & Bystrov, 2022). The World Bank and IMF (2018) came up with prescriptions for countries to maintain the level of debt that is not beyond the capacity. The standard threshold for every country is a 90 percent of Debt to GDP ratio (IMF, 2011). However, each region of the world describes the level of debt that member states should follow. Zambia in this regard is a member of the Southern AfricanDevelopment Community (SADC) which has recommended a debt ratio of 60 percent for its member states (Mbandlwa, 2020). Unfortunately, Zambia's debt rose exponentially from the 60 percent threshold in 2017 to around 108 percent in 2019. This prompted a default in 2020 (VOA, 2022). Zambia's debt threshold has since reached 124 percent (National Assembly of Zambia, 2022). This level should have been exceeded if it were not for the debt service suspension initiative (DSSI). Further, the international community has intervened to rescue the economy and the negotiation process to restructure public debt commenced in 2021. A sustainable fiscal policy is one which gives the country capacity to generate growth, improve the fiscal balance, lower taxes and interest rate (Makhoba, Kaseeram and Greyling, 2022; Omotor, 2021). The policy should be able to increase aggregate demand in the economy rather than reducing it. Zambia's debt level was very low after the HIPC and Multi-lateral debt relief initiative (MDRI) in 2005 (Calabrese, 2021). However, debt started rising in 2007 and rose rapidly from 2011 to 2019. Zambia became the first African country to default on loan terms in the COVID-19 era in 2020 (Economist, 2022). There are many factors affecting Zambia's fiscal sustainability, and can be categorized into endogenous and exogenous factors. The study identified public debt as a dependent variable while independent variables included fiscal balance, GDP growth, interest rates and inflation rates.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Methodology is defined as the 'research design, methods, approaches and procedures used in research to produce results' (Keeves, 1977). This chapter looks at the methods used to collect and analyze data in this study. The study was an assessment of Zambia's fiscal policy on whether it was adequate to sustain public debt. The research Methodology as a process of investigating a phenomena requires a systematic and critical process to ensure that the study meets the highest standard.

Creswell (2014) stated that rigour is key in meeting the required standard. This then requires a suitable research design to ensure that it provides a framework for quality delivery of research results. The research design is defined as "the plan of conducting a research by intersecting the philosophy, strategies and specific methods" (Creswell, 2017). Choosing a right methodology can provide challenges particularly that the research design must provide suitable conditions for collection and analysis of data to ensure relevance to the research purpose. The appropriate methodology and it's tools must be tailored to the research problem, research questions and research objectives which are to some extent dictated by the research philosophy (Masadeh, 2012; Tashakkori & Teddlie, 1998). The research design should therefore deal with all aspects of the research from philosophies or paradigms to data analysis (De Lisle, 2011).

This chapter discusses the method used to analyze data relating to the research study "Assessment of fiscal policy on public debt sustainability in Zambia". The chapter comprises 13 sections being introduction, nature of research, methodological model, philosophical choice, sampling plan, sample size, justification of sample size, research design, triangulation, quality control, ethical consideration, reliability-validity and generalization of research results, and chapter summary.

3.2 Nature of Research

Before coming up with the research model, it is important to understand the nature of the research. Aided by the research objectives and research questions, the researcher required to know the type of data and how it would be analyzed in the research. There are five suggested research purposes that an investigator may have, and they include: exploratory, descriptive, explanatory, evaluative and a combination of two or more purposes.

Exploratory requires to find out what is happening or to assess a phenomenon in a new light. It is suitable where there is no information or where there is little information from past research. This is a flexible design (Robson, 2002). A **Descriptive** purpose requires to express

an accurate profile of persons, events or situations. It is carried out to determine and explain characteristics of variables in a given context. Normally, the researcher should have a clear picture of a phenomena before conducting the study (Saunders et al., 2009). An **Explanatory** Purpose requires to study a problem or a situation in order to explain the relationship between variables (Robson, 2002). An **Evaluative** involves finding out how something works, while a **Combined** purpose involves combining more than one purpose.

RO1: To find the relationship between fiscal policy implementation and public debt sustainability. In this case an 'explanatory research purpose' was relevant to get a good understanding. However, since empirical data was available to establish this needed relationship, this made an evaluation possible and thus the need for a combined research purpose more dominant.

RO2: To assess the adequacy of fiscal policy implementation on public debt sustainability in Zambia. This part of the study was 'explanatory research purpose' because it required testing and explaining the relationship between variables. It was also related to an ‘evaluative research purpose' in that collected data was used for analysis in order to discover the true relationship between fiscal policy and debt. In this case it was more of the 'combined research purpose' than any single purpose.

RO3: To establish factors affecting effective implementation of fiscal policy in Zambia.

For this objective, the descriptive research purpose was the right choice because the objective required specific factors which exist and affect fiscal policy implementation.

RO4: To suggest how fiscal policy can be implemented to ensure debt sustainability. This objective required new ways of using fiscal policy in order to make public debt sustainable. This required 'exploring' a phenomenon in the new light. It therefore included both secondary and primary sources explored to bring out new ways of implementing fiscal policy. It was thus a combination of all the five research purposes.

3.3 Methodological Model

Various researchers have suggested methods of constructing the methodology and the most common methodologies include Creswell (2009), Crotty (1998), Burrell & Morgan (1979), and Saunders et al. (2009;2016;2018).

The **Saunders et al. (2016) model was selected** because of its simplicity and covers a wider range of philosophies than other models. De Vaus (2001: 9) advocated for a research design which needs not be ambiguous but be able to answer the research question. Moreover the Research Onion, as an easy guideline, was more designated to business research (Mardiana, 2020).

Saunders et al. (2016) suggested that the research design needs to have six layers of the "research onion". These layers include philosophies, approaches, choices or methods, strategies, time horizon, and techniques and procedures for data collection and analysis.

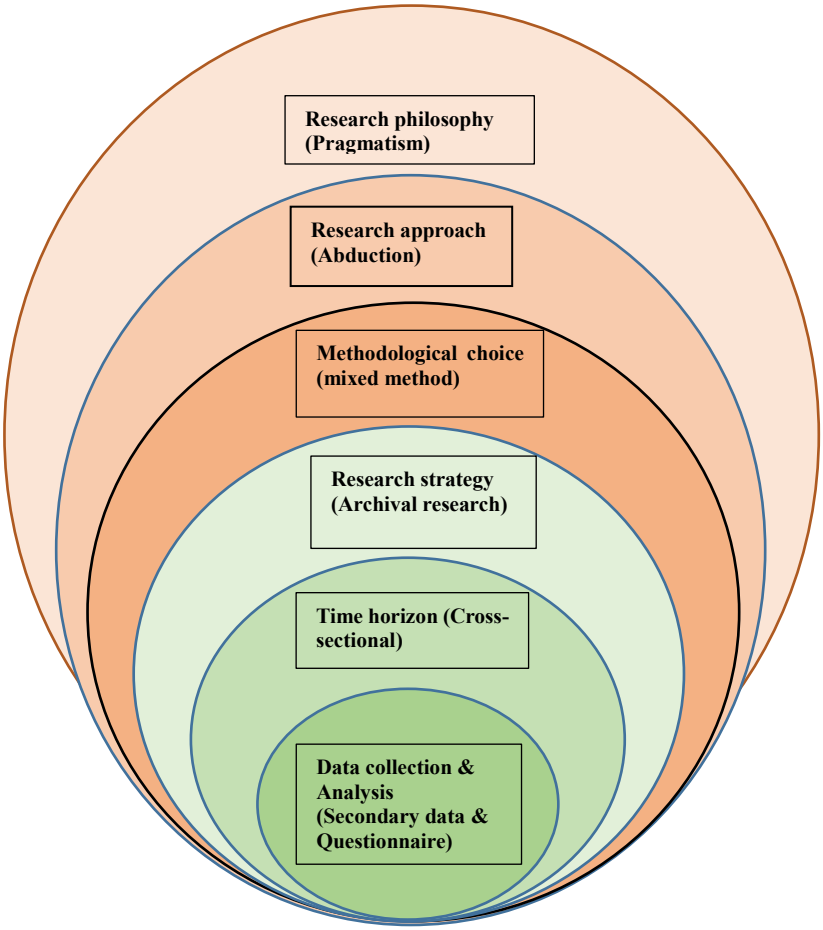


Figure 2. Research onion (Saunders et al., 2016).

3.4 Philosophical choice

Philosophy refers to the development of knowledge and the nature of that knowledge. The nature of knowledge is influenced by the researcher's view of the world (Fionov, 2017). The researcher's philosophical view can be categorized into ontology, epistemology or axiology. The view in this study was that fiscal policy implementation was related to public debt

sustainability. This was influenced by the ontological view due to seeking reality and the epistemological view because of the requirement to meet acceptable knowledge in the field of study. Abdelhakim & Badr, (2021) stated that a philosophy should help in outlining the research and clarifying research methods to support techniques used.

The **pragmatism** philosophy was selected for this study because of its flexibility and avoids limitations of using one specific philosophy in the study. The Pragmatism philosophy was needed to adequately deal with the research problem because of its complexity. Mette and Janice (2016) in the study mixed-method of scientific problems stated that complex problems need a design that can adequately address uncertainty and problems which are difficult to define. This reason was also advanced by De Lisle (2011) and green (2007; 2008). This aligns to this study given that a sovereign debt problem is complex and sensitive. Further, mixed-method was chosen because the study was based on research questions and objectives.

3.4.1 Pragmatism philosophy

Pragmatism as a philosophy provides a coherent stance in a mixed-method research (Coates, 2021). It thus allows the use of features of other philosophies in the same study (Bryman, 2006). Other philosophies include Positivism, Interpretivism, Postmodernism, and Critical realism. Creswell (2014) suggested that a research design must be used as a tool to satisfy the nature of the research problem. Therefore, the research philosophies helped in addressing the research problem as follows:

(i) Positivism: Philosopher Auguste Comte defined positivism as verifiable, observable and measurable knowledge (Masadeh, 2012). The study was dealing with the real issue (debt) and as such, the object of investigation was separate from the subjective experiences of the researcher (Tashakkori & Teddlie, 2003). The researcher in this regard was restricted to data collection and analysis. Further, collected data was analyzed through structured methods such as sematic analysis and inferential analysis (correlation and regression) which can be replicated by other researchers.

(ii) Interpretivism: this philosophy was relevant because the study relates to a social phenomenon of interest to the researcher and also involved participation of experts in the field of fiscal policy and debt sustainability. This indicates the role of personal values and experiences and was suitable in collecting qualitative data (Neuman, 1997).

(iii) Postmodernism: was relevant because the study embraced new findings that were critical

to make a difference and bring about change in the way fiscal policy has been implemented in the past. This allowed the role of epistemology which deals with the science of knowledge and permits a paradigm shift as new discoveries to a field of study are found (Masadeh, 2012).

(iv) Critical realism: This philosophy did not fit in the study because it does not relate to reality as the debt problem did not exist independent of the researcher's knowledge

3.4.2 Research Approach

There are three types of approaches: Deductive, inductive and abductive.

The abductive approach is more relevant in mixed research because of its flexibility to accommodate elements of the inductive and deductive reasoning. Brandt and Timmermans (2021) indicated that abduction is an alternative to scientific approaches. This study used the abductive approach to benefit from the qualities of both the inductive and the deductive approaches. Hatta et al (2020) indicated the value of convergence design providing benefits from both inductive and deductive approaches.

(i) Inductive: Inductive is related to collection of qualitative data (Haradhan, 2018). It is where data are collected and a theory is developed from the data analysis (Bergdahl & Bertero, 2015). In this study, the researcher participated in the research process as there was need to gain an understanding of the phenomenon and a flexible structure was adopted through the semi-structured questionnaire.

(ii) Deductive: It involves moving from theory to data and is suited to scientific principles which involves explaining the relationship between variables normally of quantitative nature. It starts with the general and finishes with the specific (Soiferman, 2010). Deductive is highly structured, requires control to ensure validity of data and the researcher is independent of the study. This approach was used for quantitative data in this study.

3.4.3 Research strategy

Research strategies are methods available for data collection for the research project. The preferred method should be able to meet the research objective (Kapur, 2018). The most common research strategies include an experiment, a survey, archival data, case study, anthropology, action research, grounded theory, and narrative inquiry.

This research adopted the archival and narrative strategies due to the following reasons:

(i) Archival data: This is data in written form and stored for future use (Das et al., 2018). Data relating to debt and other financial matters are produced annually. In this regard, this study

relied on past published reports from the main sources which include the Bank of Zambia, the Ministry of finance, the IMF, the World Bank, among others. Further, more data was obtained from journals, online sources, business reports and world news.

Published data proves to be more reliable than unpublished data because it is officially confirmed and known to be less bias and deceptive. There are, however, disadvantages which include looking in the past may not be relevant with changed conditions (Gilliland & McKemmish, 2004) and that archival data reduces interactions between the researchers and the publishers or potential respondents. However, this study reduced these limitations in that secondary data was obtained from the sole reliable source, Ministry of Finance and National Planning (MFNP), and this was supplemented by qualitative primary data collected through semi-structured interviews.

(ii) Narrative inquiry: this relates to qualitative research (Coulter et al., 2007). Coulter et al., stated that narrative inquiries are used to clarify important points and can be synthesized with quantitative data to produce a more valuable research report. Therefore, in this study, qualitative data was obtained from experts in finance and economics specialized in fiscal policy. This elevated the quality of responses obtained and as such qualitative data obtained from these sources was not inferior as compared to quantitative data.

3.4.4 Research choice

There are three types of research design choices for social sciences namely quantitative, qualitative and mixed-method (Creswell, 2009). The mixed-method research was chosen because it suits all forms of data collection. Further, the pragmatism philosophy advocates for a mixed method research. The advantage with this choice is that it leverages strengths while reducing weaknesses of quantitative and qualitative research choices and reduces paradigm wars (Tashakkori & Teddlie, 1998).

Fetters and Molina-Azorin (2017) stated that integration of the qualitative and quantitative approaches creates a more holistic understanding than achieved by one of them alone. Mixed-method can answer research questions than other methods cannot answer satisfactorily (De Lisle, 2011). A Mixed-Method can, therefore, provide stronger inferences and accommodate divergent views (Sale et al., 2002; Tashakkori & Teddlie, 2003). This is particularly important where qualitative data is collected as there are variations in the views (Haradhan, 2018).

The appropriateness of the mixed method choice is that it allows the application of at least one qualitative and one quantitative component of data in a single study (Cameron, 2015). This approach was taken in this study to meet different objectives as some objectives required evaluation of quantitative data while others were met through qualitative data from past records and the questionnaire. Masadeh (2012) stated that mixed-method helps to achieve cross-validation and triangulation of data.

Similar studies which used the mixed-method include:

Abuselidze (2021) study of the influence of Covid-19 on the public debt growth and default risks: A fiscal sustainability analysis. They found that increase in liabilities was due to attractive investment credits. It was concluded that government savings could be converted into investments but this was dependent on increased domestic revenue.

The study by De Lisle (2011) investigated schools facing challenging circumstances in Trinidad and Tobago. Using the typology of Creswell and Clark (2007) they employed different methodologies to address micro and macro levels within the system. They concluded that findings added value to meta-inferences, provided new, additional or even conflicting perspectives.

Smith (2016) in the study entitled "Tell me more: A content analysis of expanded Auditor reporting in the United Kingdom", used a mixed method on data obtained from the London and the Irish Stock Exchanges to evaluate analyst behavior in response to ISA 700 audit report. He found that variations in reports were reduced in the post-ISA 700.

3.4.5 Time horizon

There are two types of time horizons:

(i) Cross section: normally a short period and is commonly used in a case study or survey.

(ii) Longitudinal: is conducted over the longer period than a cross-section. It is mainly used to study trends in variables over time. The guide here is that results obtained from the data should be the same irrespective of the research procedures used. This avoids individual bias or human errors from the researcher (Hernandez et al, 2016).

This study was a snap check of the longstanding debt problem and as such it suits to be within a cross section time period. Moreover, a cross-sectional study involves the collection of data at one point in time (National Institute of Health, 2016; Lee & Ling, 2009) and this was the case for this study

3.4.6 Data collection techniques and data analysis

3.4.6.1 Data collection techniques

This relates to specific data collection and analysis. This study used both secondary and primary data. The mixed-method allows to use both quantitative and qualitative data collection techniques (Saunders et al., 2016) having an advantage of sources complimenting each other (Masadeh, 2012). One advantage of using the mixed-method to collect data is that it allows triangulation which is the ability to collect the right data through two or more methods (Silverman, 2010). In this study, therefore, triangulation was possible by backing archival data with qualitative data through the semi-structured questionnaire.

Secondary data was collected from websites of institutions, journals, magazines, news, and other publications. Primary data was collected through the semi-structured questionnaire. Creswell (2014) and Haradhan (2018) indicated that open ended questioning reveals issues which were unanticipated. The synthesis of these two data sets was important to enhance the quality of research results.

(i) Collection of quantitative data: Quantitative data (numerical data) was collected from secondary sources. These included published annual reports from MFNP and Bank of Zambia. Published reports from main sources are more reliable because they lack influence, bias and personal judgement of the researcher. Denscombe (2007: 133) suggested it as one of the methods for data collection.

Studies which have used this method include Kaur, Mukherjee and Ekka (2018) in their study of debt sustainability of Indian states used the empirical estimation of inter-temporal budget constraint and fiscal policy response function in a panel data framework. Others were Hammad and Abarahim (2022) who collected published data from the central bank of Iraq to analyze the relationship between the Golden Rule of financial discipline and the Federal Budget Deficit, Gazali (2020) collected secondary data to study the relationship between ‘budget deficit and debt in Indonesia’, and studies by IMF (2017) 'assessing Zambia’s fiscal sustainability ', among many more.

(ii) Collection of qualitative data: Qualitative data (non-numerical data) can be collected through interviews and published sources. Use of documentary sources is permitted in social research (Mogalakwe, 2009: 221). Most qualitative data was collected from secondary sources such as published annual reports, journals, online sources, newspapers, television news and

radio channels news and many more. Primary data was collected through semi-structured questionnaire containing open ended questions. This choice was relevant because it did not limit the choice of responses from interviewees and open ended questions have the advantage of bringing out new solutions that would otherwise not be available through secondary data sources (Creswell & Clark, 2007). Primary data was used as supplementary data and to triangulate available data sources (Masadeh, 2012). Researchers who have used supplementary data include Mbaye, Badia and Chae (2018) and Li and Cowton (2021).

3.4.6.2 Data Analysis

Ncube and Rajhi (2014) suggested three ways of debt sustainability analysis which include: calculating the debt stabilization primary balance, establishing historical drivers of debt and then taking a forward looking approach. The Researcher took this view in this study by extending this approach to four research objectives (ROs), being relating fiscal policy implementation to public debt sustainability, assessing the adequacy of fiscal policy implementation to ensure debt sustainability, establishing factors affecting implementation of fiscal policy, and suggesting effective ways of implementing fiscal policy.

The adopted method of analysis in each research depends on the kind of data being collected. This research has two sets of data, being quantitative and qualitative data.

(i) Qualitative data analysis

Various methods of analyzing qualitative data exist and include content analysis, discourse analysis, narrative analysis and thematic analysis, among others. This study chose the thematic analysis as appropriate because it allows collecting text data and interpreting it through narrations to meet research themes developed according to research objectives (Haradhan, 2018). The researcher found it necessary to use thematic analysis as the abduction approach allowed the researcher to use themes in engaging with literature (this is deductive) and also possibility of generating themes from data (the inductive element). Proudfoot (2022) stated that this approach enhances the quality of the analysis. More importantly, thematic analysis needs to meet the criteria of trustworthiness (Nowell et al., 2017) and this was met by extracting data from credible sources both from secondary sources and primary sources (questionnaire responses from experts).

(ii) Quantitative data analysis

Quantitative data in this study was suitable under the 'ratio scale' or true zero measurement which permits absolute numbers, additions, divisions, multiplications. The specific measurements were ratio scales and included:

Debt Ratio (DR): ratio of debt to GDP, Fiscal balance (FB): government revenue less expenditure and less interest on debt, Gross Domestic Product (GDP): GDP for the year, Inflation rate: Inflation rate for the fiscal year, and Interest rate: Reference to bond yield.

Using inferential statistics collected was analyzed by expressing the relationship between variables. This study used SPSS and Excel software to analyze data. Results were obtained through use of the Multiple Linear regression technique which relates predictor variables and the outcome variable in a linear equation.

Linear equation: $Y= a_0+a_1X_1+ a_2X_2+ a_2X_3+ a_4X_4\ldots$

With Y representing the outcome variable debt ratio, a is the constant being the value of Y when all the independent variables are equal to zero, while X1, X2, X3 & X4 representing the predictor variables fiscal balance, growth rates, interest rates and inflation rates respectively, and a_1- a_4 represent the estimated regression coefficients of independent variables.

This analysis was used by other researchers including:

Khan et al. (2021) in their study on optimization of Cr (VI) adsorption onto carbonaceous material. This study looked at the effect of poisonous metals specifically Hexavalent Chromium abbreviated as Cr (VI) which is highly toxic when discharged from the manufacturing processes of carbonaceous products such as paint, batteries and others. The variables involved in checking the rate of adsorption from the wood fire work place. Variables included time of treatment, initial ion concentration, pH, and temperature. The model revealed that high adsorption was caused by acid conditions, prolonged contact time, high temperature and high concentration of Cr (VI). This was denoted by the significance of both R squared and Adjusted R squared which were >0.97. It was recommended that the optimum Cr (VI) was necessary when parameters were maintained at certain levels.

Cunha, Singh and Xie (2022) in their study "The determinants of outward foreign direct investment from Latin America and the Caribbean". This study looked at how a country's domestic factors can influence foreign direct investment. The researchers used the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) in weighting the conditions. It was found that there was a positive relationship between macroeconomic performance,

formal institutions, infrastructure, technology and the intensity of foreign direct investment. It was concluded that the relationship between macroeconomic performance and foreign direct investment were highly dependent on the strength of institutions, quality of infrastructure and technology.

The Multiple Linear Regression technique is preferred to the VAR models and the Vector Autoregressive Lag (ARDL) because of its simplicity in explaining data not only in quantitative form but it allows data to be displayed and observed through charts to clarify important points.

RO1: To relate fiscal policy implementation to Public Debt Sustainability in Zambia.
This objective required indicating the relationship between fiscal policy implementation and public debt sustainability. In this case an 'explanatory research purpose' is relevant to get a good understanding. However, since empirical data was available to establish this needed relationship, this made an evaluation possible and thus the need for a combined research purpose more dominant.
To address this objective, quantitative data was used to find whether a relationship existed between fiscal policy and debt servicing. This was clearly done by plotting the revenue and expenditure curves against debt servicing. The essence was to establish whether a relation existed and line graphs were a simple method of showing whether a relationship exists (Ogbeifun & Shobande, 2020).

RO2: To assess the adequacy of fiscal policy implementation on public debt sustainability in Zambia.
This part of the study was 'explanatory research purpose' because it required testing and explaining the relationship between variables. It was also related to an ‘evaluative research purpose' in that collected data was being used for analysis in order to discover the true relationship between fiscal policy and debt. In this case it was more of the 'combined research purpose' than any single purpose.
As this was a mixed research, it involved synthesis of quantitative and qualitative data (Petticrew & Roberts, 2006). This objective was more on quantitative data than qualitative data and analysis was aided by excel and SPSS software. The objective required an assessment of fiscal policy and debt sustainability and this was done through the Fiscal Reaction Function (FRF) which expresses the relationship between the two.

The Model: Using annual data, government specify the primary balance to GDP ratio that can be used as a reaction to previous period's lagged debt to GDP ratio. Fiscal Reaction Function (FRF) that describes the relationship between the Primary surplus and the debt to income ratio was coined by Bohn in (1995; 1988; 2007).

Empirical studies which have used the FRF include:

Staszewska-Bystrova and Bystrov (2022) in their study of the Evolution of Fiscal Policy and Public Debt dynamics for Sweden, used a time varying fiscal reaction function to estimate the required fiscal response to the debt-to-income ratio over the period 1850 to 2014. They found that sustainable fiscal policy was an outcome of a long-run learning process as fiscal authorities strive to adapt to the economic and political environment. It was recommended that fiscal sustainability should be judged on the ability of the authorities to stabilize debt rather than transient debt dynamics.

Afonso and Coelho (2022) studied "fiscal sustainability, fiscal reaction pitfalls and determinants "used the estimated fiscal reaction function to find examine sustainability of finances and it's determinants in the Eurozone. They found that fiscal sustainability increased with growth, fiscal balance and fiscal rules had decreased with trade openness, current account balances and government effectiveness index.

Aldama and Creek (2021) studied the Real-time fiscal policy responses in the OECD from 1997 to 2018: pro-cyclical but sustainable? They used the fiscal reaction function to estimate various specializations of fiscal rules in which ex ante fiscal policy had two objectives, namely, macroeconomic stabilization and fiscal consolidation. They found the relationship between fiscal policy and the business cycle, fiscal policy pro-cyclical in downturns and a-cyclical in upturns, and no significant evidence of a pro-cyclical fiscal consolidation in the OECD.

The choice of this model was based on the reason that Zambia needs a long-term solution to fiscal and debt sustainability problem. Given that the country has idle assets and operates far below full capacity shows that there is potential to increase productivity in the economy and a strong, timely and effective fiscal policy is required to improve the primary balance (Staszewska-Bystrova & Bystrov, 2022).

RO3: To identify factors affecting effective implementation of fiscal policy in Zambia.

For this objective, the descriptive research purpose was the right choice because the objective required specific factors which exist and affect fiscal policy implementation. These known factors were classified into two groups namely local (such as low tax base, natural disasters, import dependence, and so on) and foreign such (as foreign interest rates, COVID-19, Russia-Ukraine war and imported inflation). These required to be specified and described. This is consistent with Ncube and Rajhi (2014) suggestion that the role of fiscal sustainability analysis is to form a view about drivers of debt to GDP ratio. In order to meet this objective, the researcher considered evidence from various sources which included documents such as Journals, Newspapers, questionnaire responses and also online sources. Others included Radio and television news. This approach was made necessary by the pragmatism philosophy which is so flexible that it permits use of all data sources including previous findings of other researchers (Ham-Baloyi & Jordan, 2016), as such, it casts the net wider (Mallet, Hagen-Zanker, Slater & Duvendack, 2012).

RO4: To suggest how fiscal policy can be implemented to ensure public debt sustainability in Zambia.

Here, this objective required new ways of using fiscal policy in order to make public debt sustainable. This required 'exploring' a phenomenon in the new light. Ford & Roberts (2017) in their study of debt sustainability in Belize used debt dynamic equation to assess the outcome of government's plan, and then determine the fiscal policy effort needed to reduce the debt ratio to the reasonable level by the year 2028

This objective could only be in motion after establishing the effort needed to improve the fiscal balance. Using variables in a modified Fiscal Reaction Function (FRF), (Frankel, 2019: Appendix 5), the needed growth to make debt to become barely sustainable was established. It was achieved by calculating the debt sustainability index (S2). This is simply the needed increase in primary balance to make public debt barely sustainable. In other words, it represents required growth GDP Y needed to increase the primary balance. It is expressed as,

$$S2=PB^{*}- PB/Y \quad (8)$$

S2 relates to the proportion of GDP that must be added to the primary balance for debt not to grow more quickly than GDP.

The next step is to find the required interest rate that government can target on making a borrowing decision given that the required GDP is known. Using the debt sustainability

equation (Ogbeifun & Shobande, 2020; Burger, Stuart, Jooste & Cueva, 2012) and making 'i' the subject of formula, equation nine can be produced.

$PB^*=(i-g)B.$

$i = (PB - gB)/B.$ (9)

Finally, the model equation can be produced which pits interest rates against GDP to inform the borrowing decision. This can be expressed as equation ten.

$PB^*= (Xi - Yg) B.$ (10)

Where X and Y represent values of interest rate and the growth rate respectively.

The fiscal adjustment needs to keep a specific debt target which can be sustained by the fiscal balance to GDP ratio (Weshah, 2020). The predictions in this case were made through the FRF and also dependent on the expected economic recovery scenario. Carton and Fouejieu (2020) suggested the strength of fiscal policy to consider the extent of the economic recovery scenario and this falls in three categories, namely optimistic, weaker and pessimistic recovery.

3.5 Sampling Plan

Sampling in this study can be divided into two types:

3.5.1 Sampling Plan Quantitative

Probability sampling: assumes that the characteristics of the population are known and the researcher works towards drawing conclusions. It is more suited to quantitative research design. In this case data was assumed to be normally distributed. This was specifically used in collecting quantitative data for this study for the reason that data was readily available. Published data available and obtainable from institutions is called series (Hilton, 2021; Saungweme & Odhiambo, 2020) or panel data (Yurdakul, Kamasak, & Ozturk, 2022; Pamies & Reut, 2020). The researcher in this study needed to carry out an assessment of fiscal policy on debt sustainability for the period of interest (2002 to 2021) in order to draw inferences.

Researchers who have used this method include Ford and Roberts (2017) who obtained data from the Bank of Belize, Ellison and Scott (2020) in their study of the UK's national debt for the period 1694-2018, and Pamies and Reut (2020) in "Assessing public debt sustainability: some insights from an EU perspective into an inexorable question" used data obtained from the European Central Bank ECB, Saungweme and Odhiambo (2020) in their study of "the impact of public debt service on economic growth in Zambia" who used the series method to collect data covering the period 1970 to 2017.

3.5.2 Sampling Plan Qualitative

Non-probability sampling: this makes no assumptions about the population as the characteristics of the population are unknown. It is more relevant to the qualitative research design. This approach was appropriate for qualitative data collected for this study. The researcher had two sources of data, being secondary and primary sources. For secondary qualitative data, published materials for the period 2015 to 2023 were considered to be relevant to the study.

Mbandlwa (2020) in the study of the "Impact of public economics to public debt: A case of Southern African Development Countries (SADC)" used secondary data from existing literature and relevant research findings. For primary data, it was necessary to collect data from many respondents but in order to collect quality data, the researcher found it important to distribute the questionnaire to the five main institutions (MFNP, BOZ, ZIPAR, PMRC & JCTR) which have experts in fiscal and debt, and collect additional data from at least ten individual financial and economic experts.

Saunders et al., (2009) stated that Semi-structured questionnaire was suitable for qualitative data collection particularly in an explanatory research. Although qualitative data does suffers from the possibility of generalizing characteristics of the whole population (Cohen et al., 2007), it is still possible to generalize findings to theory (Yin, 2010: 99-100). This generalization of findings to theory was important in this study.

3.6 Sample size

3.6.1 Sample size Qualitative

The MFNP was the main institution that implements fiscal policy and handles public debt matters for the country. Other few institutions which can provide data include the Bank of Zambia (BOZ) for interest rates regulation, the Zambia Revenue Authority (ZRA) for tax revenue, the National statistics office for statistical data reports, and the JCTR, ZIPAR and PMRC for policy Analysis. These seven institutions were the main targets for data collection. The researcher extended the search for more data from ten financial and economic experts.

Adcork (2020) guides that the sample size need not be less than 20 percent of the total population. This assisted the researcher to pick five out of the seven institutions and it makes up over seventy percent of the total institutions (Table 1). For private individual respondents,

the researcher decided to take ten responses as very few experts were willing to accord time to interviews or provide responses to the questionnaire. In addition, it was necessary to reduce the number of individual experts to lessen getting personal opinions other than expert responses because the debt problem is a sensitive issue prone to politically divergent views. Further, fiscal experts in the country are few.

Table 1. Respondents to the questionnaire

Respondents	Expertise	Location
MFNP	Fiscal and debt	Lusaka
BOZ	Monetary policy	Lusaka
PMRC	Policy Analysis	Lusaka
JCTR	Policy Analysis	Lusaka
ZIPAR	Policy Analysis	Lusaka
Others (10)	Finance & economics	Lusaka

3.6.2 Sample size Quantitative

Debt data for Zambia was collected from the MFNP and BOZ as the main sources. This study being a cross-section means that data was collected at a point in time for study purpose. The period under review (2002-2021) depicts Zambia's interesting period because of turbulents in debt levels from 2002 high debts, lower debt after HIPC and MDRI debt relief of 2005, moderate debt levels of 2011 and high debt level and default in 2020. This attracted the researcher's interest.

Data collected from longitudinal published data set in this way is known as series or panel data. This method was used by researchers such as Ellison and Scott (2020) in their study of the UK's national debt for the period 1694-2018, and Pamies and Reut (2020) used data from the European Central Bank (ECB) in "Assessing public debt sustainability: some insights from an EU perspective into an inexorable question", among others.

3.7 Justification of sample size

(i) Qualitative data

For Qualitative data the population was unlimited but considering the nature of the study and the experts availability, it was necessary to restrict the number to seven formal institutions. Given that the minimum sample size was 20 percent or more, the five institutions considered in this research were adequate to provide needed information.

(ii) Quantitative data

Zambia's debt servicing problem started in the middle of 1970s, specifically 1976 (Siyanga, 2018). Debt troubles from 1976 to 2021 indicates a period of 45 years. Using formula to calculate sample size given that this study was dealing with smaller sample of less than 50, the appropriate approach was to use the Taro Yamane table of data sets which indicated that at a level of significance of 0.15, the sample size should be about 30 percent of the population (Olonite, 2022). Therefore, the sample of over 40 percent was adequate.

The twenty year period between 2002 and 2021 reflects a good pattern of Zambia's debt levels. This period indicates high debt levels in the early 2000s of about 235 (Saungweme & Odhiambo, 2018) debt to GDP ratio, lowest levels after debt relief of 2005 (Brautigam, 2021), moderate ratios around 2008-2011, rising debt from 2012-2015 (Kalikeka et al, 2019), to deteriorating fiscal positions after 2016 and eventual default in 2020. This period indicates turbulents of good and hard economic times and thus merits attention.

3.8 Research Design

This study used quantitative and qualitative data and required a synthesis of the two types to make an analysis. This is consistent with the suggested way of presenting, discussing and interpreting of data together (Creswell, 2013). A combined report of quantitative and qualitative data helps to collaborate the findings (Gregor & Baskerville, 2012). The first phase involved collecting quantitative and qualitative data from secondary sources. The second phase was collecting qualitative data through a semi-structured questionnaire. A questionnaire was needed to triangulate secondary sources of data.

Findings from both sources (Primary and secondary sources) were used to address research objectives. This process required analysis of data to help in answering research questions. Data analysis was done by thematic analysis. Thematic analysis is a method of reading through data sets in order to get the meaning of data according to the pattern of themes (questionpro.com). Thematic analysis was used to analyze qualitative data while descriptive and inferential

statistics were used to analyze quantitative data.

Inferential statistics involved use of the Multiple Linear Regression technique. Qualitative and quantitative data were then merged to meet objectives (Mutinta, 2020). Qualitative and quantitative data in this way complemented each other by explaining, validating and enforcing research findings. This also aided analyzing, presenting and interpreting data together (Creswell, 2013).

3.9 Triangulation

Triangulation refers to the ability to collect adequate data from available sources (Silverman, 2010). The study involved collection of quantitative and qualitative data and as such used a mixed method research. Specific methods of data collection were archival data collection and semi-structured questionnaire. In this case, archival data collection (of both quantitative and qualitative data) which is a secondary source was supplemented by semi-structured interviews to clarify, validate and even bring out more data that would not be possibility collected through archival method.

(i) Qualitative

Qualitative data obtained from secondary sources was triangulated with data collected through the questionnaire. The use of supplementary data is allowed in research (Mutinta, 2020). The questionnaire in this case was used to complement archival data (Merten, 2010) and provided a useful way of triangulating data (Proudfoot, 2022; Tashakkori & Teddlie, 1998).

(ii) Quantitative

The main sources of quantitative data were MFNP and the BOZ. Triangulation was achieved by accessing more data from IMF website, Bloomberg, World Bank, and AfDB, among other sources.

3.10 Quality control

The MFNP is the main institution for fiscal planning and implementation. The researcher considered this source to be more secure and reliable as other sources do not exist. This is consistent with epistemology which helps the researcher to build faith in data in order to discover something new.

Secondary data from this source was backed by new developments updated through news and journal articles necessary to support the research. Further, a questionnaire of semi-structured questions was used to get more qualitative data from MFNP, ZIPAR, PMRC, JCTR, BOZ and

other specialists (Saunders et al., 2009: 318-321). This approach was needed to ensure relevance and quality of the research project.

3.11 Ethical consideration

Public Debt is an issue which is very sensitive and of interest in the public domain. For this reason, ethical standards become even more important to the researcher. This is particularly necessary as individual's values and principles and political affiliations may creep in and distort the quality of data collected particularly where qualitative data is needed (Jaranit & Pornpimon, 2019).

The researcher collected the major portion of data from secondary sources. In order to maintain data integrity, official websites of relevant institutions such as the Ministry of Finance and National planning (MFNP) were accessed. This data was obtained for the sole purpose of the study and no other reasons to benefit the researcher or help any party to make a business decision.

Supplementary data was collected through semi-structured questionnaire. This data being qualitative, the researcher ensured that it was collected from professional institutions and individuals in the area of "fiscal policy and debt" to avoid getting people's opinions. The researcher collected data in good faith and no respondent was coerced to provide data or in any way influenced to do so.

Other than official institutions such as MFNP, BOZ, PMRC and ZIPAR, each private respondent was allowed to hide his or her identity but only disclose the qualification, specialization and experience. In addition, the researcher tried to get consent from respondents particularly to data recorded on audio gadgets to store or discard it after transcription. The respondents were also informed about their rights to decide not to participate in this research. In analyzing data the researcher took necessary effort to avoid using personal opinion in interpreting data as this could jeopardize the value of genuinely obtained data.

3.12 Reliability, Validity and Generalization of research results

(i) Reliability: Data was obtained from reliable sources such as the ministry of finance (MOF) the Bank of Zambia (BOZ), the Policy Monitoring and Research Centre (PMRC), JCTR, the IMF and World Bank, published journals, news channels and interviews from renowned economists and financial experts. Most of these institutions are in good standing in society and are sources for reliable data.

(ii) Validity and Generalization: Validity requires procedures to measure concepts correctly (Denzin & Lincoln, 2011). In this study, validity was facilitated by data quality and questionnaire feedback from fiscal experts in reputable organizations particularly the Ministry of finance. The research process too should be valid to ensure that findings are true reflection of the available data. The researcher in this case took reasonable steps to ensure that data validly obtained was not distorted by the process. This was more important that published data and responses from the questionnaire were not altered in any way.

3.13 Chapter Summary

The research onion structure coined by Saunders et al, (2016) was used to explain elements of the research methodology because of its simple structure. The pragmatism philosophical view was adopted due to its flexibility and permits the use of all available data including previous findings of other researchers and other sources (Ham-Baloyi & Jordan, 2016) as it casts the net wider (Mallet, Hagen- Zanker, Slater & Duvendack, 2012). The researcher preferred the abduction approach due to its ability to maximize the advantages offered by both the Inductive and deductive approaches. The study was archival because of relying on more published data. The Mixed method was chosen to integrate the qualitative and quantitative data in order to avoid the limitation of relying on one method (Tashakkori & Teddlie, 1998). The main data sources included the Ministry of Finance and National Planning (MFNP), and the Bank of Zambia (BOZ). Supplementary data was collected from semi-structured interviews. Supplementary data was necessary to include details that may have been omitted by the main published sources. Researchers who have used supplementary data include Mbaye, Badia and Chae (2018) and Cowen et al. (2006). The Fiscal Reaction Function (FRF) coined by Bohn in (1995; 1988; 2007) was used for analyzing data. The FRF model describes the relationship between the Primary surplus and the debt to income ratio.

CHAPTER FOUR: FINDINGS

4.1 Introduction

This chapter relates to actual data collected and how it was analyzed. Findings are related to the main research objective of finding a better way of implementing fiscal policy to ensure public debt sustainability in Zambia. The lay out of findings follows the approach of Ncube and Rajhi (2014) who suggested three stages of sustainability analysis which include: calculating the debt stabilization primary balance, establishing historical drivers of debt and then taking a forward looking approach.

This study considers a four stage approach according to research objectives (RO). This involves relating fiscal policy implementation to public debt sustainability, assessing the adequacy of fiscal policy implementation to ensure debt sustainability, establishing factors affecting implementation of fiscal policy, and suggesting effective ways of implementing fiscal policy.

The chapter comprises four sections namely, the demographic section that explains the sample size, the research objectives detailing how the study answered research questions and the chapter summary.

4.2 Demographic Data

The research was a secondary study covering the twenty-year period from the year 2002 to the year 2021. This collected data was supplemented by interviews of specialists in the field of economics and finance particularly those specialized in fiscal policy. There were a total of 12 responses obtained out of the expected 15 responses. Among the twelve responses were 5 phone interviews, 4 written responses and 3 face to face interviews (see Appendix 2).

4.3 RO1

To relate fiscal policy implementation to public debt Sustainability in Zambia.

The relationship exists between fiscal policy implementation and debt sustainability in four ways, namely during expansionary fiscal policy, during contractionary fiscal policy, during natural disasters, and during debt defaults:

4.3.1 Expansionary fiscal policy

When the Zambian government desires to meet some project expenditure which cannot be met through the budget. The government turns to borrowing in order to finance this deficit.

However, where deficits accumulate, they increase the debt burden Appendix 2:1, 3). Zambia in the last decade used debt finance as a source of funding infrastructure development. Due to deterioration in tax revenue the country has seen its debt burden increase.

Debt finance in this case has two effects on the economy which include "Creation of assets and creation of a liability". Assets include social or commercial infrastructures and have the potential to open up economic areas, boost economic activities, create jobs and contribute to economic growth. The impact of debt finance cannot be overlooked because of immense contribution to the revenue and improvement of citizen's lives (Appendix 2:3, 10). A liability is created because debt finance becomes an obligation which has to be serviced and settled at some time in future (Appendix 2:3).

4.3.2 Contractionary fiscal policy

This is mainly used when Zambia's financial profile indicates declining revenue against rising expenditure and debt servicing cost. Reducing public spending or increasing taxes, it can lead to fiscal consolidation and reduce the government's borrowing requirements (Appendix 2:3)

4.3.3 Natural disasters

The impact of natural disasters in Zambia cannot be forgotten. These include:

(i) Droughts

The DMMU helps hunger-stricken areas of the country and in most cases government diverts resources from other function to channel it to these vulnerable communities (Appendix 2.1). Another adverse impact of drought is electricity shortage. The country experienced severe power shortages during the 2014/2015 and the 2015/2016 seasons (Smith et al, 2016). Due to this situation, the government had to import power from neighboring countries such as Mozambique in order to mitigate the impact of power load-shedding. This created a liability which had to be settled at some point.

(ii) Floods

Zambia experienced floods in central, western, Eastern, Southern and parts of Luapula provinces in the last rain season (Davies, 2023; Africa News, 2023, January 30). These areas of the country saw their homes, animals and crops damaged. This indicates a loss of output that would otherwise contribute to the country's growth. Looking at the current revenue constraint, it is likely that government will borrow to help these families if external aid will not be

adequately extended by well-wishers. This will create an obligation that will be require settlement using tax revenue.

(iii) Pests

Pests include army worms, locusts and grain borers. These threaten the country's food security. For example, Zambia in recent years experienced the infestation of maize fields by army worms in almost all the ten provinces. The good part was there is availability of prevention chemicals. In the years back, Army worms had forced many farmers to re-plant their maize fields in the 2016/2017 season (National Assembly of Zambia, 2017). Some disease outbreaks also affect animals. It is common to experience swine flu and corridor diseases. All these have two effects on the Zambian economy. Firstly, they reduce output and exports thereby reducing the country's revenue. Secondly, since Zambia lacks capacity to finance most disasters, the country seeks foreign intervention which mostly comes as debt rather than aid.

(iv) Pandemics

Zambia became the first country on the continent to default during the pandemic era (Economist, 2022).

4.3.4 Debt crisis

A debt crisis emanates from a fiscal crisis. This is when the Zambian government faces a decline in revenue collection against meeting required expenditure including debt servicing. This situation was encountered in 2020 when Zambia failed to pay interest on the Eurobond amount of USD$42.5 million (VOA, 2022).

To ensure debt sustainability, the government needs to balance revenue and expenditure and this can better be achieved through expenditure cuts and fiscal consolidation. These measures coupled with good debt management practices can ensure that debt is sustainable (Appendix 2: 1). Further, the government needs to ensure that its fiscal policy decisions are consistent with its long-term fiscal sustainability objectives and that it implements measures to enhance revenue mobilization, improve public financial management, and manage debt sustainably (Appendix 2:3).

Literature indicates that expenditure cuts are more effective than tax cuts where the country soughts to escape a debt crisis (de Rugy & Kling, 2022). This is because expenditure cuts creates savings which is essential in stimulating economic growth (Saungweme & Odhiambo,

2020) and do not involve imposing taxes on citizens who may adopt a new pattern of expenditure due to reduced income by spending less. This is known as a "paradox of thrift (m. econimoictimes.com). For example, the suspension of major infrastructure development in the Zambian economy has reduced economic activities, jobs, people's income and aggregate demand.

However, Talvis and Vegh cited in Carneiro, Nguyen and Odawara (2016) in their study in 2005 found that reducing spending on infrastructure, healthcare and education even in the short-term can have long-term adverse impact on productivity, human capital development and likely to increase an economic downturn. This is why the projected economic growth averaging 4 percent of GDP is being missed. Badia et al (2020) indicated that austerity measures in the post-crisis period may end up worsening it rather than sorting out the crisis.

In case the country chose tax cuts in order to boost demand in the economy. In this case deficits rise due to government's forgone revenue (Ikue et al, 2021). Blanchard (2017) indicated that since tax cuts increase government liability, citizens view them as postponed taxes and their disposable incomes increase (Ricardo, 1951). In Zambia, this measure is rarely used as citizen's income rise due to deteriorated value of the currency and in extreme cases subsidies are used to cushion on the high cost of living.

Graphical representation of the relationship between fiscal policy and debt sustainability

In order to explain this relationship, Zambia's data was collected to explain this relationship of fiscal policy implementation and debt. Data was tested in terms of revenue and expenditure levels for each year and compared to annual debt servicing using past data of a 20 year period from 2002 to 2021.

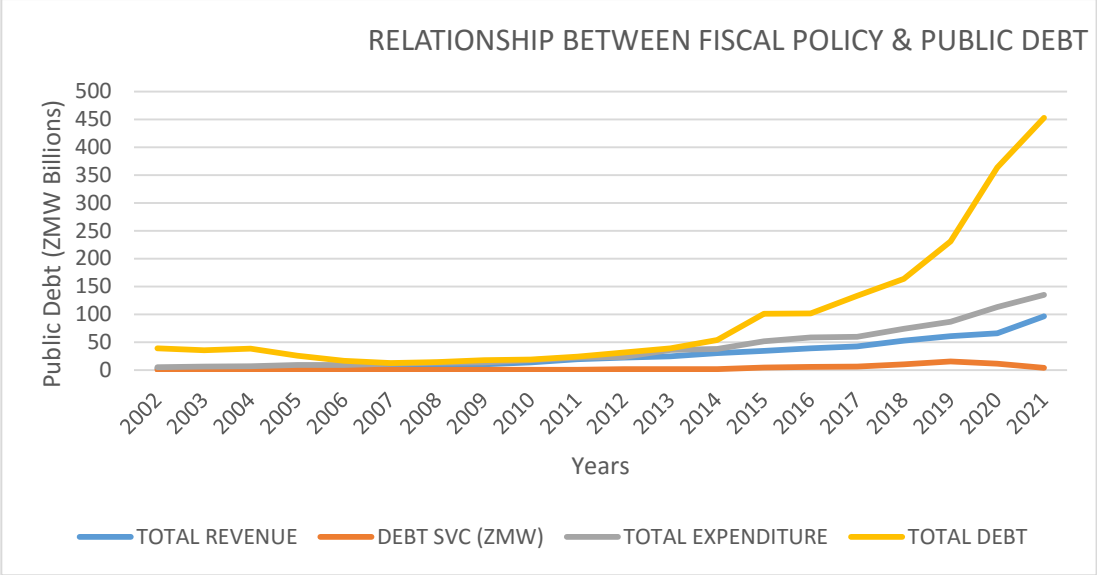


Figure 3. Total Revenue, debt servicing, total expenditure total debt

Figures 3 shows that there was a relationship between revenue and debt servicing and between expenditure and debt servicing from 2002 to 2005 but the relationships changed in the post HIPC period as borrowing started increasing and debt servicing remaining at the same level until 2010. After the year 2010, debt servicing started deteriorating but remained steadily up to 2018 while revenue and expenditure were rising from 2015 to 2021. This was against rapid rise in debt stock as a result of further acquisitions of Eurobonds in 2014 and 2015. The year 2019 indicates a breakaway of the relationship, high decline in debt servicing and rising revenue and expenditure. Overall, most government expenditure during the period under review had been financed by borrowing. This reason is supported by deficits indicating a negative fiscal balance (Appendix 3).

4.4 RO2

To assess the adequacy of fiscal policy implementation on public debt sustainability in Zambia.

To meet this research objective, the approach taken involved looking at the trend and reviewing past data to find out whether it provided the basis for debt sustainability. See figure 4 showing the relationship between debt ratio and fiscal balance ratio.

Assessment of the adequacy of fiscal policy implementation and debt sustainability was carried out through four stages which included:

4.4.1 Firstly, we look at the trend

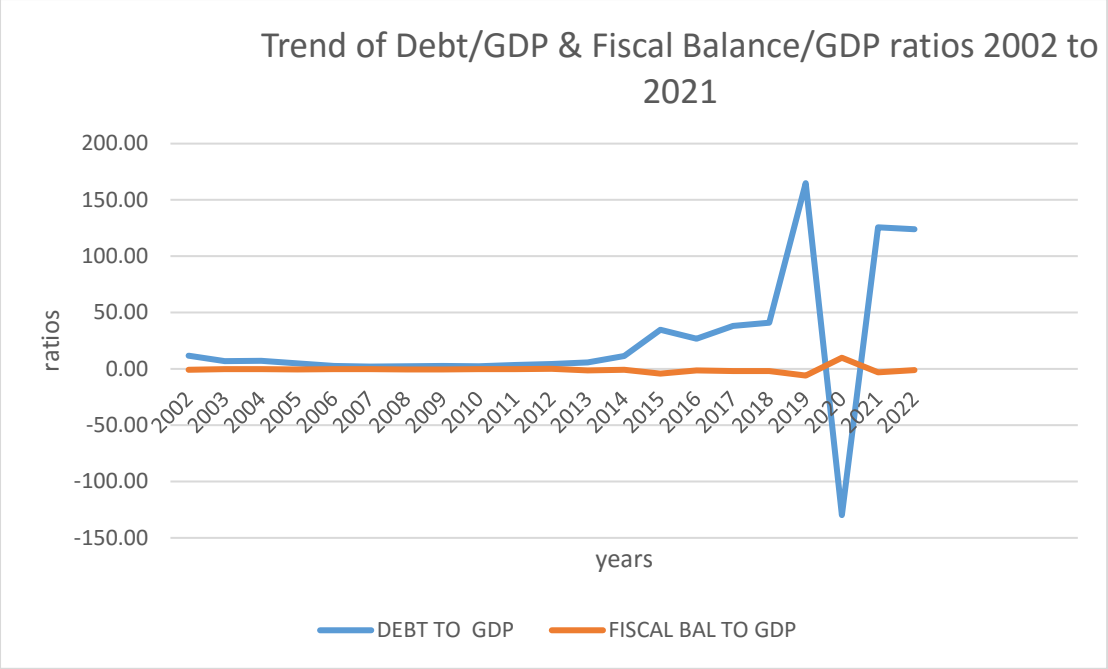


Figure 4. Debt ratio and fiscal balance ratio trends (Ministry of Finance data; Bank of Zambia data; Author's work)

4.4.2 Secondly, carrying out the Reliability test

Before carrying out computations, variables were checked for reliability by using the Cronbach Alpha check. This test is needed to verify whether independent variables move in the same direction. In this case, there was a classification into Fiscal (Revenue and Expenditure) and Macroeconomic (Growth, Interest rates and Inflation rates) categories of variables to check their reliability.

Table 2. Reliability test on revenue and expenditure (fiscal variable).

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.956	.995	2

Here (Table 2), fiscal variables have exceeded an Alpha of 0.725 and thus data has passed the reliability test. It therefore means that there is a high relationship between high revenue and high expenditure.

Table 3. Reliability test on Macroeconomic variables.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items[a]	N of Items
.410	-.189	3

a. the value is negative due to negative average. This violates the model assumption.

The Alpha value here (Table 3) is negative denoting that macroeconomic variables do not move in the same direction. This means that Zambia does not use monetary policies relating to interest rates and inflation rates to support growth.

4.4.3 Third, the effect of independent variables on the dependent variable

This was checked through the Multiple Linear Regression Analysis:

Model Summary

Table 4. Regression Model summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.807[a]	.651	.557	81.43064	.651	6.980	4	15	.002	1.513

a. Predictors: (Constant), FISCALBAL, INFLATIO, REALINTR, REALGDP

b. Dependent Variable: TOTALDEBT

Multiple coefficient R: this has been used to measure the relationship (correlation) between the dependent variable and the independent variables. R 0.80 indicates a strong relationship between the dependent variable and independent variables. This denotes that fiscal balance and macroeconomic variables have not been able to help in reducing debt but instead have

been responsible for rising debt levels.

Coefficient of determination R Square: indicates how much of the variance of the dependent variable can be explained by the independent variables. R Square relates to variation of debt value due to the reason that the model cannot predict the value with certainty without any variation or else the value of R will be 1. Variations are caused by predictor variables and in this result of 0.651 (Table 4) it indicates that 65 percent of variation in debt have been caused by the predictor variables.

Adjusted R Square: R Square overestimates the coefficient of determination just when many independent variables are used. To reduce this error an adjusted R Square is used. Adjusted R Square 0.557 has reduced R Square by eliminating over-estimation. This then indicates the actual value of the variance of 56 percent caused by predictor variables fiscal balance, interest rates, inflation rates and GDP.

The Standard error of estimate model indicates by how much the model overestimates the dependent variable on average. The errors of 81.4 relates to the dependent variable.

Statistical validation

Table 5. ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	185143.421	4	46285.855	6.980	.002[b]
	Residual	99464.237	15	6630.949		
	Total	284607.658	19			

a. Dependent Variable: TOTALDEBT

b. Predictors: (Constant), FISCALBAL, INFLATIO, REALINTR, REALGDP

The **A**NOVA (Table 5) is used to test whether the variance of the dependent variable is zero (that is R Square=0). Nevertheless, the major interest here is to find out whether the variance is significant or not significant. Where the variance is not significant, it is not worth carrying out further tests. The table indicates F value of 2.98 (6.98 - 4) and significance value of $p <$ 0.002. The significance result indicates that variation of the dependent variable exists and further tests can be conducted to ascertain the extent of variation and to identify variables

causing this variation.

Regression Coefficients

Table 6. Regression coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-98.619	202.482		-.487	.633	-530.200	332.961		
	REALGDP	2.811	21.149	.055	.133	.896	-42.267	47.888	.136	7.341
	REALINTR	6.158	5.556	.350	1.108	.285	-5.683	17.999	.234	4.280
	INFLATIO	-2.388	4.736	-.121	-.504	.622	-12.483	7.708	.406	2.464
	FISCALBAL	-14.599	6.727	-.761	-2.170	.046	-28.937	-.262	.189	5.278

a. Dependent Variable: TOTALDEBT

Standardized Beta: This indicates influence of predictor variables on the outcome variable. It is used to identify predictor variables which have more influence on the outcome variable. For example, real interest rates (Table 6) have the greatest value of a standardized coefficient beta of 0.350 indicating higher influence on debt. This result means that any increase in interest rates increases debt by 350 million Kwacha. Fiscal balance, however, indicates a large negative beta (-0.761) denoting that any increase in one unit of fiscal balance can reduce debt by 761 million Kwacha.

4.4.4 Fourth, diagnosis of results

Model Assumptions.

•there must be a linear relationship between the dependent variable and independent variables.

•the error must be normally distributed.

•no multicollinearity or no instability of the regression coefficients.

•variance of residuals must be constant across the predicted values. Must be homoscedasticity and not heteroscedasticity

•linear regression requires that a straight line be placed through data and this line should be a line of best fit, representing all data points. Where this is not the case the straight line fails to meet this requirement and, therefore a nonlinear relationship exists.

Diagnosis (testing of the assumptions)

The above obtained results can only be relied upon when the assumptions hold. The danger of analyzing results without a checklist of assumptions is that results obtained may be misleading, unreliable and wrong conclusions may be made. It is, therefore, important to check these results against the regression assumptions.

(i) Linearity: Linearity assumes the correct form of the function. It assumes existence of a linear relationship between variables. Confirmation can be obtained through a scatter graph with points closer to the straight line, See table 7 and figure 5 below.

Table 7. Linearity assumptions

Correlations						
		TOTALDEBT	REALGDP	REALINTR	INFLATIO	FISCALBAL
TOTALDEBT	Pearson Correlation	1	-.735**	.396	.266	-.768**
	Sig. (2-tailed)		.000	.084	.257	.000
	N	20	20	20	20	20
REALGDP	Pearson Correlation	-.735**	1	-.556*	-.351	.838**
	Sig. (2-tailed)	.000		.011	.129	.000
	N	20	20	20	20	20
REALINTR	Pearson Correlation	.396	-.556*	1	.739**	-.218
	Sig. (2-tailed)	.084	.011		.000	.356
	N	20	20	20	20	20
INFLATIO	Pearson Correlation	.266	-.351	.739**	1	-.193
	Sig. (2-tailed)	.257	.129	.000		.414
	N	20	20	20	20	20

FISCALBAL	Pearson Correlation	-.768**	.838**	-.218	-.193	1
	Sig. (2-tailed)	.000	.000	.356	.414	
	N	20	20	20	20	20
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

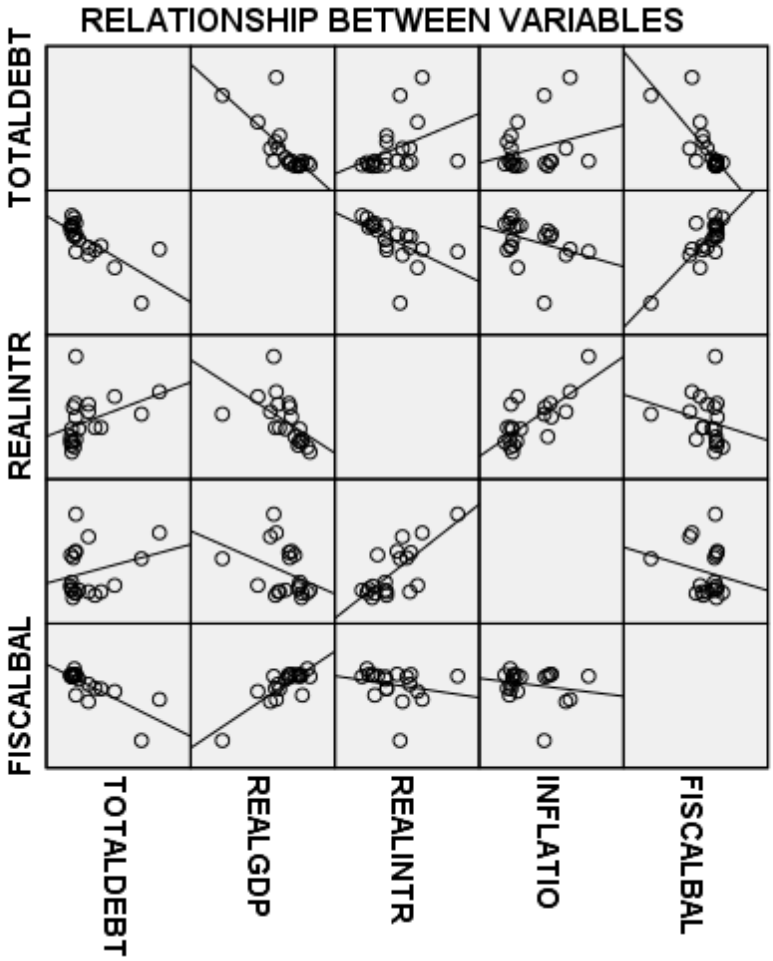


Figure 5. Scatter graph (Ministry of Finance data; Bank of Zambia data; Author's work)

(ii) Standard Error is normally distributed: Residual values are used in estimating error terms. This is depicted in the histogram below (figure 6).

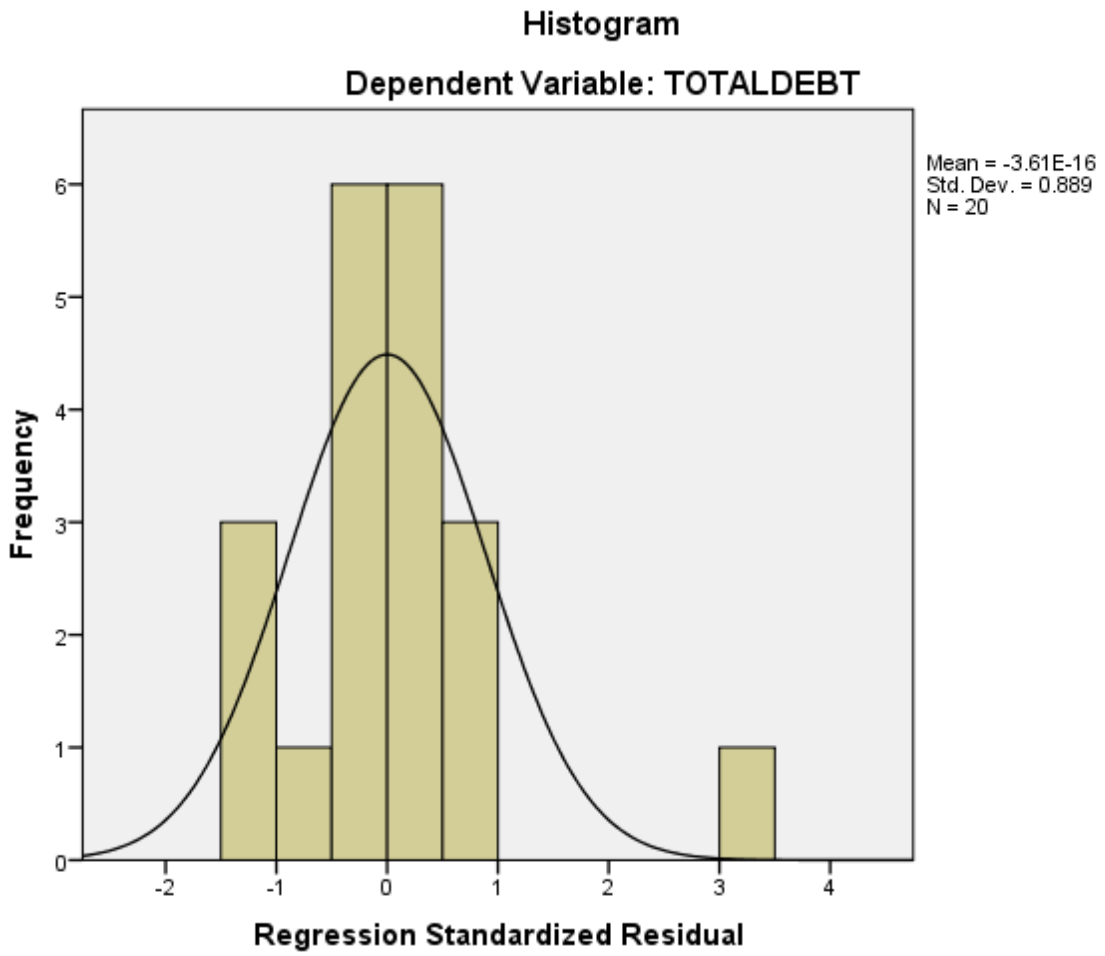


Figure 6. Normal Distribution (Ministry of Finance data; BOZ data; Author's work)

(iii) Multi Collinearity test

Multicollinearity relates to a situation where two or more predictor variables are strongly correlated such that it becomes difficult to establish the effect of an individual predictor variable on the outcome variables. This makes measurement and explanation difficult, a situation termed as unstable or over-determination of predictor variables. It is simply a situation where predictor variables are not truly independent from each other.

Using tolerance and VIF.

Tolerance is calculated as T=1- R Square. R Square being a coefficient of determination, as indicated above. This indicates how the variance of one variable can be explained by other variables. The higher the variance the greater the multicollinearity. The Tolerance level should not be less than 0.1, (T not <0.1).

The Variance Inflation Factor (VIF) is calculated as, VIF=1/1-R Square, R Square being a coefficient of determination. VIF should not be greater than 10 (VIF not >10).

Table 8. Multicollinearity test

VARIABLE	Tolerance	VIF
Real GDP	0.136	7.341
Real Interest rates	0.234	4.28.
Inflation rates	0.406	2.464
Fiscal Balance	0.189	5.278

Table 8 indicates that:

GDP in this case has no strong correlation with other predictor variables.

Interest rates have no strong correlation with other predictor variables,

Inflation rates are not strongly correlated with other predictor variables,

Fiscal balance is not strongly correlated with other predictor variables.

(iv) Homoscedasticity diagnosis

This involves testing whether residuals (errors) affecting the outcome (dependent) variable has formed a pattern over time. Errors are created by differences between forecasted amounts and actual amounts achieved. Homoscedasticity is depicted by the spread of residuals on the scatter graph. Establishment of a pattern formed can be observed on the x-axis and the y- axis. Homoscedasticity (fair spread) exists where residuals are evenly distributed or where there is no concentration on either the x- axis or the y-axis. However, where a pattern is formed or residuals concentrate on one axis, it indicates non-existence of homoscedasticity and heteroscedasticity exists instead.

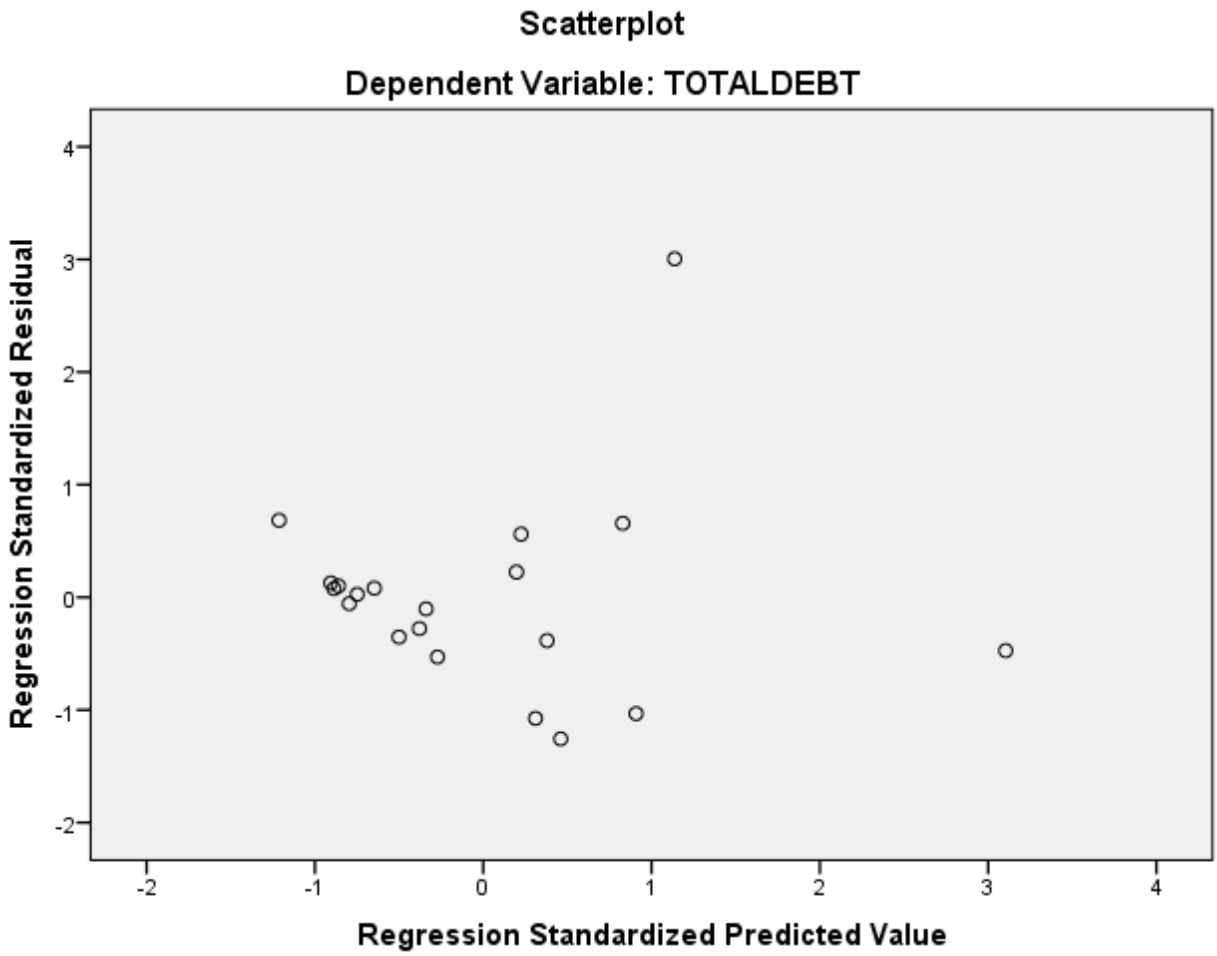


Figure 7. Homoscedasticity Scatter plot (Ministry of Finance data; Bank of Zambia data; Author's work)

(v) Autocorrelation and the Durbin Watson test (table 4).

Durbin Watson statistic test is used to detect whether autocorrelation exist within residual values (errors). This test is required on data collected over the time period to check whether residuals (errors) in one period are related to residuals in another period. Residuals are caused by predicted figures differing from actual figures (Cindy Roberts, 2019). It is thus correlation of errors over time. Existence of autocorrelation violates the assumption that residuals are random and independent (Liu, 2020). The presence of autocorrelation indicates that errors exist and distorts the value of results obtained and causes wastage of resources.

(vi) Dominance analysis

This is needed to confirm the predictor variables which have more influence on debt. It is carried out by analyzing results from correlation and regression coefficients. This is shown in Table 9 below.

Table 9. Dominance Analysis (DA) of predictor variables

Predictor variables	Correlation	Significance at 95%	standardized Coefficient beta	Significance at 95%	rank
Real GDP	-0.735	0	0.055	0.896	2
Real interest rates	0.396	0.084	0.35	0.285	3
Inflation rate	0.266	0.257	-0.121	0.622	4
Fiscal balance	-0.768	0	-0.761	0.049	1

The table was constructed by the author by modifying the work of Braun et al (2019) and Stadler (2017) who used tables to analyze correlations and standardized beta coefficients to identify the most dominant predictor variables. A similar approach was recently used by Mizumoto (2023). Instead of using percentage weightings, this study considered 95 % level of significance (or $p < 0.05$) for both correlation and standardized coefficient beta.

4.5 RO3

To establish factors affecting effective implementation of fiscal policy in Zambia.

Several factors can affect ineffective implementation of fiscal policy. Some of these factors include:

(i) Derivation of fiscal balance

Zambia uses a non-Ricardian approach to deriving it's fiscal balance because it does not consider the debt stock nor secure income streams to be used for debt servicing. A non-Ricardian requires that a country generates higher growth to cover needed interest payments on debt (Domar, 1944).

Ford and Roberts (2017) indicated that the debt threshold was linked to GDP. Zambia and other African countries generate lower revenue relative to GDP at 16.6 percent as

compared to European countries at 41.1 percent (Kwesi, Ofori & Simplice, 2021). This situation makes it hard for poor countries to sustain debt and the situation means that any fiscal adjustments in times of crises cannot yield positive results.

(ii) Political will

The political will of the government to implement fiscal policies can impact their effectiveness. If the government lacks the commitment or the necessary resources to implement policies, they may not be fully effective (Appendix 2:3). Fiscal policy decisions can be influenced by political factors such as pressures to meet campaign promises or appease interest groups, which can lead to suboptimal policy outcomes (Appendix 2:1).

Politics are game changers in the success or failure of national goals. Beetsma (2022) stated that the success of any policy will depend on what is reasonably achievable within the fiscal framework and more importantly the political weight attached to the current and future plans. In Zambia, Political barriers involve inertia in the political system caused by non-inclusiveness of the political parties in policy formulation. The current political system is characterized with leaving all policy directions to the government in power. Zambia needs to unite all spheres of citizenry quarters to maximize collection of ideas essential for national development.

(iii) Social barriers

Social barriers relate to the social classes which are commonly denoted as a gap between the rich and the poor. In Zambia is one of the unequal societies where the gap between the rich and the poor is wide. Currently this gap is measured as Gini coefficient stood at 0.735 indicating the proportion of the poor being 70 percent (hdr.undp.org). Barriers also include limiting factors such as difficulties faced in accessing credit, low wages and the belief that only foreign investment can create wealth and jobs for Zambians. These among others act as deterrents to citizens efforts to contribute more. Zambians need to create a culture of self-belief and hard work to avoid dependence on foreign aid as a solution to local economic problems.

(iv) Economic conditions

Economic conditions, such as economic growth, inflation, and unemployment rates, can affect the effectiveness of fiscal policies. In some cases, the policies may need to be adjusted to address changing economic conditions (Appendix 2:3).

(v) Inadequate monitoring and evaluation

Monitoring and evaluation are critical for ensuring that fiscal policy is implemented effectively and achieving its intended outcomes. However, in some cases systems may be inadequate, making it difficult to assess the impact of fiscal policy decisions (Appendix 2:1). This includes the capacity to collect and manage revenue, implement policies, and monitor their impact (Appendix 2:3).

(vi) Public support

The level of public support for fiscal policies can impact their effectiveness. Public participation can provide valuable and meaningful input to the decision making process (govt.nz). If the public does not support the policies, they may not be fully implemented or enforced (Appendix 2:3). Effective implementation of fiscal policy requires public support and participation. However, in many cases, the public may be uninformed or uninterested in fiscal policy issues, which can limit the effectiveness of implementation efforts (Appendix 2:1).

(vii) International factors

Many developing countries, including Zambia, are highly dependent on external factors such as commodity prices or foreign aid, which can limit their ability to implement effective fiscal policies (Appendix 2:1,3,).

(viii) Focus on monetary measures

Use of monetary policy to solve a crisis create temporary solutions. Zambia is currently tightening the monetary policy to control inflation. This method is not ideal for the Zambian economy as the best method to tackle inflation is increasing the supply of goods and services. The problem is that whilst inflation has gone down, the consequence is that this measure has simply reduced money from circulation making it hard for citizens to afford goods and services. This ends up reducing economic activities and thus economic growth (Guenette, Kose & Sugawara, 2022).

(ix) Poor education system

The essence of education is to enhance capacity to invent, discovery and innovate in the local economy. Most prosperous nations have linked their education systems to their industries to maximize chances of finding local solutions.

(x) Lack of Frugality

Frugality refers to how a country takes advantage of deficit spending by being efficient and cost conscious. Argandona (2010) likened frugality to a virtue that determines the value of decisions in a society. This is linked to aspects of behaviour towards spending and saving.

(xi) Implementation challenges

Effective implementation of fiscal policy requires a skilled and experienced workforce, as well as robust financial management systems (Appendix 2:1). However, many countries, including Zambia, face capacity constraints such as corruption (Rafindadi & Abdulazeez, 2019), bureaucratic inefficiencies, and inadequate capacity of implementing agencies (Appendix 2:3).

(xii) Limited data availability

To make informed fiscal policy decisions, policymakers require timely and accurate data on key economic indicators such as revenue and expenditure trends. In some cases, data may be incomplete or not available at all, making it difficult to implement effective fiscal policy (Appendix 2:1).

(xiv) Fiscal policy uncertainty

This anchors on government decision to continue expansionary or contractionary fiscal policies because of the unknown factors posed by internal and external environment (Wen, Lee & Zhou, 2022). Where government is unsure of what fiscal policy to use in future, this affects economic decisions such as investment and thus economic growth.

(xv) High Population growth

Zambia's population is growing at 3 percent per annum. The international community has projected that Zambia population is expected to double in 26 years' time (UNICEF, 2021). This rise will create demand for more goods and services to be provided by the government.

(xvi) Lack of growth sustainability

Zambia is able to grow the economy but fails to sustain growth (Lwazi, 2022; Smith et al, 2016).

(xvii) Lack of control of strategic assets

Zambia has been experiencing declining revenue against high costs of public expenditure and debt servicing. Government has not succeeded to make reasonable tax reforms to maximize revenue collection due to political differences as most measures are seen as un-transparent and too lenient on the mines (Mabugu & Rakabe, 2019) and the fact that mines are controlled by

foreign nationals (Lwazi, 2022).

4.6 RO4

To suggest how fiscal policy can be implemented to ensure public debt sustainability in Zambia.

The technical complexity of the proposed system may also impact its feasibility. If the system is too complex, it may be difficult to implement and sustain over time. Overall, the feasibility of a proposed system for implementing fiscal policy depends on a range of factors. While some proposed systems may be more feasible than others, the specific context of each country will ultimately determine the feasibility of any proposed system. Zambia cannot manage to sustain debt without sustaining it's fiscal capacity. Fiscal sustainability is essential for achieving meaningful economic growth, ensuring liquidity in the economy and building reserves (Appendix 2: 2, 5).

4.6.1 Size of fiscal balance

Results from research objective two (RO2) indicate that Zambia should direct it's effort towards improving the fiscal balance. The question is how this can be done. Here, it is important to know the effort needed to improve the fiscal balance. This will be the beginning point before finding alternative ways of raising the fiscal balance.

Required fiscal balance can be calculated from equation (7) which is also known as the debt stabilization equation (Napo, 2022).

$$FB^* = (i-g)\,B. \qquad (7)$$

FB* is required fiscal balance =?, "i" is interest rate which relates to the expected highest global rate of 6 percent (CNBC, 2023; www.bloomberg.com), "g" is economic growth of 3.8 (World Bank,2022), B is the required debt ratio of 60% (Mbandlwa, 2020).

$FB^* = (6 - 3.8)\ 60/100 = 1.32$

Therefore, Zambia requires a FB/GDP ratio of 1.32 percent in order to make the debt sustainable.

4.6.2 Means of sustaining the fiscal balance

The question now arises as to what needs to be done to achieve this FB/GDP ratio. Reinhart and Rogoff (2015) suggested two approaches, namely: the "orthodox solutions" -economic

growth, budget surplus, sale of assets or privatization, and the "Heterodox solutions"- requiring restructuring, deliberate inflation, taxing the rich and financial repression.

The challenge here is that Zambia cannot get out of the crisis without external help. Further, disposal of national assets proved disastrous in the past and cannot be a correct choice at the moment. This makes the use of the orthodox solution also known as the "standard fare of officialdom" suggested by the IMF difficult. Furthermore, the use of Heterodox solution is not effective because Zambia does not carry out a pre-emptive restructuring but instead considers a normal restructuring process after a crisis, which then does not help much in saving the economy. Deliberate inflation and financial repression could help if debt was domestic but most troublesome debt is foreign. Most developed countries use the heterodox solution because governments manage to manipulate their local private investments.

For a developing country like Zambia, escaping a crisis can happen where the country reigns in deficits to finance production in the medium-term while investing in growth enhancing sectors such as education and infrastructure in the long-term (Calderon & Zeufack, 2020). These measures can ensure allocation of resources in the medium-term (investment) to provide long-term development and maximization of employment (smallbusiness.chron.com) that can be sustained (pubmed.ncbi.nlm.nih.gov). This requires achieving economic growth which is an orthodox solution.

The main target should be economic growth which can generate resources needed to support the FB. The growth rate to increase the fiscal balance can be expressed as,

$S_2 = (FB^* - FB)/Y$ (8)

Since FB and Y are in percentages (ratios) and not in nominal values the equation can be reduced to,

$S_2 = FB^*/Y - FB/Y$

$S_2 = 1.32 - (-11.47/3.6) = 1.32 - (-3.186) = 4.50$

4.6.3 Suggested debt sustainability equation or model

Therefore, the country must raise GDP growth by 4.5 percent to ensure that debt does not grow more than the fiscal balance. This then brings the debt stabilization equation (7) (Bohn , 1998) to be used in developing a model for Zambian.

$FB^* = (i-g)\ B.$

$1.32 = (i - 0.045)0.6$

$i = (1.32 - 0.027)/0.6$

$i = 2.155$

Meaning that for a GDP growth rate of 4.5 percent the country needs not to access debt exceeding 2.1 percent of interest rate.

The suggested FB to Debt ratio equation becomes

$FB = (2.1i - 4.5g)\ B.$ (9)

4.6.4 Suggested actions towards effective implementation

Zambia can effectively implement fiscal policy to sustain public debt through the following possible ways namely growth enhancing measures (de-Rugy & Kling, 2022; Reinhart & Sbransia, 2015), budgetary measures, and financial technical measures (Petko and Zarkova, 2020).

4.6.4.1 Generating economic growth

To sustain debt the economy needs to generate higher economic growth rate than interest rate on debt (Blanchard, 2020; Frankel, 2019). This method requires the borrowing decision to be guided by economic growth. High economic growth is a best method to escape debt troubles for countries, like Zambia, which use the non-Ricardian approach to deriving the fiscal balance.

There are four pillars of public spending that can enhance economic growth (library.fiveable.me-unit-5, 2023 Jan 7). These include supporting:

(i)Employment

Increasing employment is necessary where the economy is operating below capacity, as in Zambia's case. This requires putting resources, including human capital, to work in order to increase output and enhance economic growth.

Some measures which can support employment include:

Fiscal Decentralization (FD) which involves alignment of tax and spending powers to regions or provincial authorities to ensure inclusiveness of citizens needed to create sustainable economic growth (Sun & Razzaq, 2022), the **Modern Money Theory (MMT)** which states that unemployment is caused by the government spending too little while collecting taxes. The theory hinges on the belief that those looking for work and are unable to find it in the private

sector should be given transition work managed by the local community at a minimum wage funded by the government, and the **Public Service Employment (PSE)** program aimed at providing a job to everyone who needs it at a minimum wage, and is a better alternative to increasing taxes on a few working citizens. The PSE has the advantages of reducing poverty, creating economic growth and spilling over the benefits to the private sector without creating inflation (Wray et al., 2018).

(ii) Education

Helping citizens to acquire knowledge and skills form the basis for productive and effective human resource. This may include **reforming the education system** for long-term investments (Financial Times, 2023 April 17)

(iii)Infrastructure

Public infrastructure investment ensures that economic wealth reaches a broader citizenry size and improve the quality of life (gcu.edu). Building infrastructure such as roads, technology and communication systems, health, and others, tend to ease life and businesses of citizens. Infrastructure is key in enhancing economic activities in Zambia and can be used to bridge the gap between the rich and the poor (Whitehouse.gov.).

Examples are the road networks, electricity supply and communication towers reaching rural areas. Also, **Public-private partnerships (PPPs)** is being used as an alternative source of financing infrastructure development. PPPs can help to leverage private sector expertise and financing to deliver projects more efficiently and effectively (Appendix 2:1). These partnerships can help to leverage private sector resources and expertise to finance and implement public projects, reducing the burden on public finances. It is an alternative to acquiring debt for infrastructure projects (Pearce et al, 2022).

(iv) Innovation

This is a basis in most countries wishing to advance the economies. Zambia in this regard need to be innovative in order to put its immense natural resources to good use. This requires support to education, research institutes and other professionals to enable them maximize their potential and add value to the local resources so that the country can rip full benefits (Wan et al, 2022). Innovation can result into substituting some imports with locally made goods. For meaningful innovation to succeed, it depends on two positions which are “Control of strategic assets” and

using the nation wealth to “empower citizens”.

The two positions are important especially that Zambia’s major income earner is copper which provides 75 percent of total national income (Pearce et al, 2022). Countries which manage to control their strategic assets decide on the course that the economy can take. Secondly, Zambia needs to “Create local millionaires”. This is because wealthy citizens are likely to provide credit to the government and support the country in difficult times (Economist, 2022, April 30; FitchRatings, 2022).

4.6.4.2 Budgetary allocation

Whilst economic growth may not always be the only means of fiscal and debt sustainability, other measures may be available and include budgetary and financial technical methods (Petko and Zarkova, 2020). This may include:

Fiscal rules: Fiscal rules are specific targets or limits on government spending, revenue, or deficits that are designed to promote fiscal discipline and reduce the risk of unsustainable debt. Fiscal rules can be enforced by an independent fiscal council or other oversight institution (Appendix 2:1). For example, the SADC region has recommended deficit financing not to exceed 3 percent of GDP (Redda, 2020).

Two tier budgets

This involves running two separate budgets, a functional budget and a financial budget (Toporowski, 2020). A functional budget to contain taxes and expenditure to manage economic growth and a financial budget to take care of taxing of the wealthy, higher incomes and collection of non-tax revenue.

Performance-based budgeting

Performance-based budgeting is a budgeting approach that links budget allocations to performance measures, such as outputs or outcomes. This can help to ensure that government resources are allocated to activities that are most effective in achieving desired policy outcomes (Appendix 2:1).

Zero-based budgeting

Zero-based budgeting is a budgeting approach that requires each budget item to be justified from scratch in each budget cycle, rather than simply assuming that previous budget allocations were appropriate. This can help to promote efficiency and reduce wasteful spending (Appendix

2:1).

Medium-term expenditure frameworks (MTEFs)

MTEFs are budget frameworks that cover a period of several years and are designed to align budget allocations with medium-term policy objectives. MTEFs can help to promote strategic planning and improve the predictability of budget allocations (Appendix 2:1). Some of the measures government is taking in this case include increasing mining output from the current 800,000 metric tons to 3 million metric tons in ten years' time (Pearce et al., 2022; The Economist, 2022), and sustainable financing of the agriculture sector (Pearce, 2022; IMF, 2022).

Tax reform

Tax reform involves restructuring the tax system to promote more efficient revenue collection and reduce distortions. Tax reforms can include measures such as simplifying the tax system, broadening the tax base, and reducing tax rates (Appendix 2:1). This also includes reducing inefficient spending and raising domestic revenue, cutting back inefficient public investment, eliminating fuel subsidies, increasing corporation tax, VAT and excise tax (IMF, 2022).

4.6.4.3 Technical financial methods

These include measures such as issuing irredeemable debt: this involves debt perpetuities that retire after the last instalment (Corey et al, 2018),

(i)Use the money market method (MMM)

Such as running open debt contracts that can permit buying and selling bonds on the market without committing to debt maturity (Fastenrath, Schwan & Trampusch, 2016).

(ii)Independent fiscal institutions

Independent fiscal institutions are public agencies that are responsible for providing independent analysis and advice on fiscal policy. These institutions can help to promote transparency, accountability, and credibility in the implementation of fiscal policies. They can also provide objective assessments of the impact of fiscal policies on the economy and public finances (Appendix 2:3).

(iii) Green fiscal policies

Green fiscal policies are policy instruments that use fiscal incentives and disincentives to

encourage environmentally sustainable behavior. For example, taxes on carbon emissions can encourage the use of renewable energy sources and discourage the use of fossil fuels, reducing greenhouse gas emissions and promoting sustainable development (Appendix 2:3).

(iv) Automatic stabilizers

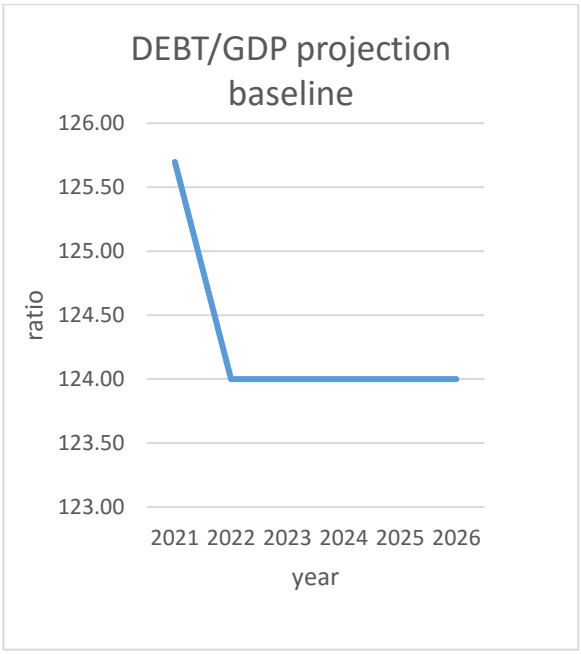
Automatic stabilizers are policy instruments that automatically adjust government spending and revenue in response to changes in the economic cycle. For example, unemployment benefits increase during a recession, providing a stimulus to the economy, while taxes automatically increase during an economic boom, reducing inflationary pressures (Appendix 2:3).

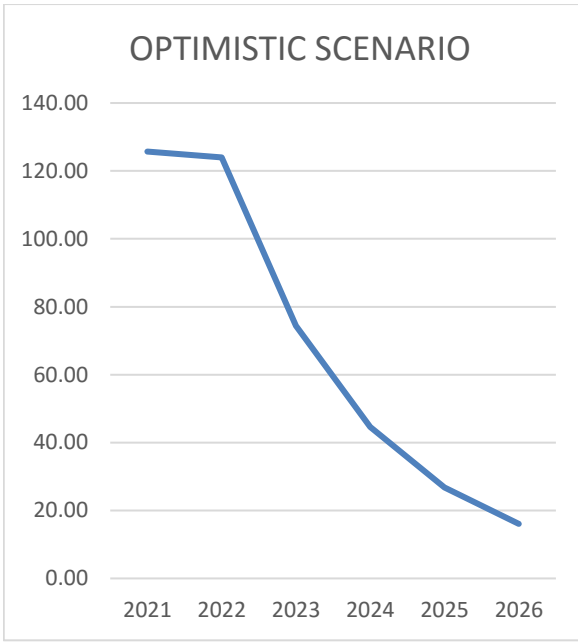
4.6.5 Forecasting the debt to GDP ratio

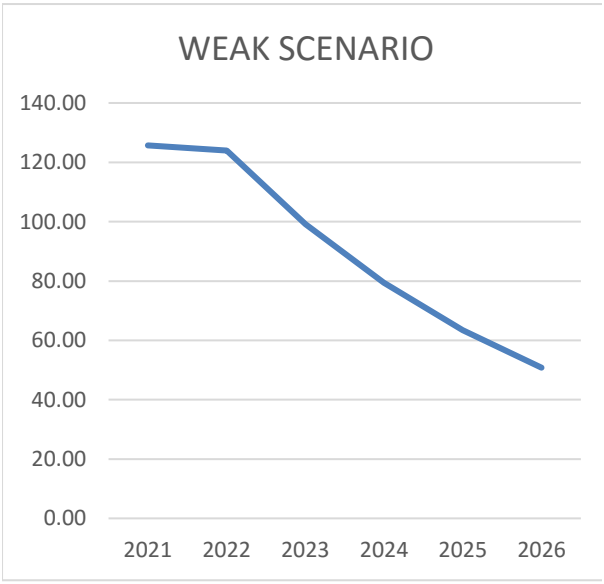
The accuracy of forecasts depends on the strength of government action towards economic recovery (Melosi, Morita, & Zanetti, 2022). Beetsma (2022) stated that the political commitment applies to the current and future debt level. This then brings in the factor ξt from equation 4 (Appendix 5), $[St /Yt] = \alpha [Dt\text{-}1/Yt\text{-}1] + \xi t$. Where ξt represents strength of government's action towards debt sustainability. Carton and Fouejieu (2020) suggested the strength of fiscal policy to consider the extent of the economic recovery scenario and this falls in three categories, namely optimistic, weaker and pessimistic recovery scenarios.

The impact of the adverse factors such as the looming global economic crisis (Guenette, Kose & Sugawara, 2022), persistence of global inflation (BBC news, 2023, May 2), the lingering effect of the pandemic and others are assumed to delay economic recovery. However, the world trade is in the positive trajectory after the devastating effect of the pandemic. It is thus expected that Zambia's economy will continue recording a positive GDP but this will not change the debt to GDP ratio by much.

In the medium term, the debt to GDP ratio reduction forecasts should be expected to range from 0.1 to 1.0 per annum. The rate of 1.0 signaling that debt ratio will remain at the same level over the medium term period, to 0.1 indicating that the debt ratio will continue cascading downwards to the lowest level (Napo, 2022). The researcher estimated the optimistic scenario to be at 0.6, weaker scenario 0.8 and pessimistic scenario at 0.9 (see Appendix 6).







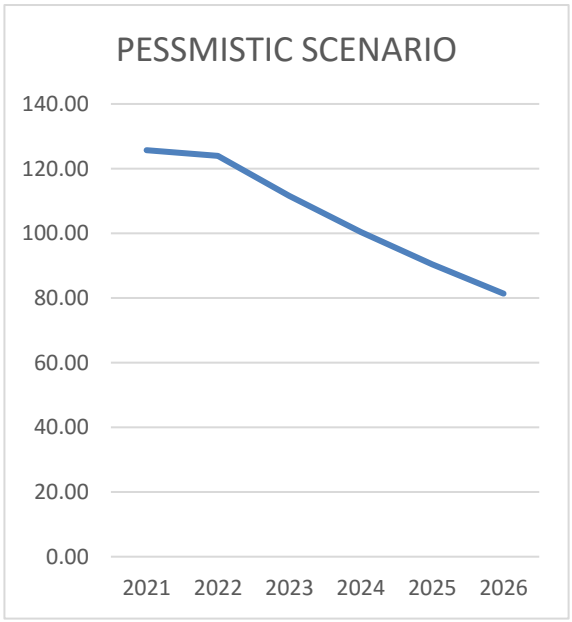


Figure 8. Debt/GDP ratio projections (Ministry of Finance data; Bank of Zambia data; Author's work).

4.7 Chapter Summary

The research was a secondary study covering the twenty-year period from the year 2002 to the year 2021. This collected data was supplemented by interviews specialists in the field of economics and finance particularly those specialized in fiscal policy. Zambia uses a mixture of expansionary and contractionary fiscal policies but expansionary fiscal policy is dominant because of infrastructure development. The Ministry of Finance and National Planning (MFNP) is responsible for implementation of fiscal policy. Oversight organizations include the auditor general's office (AG), the financial intelligence centre (FIC) and Parliament.

Fiscal policy is related to public debt because the policy includes borrowing which creates a liability to be repaid. Barriers exist which affect effective implementation of fiscal policy and include focus on monetary measures, import dependency, political and social, among others. Results indicate that fiscal balance has a negative influence on public debt. The fiscal balance needs to be raised by 4.5 percent of GDP to make debt sustainable.

CHAPTER FIVE: DISCUSSION

5.1 Introduction

The purpose of this chapter is to explain the meaning of results found in chapter four. The results are interpreted in accordance with research sub-objectives 1 to 4 to meet the main research objective being "establishing an effective way of implementing fiscal policy that can ensure public debt sustainability in Zambia". This chapter contains four sections: the Introduction (already given), a summary of key findings, interpretation of the results and a chapter summary.

5.2 Summary of key findings

The results indicate that fiscal policy implementation is related to public debt sustainability because borrowing is required to be repaid and thus debt servicing payments affect public revenue. An assessment of the debt situation over a period of twenty years indicates that Zambia's public debt unsustainability was mostly influenced by the variable fiscal balance. There are barriers to fiscal police implementation and are caused by endogenous and exogenous constraints. Zambia's fiscal problem is highly influenced by high interest rates on debt but this can be lessened by improving the fiscal balance through meaningful economic growth. The country may target economic growth and use budgetary and financial technical measures to effectively implement fiscal policy to ensure debt sustainability.

5.3. RO1

To relate fiscal policy implementation to Public debt Sustainability in Zambia

Fiscal policy implementation is related to public debt sustainability because borrowing is required to be repaid (principal and interest) and thus debt servicing payments affect public revenue (Gazali, 2020). Public debt and budget deficits are the two critical macroeconomic variables that influence fiscal policy of the country and this creates challenges for the authorities to sustain the national budget (Redda, 2020). Appendix 3 shows that Zambia rarely generates a positive fiscal balance.

5.3.1 The four main relationships between fiscal implementation and public debt sustainability

The relationship exists between fiscal policy implementation and debt sustainability in four

ways, namely during expansionary fiscal policy, during contractionary fiscal policy, during natural disasters, and during debt defaults:

5.3.1.1 Expansionary fiscal policy

When the Zambian government desires to meet some project expenditure which cannot be met through the budget, the government turns to borrowing in order to finance this deficit. However, where deficits accumulate, they increase the debt burden Appendix 2:1, 3). Zambia in the last decade used debt finance as a source of funding infrastructure development. Due to deterioration in tax revenue the country has seen its debt burden increase. Debt finance in this case has two effects on the economy:

(i) Creation of assets

These may be social or commercial infrastructures and have the potential to open up economic areas, boost economic activities, create jobs and contribute to economic growth. The impact of debt finance cannot be overlooked because of immense contribution to the revenue and improvement of citizen's lives (Appendix 2:3, 10). Typical examples include the improvement of power supply (electricity) which has reduced load shedding drastically after construction of more power plants through debt finance. Electricity is a contributor to government's revenue. Also, the construction of Toll Gates is another boost to the national treasury.

(ii) Creation of a liability

Debt finance becomes an obligation which has to be serviced and settled at some time in future. Zambia saw it's debt servicing costs rise to 25 percent of revenue in the year 2017 (Saungweme & Odhiambo, 2020). This made the IMF to classify Zambia to be at high risk of debt distress.

5.3.1.2 Contractionary fiscal policy

This is mainly used when Zambia's financial profile indicates declining revenue against rising expenditure and debt servicing cost. This measure was used in 2018 when the government realized that debt obligations were rising at a faster rate compared to government revenue (Brautigam, 2021). Brautigam, however, indicated that this decision was not followed as more debt amounting to USD$187 million were acquired in the subsequent year for construction of defence and security accommodation. In the year 2021, government suspended some infrastructure development projects of K127.61 billion due to the revenue problem that the country was facing (Parliament, 2022; BBC news, 2022: April 28). These infrastructure projects were funded by debt finance.

5.3.1.3 Natural disasters

The impact of natural disasters in Zambia cannot be forgotten. These include:

(i) Droughts

Droughts create a lot of misery in Zambia in that Zambia depends on rain-fed agricultural system. When a drought is experienced, it causes food shortages in the country and in extreme cases a national disaster is declared. Low crop yield in a particular season affects the country's revenue and foreign earnings. On top of that, affected areas of the country require food support which mainly comes through funding the disaster management and maintenance unit (DMMU) under the office of the Vice President.

The DMMU helps hunger-stricken areas of the country and in most cases government diverts resources from other function to channel it to these vulnerable communities (Appendix 2.1). It has been a trend to depend on foreign aid whenever a disaster strikes, however, due to the poor global economic outlook aid is in a decline spiral and may not be available in future (ERF World Bank Webinar, 2020). Depending on the urgency of the situation, it is highly possible that government resorts to borrowing to meet emergency expenditure. This then creates a liability.

Another adverse impact of drought is electricity shortage. The country experienced severe power shortages during the 2014/2015 and the 2015/2016 seasons (Smith et al, 2016). Due to this situation, the government had to import power from neighboring countries such as Mozambique in order to mitigate the impact of power load-shedding. This created a liability which had to be settled at some point.

Conversely, Zambia recently managed to raise more revenue through exporting electricity to South Africa, Zimbabwe and other neighboring countries which were experiencing severe power shortages as a result of drought (Lwazi, 2022). This was one measure of trying to improve the fiscal capacity of the country during the debt crisis.

(ii) Floods

Zambia experienced floods in central, western, Eastern, Southern and parts of Luapula provinces in the last rain season (Davies, 2023). These areas of the country saw their homes, animals and crops damaged. This indicates a loss of output that would otherwise contribute to the country's growth. Looking at the current revenue constraint, it is likely that government will borrow to help these families if external aid will not be adequately extended by well-wishers. This will create an obligation that will be require settlement using tax revenue.

(iv) Pests

Pests include army worms, locusts and grain borers. These threaten the country's food security. For example, Zambia in recent years experienced the infestation of maize fields by army worms in almost all the ten provinces. Fortunately, there were availability of prevention chemicals. In the years back, Army worms had forced many farmers to re-plant their maize fields in the 2016/2017 season (National Assembly of Zambia, 2017).

Some disease outbreaks also affected animalsas it is common to experience swine flu and corridor diseases. All these had two effects on the Zambian economy. Firstly, they reduced output and exports thereby reducing the country's revenue. Secondly, since Zambia lacks capacity to finance most disasters, the country seeks foreign intervention which mostly comes as debt rather than aid.

(v) Pandemics

Zambia became the first country on the continent to default during the pandemic era (Economist, 2022). The effect of the Covid-19 pandemic has ravaged the entire global economy crashing developed and poor countries. The sad effect is that it has crippled economies because there was need to continue spending on the prevention of diseases during the economic lock downs while low revenue were generated due to lock downs of the economy (Calabrese, 2021).

The problem with this pandemic was that it disrupted the supply chain reducing the global output while demand remained the same. This caused shortage of goods and the current cost of living crisis (BBCnews, 2023. Further, the pandemic is being blamed as the cause of the financial, economic and debt crises. Estevao and Essl (2022) have, however, stated that when a debt crisis hits, do not always put a blame on the pandemic. This reason may hold since Zambia's debt was stated to be at high risk in the year 2017 which was way back before the Corona virus pandemic in 2019 (Brautigam, 2021).

Others indicate that the pandemic just exacerbated a debt crisis. Nonetheless, this pandemic has not spared any economy and has been linked to the disruption of economic activities, reducing revenue generation capacity and thus creating fiscal unsustainability. It has, therefore, become difficult to sustain debt even in big economies such as the US and China (CNN news. 2023; Yahoo finance, 2023).

5.3.1.4 Debt crisis

A debt crisis emanates from a fiscal crisis. This is when the Zambian government faces a

decline in revenue collection against meeting required expenditure including debt servicing. This situation was encountered in 2020 when Zambia failed to pay interest on the Eurobond amount of USD$42.5 million (VOA, 2022). Keynes (1923, pp 55) stated that it raises worries when tax payer's revenue becomes inadequate to meet bondholder claims. It is what forced Zambia to become the first country to default in the pandemic era in 2020 (Economist, 2022). There is no alternative when debt obligations have crystallized and have become unsustainable. This calls for serious choices which may include, fiscal adjustment, refinancing, privatization, conversion, default.

(i) Fiscal adjustment

Zambia normally resort to fiscal adjustment when it enters a debt crisis rather than when the economy is enjoying reasonable growth. This scenario has been witnessed in so many years. Fiscal adjustment involves taking up austerity measures such as tax increases and public expenditure reduction. It is believed that the measures create savings which can be reinvested or channeled towards debt servicing.

Fiscal adjustment can hurt the economy (Appendix 2.1) and inflict pain on the citizens because they have to sacrifice by seeing their wages value plummet as a result of tax increment or measures such as devaluation of the local currency prescribed by the IMF and World Bank (IMFelibrary; Igwe, Abdullah & Sherko 2016). Further, removal of subsidies also makes the cost of goods and services to go up.

Zambia has seen the rise in the cost of goods and services recently due to fiscal adjustment measures agreed by the government and the IMF (Ministry of Finance and National Planning, 2023). Especially the removal of subsidies on fuel and an increase in electricity tariffs has escalated the cost of living crisis (Gaspar & Eyraud, 2017). This is why Buchheit (2021) suggested to avoid fiscal adjustment because of its painful effect on the poor citizens.

Igwe, Abdullah & Sherko (2016) and Hellwig (2020) indicated that most IMF conditions have increased poverty levels in poor countries. In developed countries, fiscal adjustment has worked very well. Examples, include President Reagan in the 1980s and Bill Clinton in the 1990s in the US (Viala-Gaudefroy, 2019; library.oapen.org). However, most poor country use fiscal adjustment because they have no choice (Carneiro, Nguyen & Odawara, 2016) and also that they can access the IMF bailout (Mbandlwa, 2020).

(ii) Refinancing

Modern theorists use refinancing because of its availability to smooth out fiscal challenges.

This is one of the alternatives suggested by non-Ricardian proponents. It involves renegotiating debt terms with the creditor and may include changing debt terms such as extending the repayment period (Kalikeka, Nalishebo & Muleya, 2019). The other method to refinance involves getting another loan to settle the troublesome debt, though this is referred to using the "money market method" to manage debt (Fastenrath, Schwan & Trampusch, 2016).

In any case, refinancing needs to avoid a "Ponzi scheme" which involves using new debt in settling the earlier debt (Afonso & Coelho, 2022). Refinancing does not sort out a debt problem but creates generational debt. This is the creation of debt to be paid by future tax payers (Ricardo, 1951). This also depends on whether debt has been invested in key sectors to contribute to revenue generation, known as good debt, or it has been used on consumption spending that does not create revenue capacity.

Nevertheless, refinancing is used to create breathing space to the government because it extends payment amounts over a much longer period and this improves the government's cash flow. This measure is similar to re-profiling (Buchheit, 2021). We are yet to witness the outcome of Zambia's restructuring of debt to confirm whether this measure will be taken. However, since there is a high possibility of "haircuts" it is not likely that most of the debt will be refinanced. Nevertheless, the IMF bailout package of USD$1.3 billion (Bloomberg, 2022, Sept 1) is simply a debt which is not synonymous to refinancing.

(iii) Privatization

The problem is that Zambia and other poor countries lack capacity to improve their fiscal situations particularly after the crisis (Offori, Kwesi & Simplice, 2021). The researchers indicated that this is because their income to GDP ratio is as low as 16 percent compared to developed countries at 41 percent. This makes it difficult for them to carry debt and yet China and other developed countries advance loans to these countries with poor history of debt sustainability (Mbandlwa, 2020).

Zambia, among, other poor countries are compelled to seek intervention of the international community (IMF and World Bank) after debt crises mainly because they have no alternative. Among the solutions prescribed by the IMF include the sale of national assets or privatization. Privatization is an extraordinary measure taken when debt becomes unsustainable (Buchheit, 2021).

Privatization is necessary to raise needed revenue to stabilize the economy or to be channeled towards debt servicing. Zambia used this method to set-off high debts of the 1990s. However, this measure proved disastrous as the debt burden did not go down such that by 2001 the debt

ratio was still high at 235 percent (Saungweme, 2018). This was only reduced by the HIPC and MDRI in 2005 (Calabrese, 2021).

(iv) Conversion

Conversion relates to exchanging refers to transfering debt with high interest rate into debt with a lower interest rate (Petko & Zarkova, 2020). Zambia seems not to have used this method in order to eliminate the public debt problem. However, after the restructuring agreement of 2023, it has been observed that the country should be able to pay lower interest rates on debt deferred to 2026 (Bloomberg.com, 2023, June 23).

(v) Default

Defaults should be the last thing that the country can take as a choice though it cannot be taken with pride. Willful default was only taken with pride by the super powers Russia and the USA (Bloomberg.com, 2022). However, most countries avoid this stage due to the consequences such as loss of access to new credit, downgrading by rating agencies like Fitch, Standard & Poor's, and Moody's (AfDB, 2021), trade isolation, and loss of integrity among others. Nevertheless, a country can default where the debt becomes unsustainable and it has no choice. Zambia's default in 2020 was exacerbated by the pandemic which caused a fiscal crisis (Economist, 2022).

The country was the first to default on the continent during the pandemic but it was not the last one (Financial Times, 2023, April 14). The IMF warned that more countries were at high risk of debt distress in the year 2017 (Brautigam, 2021) and this has been fulfilled by Srilanka, Beliz, Ghana defaulting. Many more including Kenya, Tunisia, Egypt, among others are expected to default between 2023 and 2025 (Financial Times, 2023; Debt Justice, 2022). All these are because of fiscal instability in the post pandemic period.

The main concern here is that Zambia has not defaulted for the first time and this signals that a problem exists between fiscal police implementation and debt sustainability. This does not conform to the essence of fiscal policy implementation which demands for the creation of a functional fiscal policy which requires Increasing aggregate demand and economic growth (Keynes, 1936). Further, fiscal policy implementation has also failed to help the country avoid painful measures of fiscal adjustment and even smoothen the impact of a debt crisis or recession (Pettinger, 2019). Furthermore, serious implementation of the policy is observed when a crisis

hits and this comes too late to rescue the economy.

5.3.2 Difficulties in maintaining the relationship between fiscal policy implementation and public debt sustainability.

(i) The broken link between discretionary budget and the fiscal balance

On the basis of the preceded paragraphs, there seems to be a broken link between fiscal policy implementation and public debt sustainability. The break down in the relationship are visible in Zambia's use of the discretionary budget which encourages deficit financing through borrowing but the determination of the fiscal balance ignores the debt stock. Bohn and Henning (1998) stated that a sustainable fiscal policy is one where government reacts systematically by adjusting the primary balance in line with public debt changes to make debt sustainable.

This omission makes it difficult to sustain debt because Zambia does not meet the non-Ricardian conditions of determining the fiscal balance in order to trigger deficit financing through borrowing but yet it borrows even when the growth rate is far below interest rates on loans (Afonso & Coelho, 2022)**.** Empirical literature indicates that developed countries use the modern way to determine the primary balance because their interest rates are lower than economic growth (Bouabdallah et al 2021).

A typical example of a country using a non-Ricardian approach is Japan which records low GDP of around 2 percent but interest rates are even in negatives (FitchRatings, 2022). Most of these countries are not import dependent like Zambia and can use fiscal policy to regulate output in order to counter hard economic cycles effectively (Carneiro, Nguyen & Odawara, 2016). The secret lie in using fiscal deficits efficiently by putting idle assets to work and boost government revenue (Palatiello & Pilkington, 2022).

(ii) Low tax base

Keynes (1923) citing in Afonso & Coelho (2022) referred to fiscal unsustainability as the situation where debt servicing costs increase to the level that they exceed a country's tax revenue capacity. Ricardo (1951) stated that debt accumulated now shifts the tax burden to future generations. However, this may depend on investment as good investment can benefit future generations as opposed to bad investment.

Zambia cannot raise more revenue and improve the fiscal balance without widening its tax base. This is not about improving the tax administration and taxing more people. Widening the tax-base and local resource mobilization have in the past been mistaken to maximization

of tax revenue from the country's limited tax base. It is worth realizing that the country has a poor population and average income of the working class is low (usaid.gov).

Therefore, there is limitation in the tax incidents that can provide needed revenue. In order to improve the tax-base, the government needs to spend more to grow the economy through investment to enhance local production capacity rather than making it potent by over-taxing the small targeted citizens. The idea is about feeding the cow before milking it. Keynes (1936) citing in Palatiello and Pilkington (2022) stated that any policy that discourages consumption suffers from the fallacy of composition as reducing spending reduces the income of others and reduces investment.

Carneiro, Nguyen and Odawara (2016) stated that if government cannot soften a recession by increasing spending (counter-cyclical approach) it can cause a deeper recession by reducing spending (pro-cyclical approach). Therefore, expansionary fiscal policy is needed to fix a recession (khanacademy.org) because of its multiplier effect (Sim Institute, 2020). Due to economic stagnation in the EU, it was resolved to move away from austerity to fiscal expansion to invest more and enhance growth (Chapter31: Deficits & Debt)). This measure was aimed at overcoming low growth and low inflation which impact negatively on many citizens.

(iii) Bailout packages

Zambia has now accessed the IMF and World Bank arrangement for the 13 th time since becoming a member in 1965 (IMFLive, 2022). Omotor (2021) indicated that a country fails to sustain debt when it cannot get out of a debt crisis without exceptional help. Because the country generates fiscal deficits (Mwange et al, 2022; Appendix 2.4) which increase debt, Reis (2022) suggested to identify a new income stream each time debt is issued and though this may not necessarily be linked to the actual investment on which debt was used.

(iv) Unfair assessments

There is a problem in the assessment of the fiscal health of a sovereign country and its capacity to carry debt. Because countries are exposed to various economic factors, the use of debt-to-GDP ratio may not be fair. It is why the IMF (2018) came up with the debt sustainability analysis framework for low income countries (LIC). However there is no absolute ways of assessing public debt sustainability because analysts views differ. Examples include where some analysts use the market interest rates in their work and the IMF analysis concentration on foreign debts in their analysis Guzman and Heymann (2022).

Another issue relates to distinguishing between liquidity and solvency problems (Pamies &

Reut, 2020). Zambia experiences liquidity problems and not solvency problems because it encounters cash flow challenges. It cannot be declared insolvent because the country has more wealth in natural resources and human capital. Moreover, no sovereign country can file for bankruptcy (Buchheit, 2021). All these differences in analysis cause people to judge them as fair or bias.

(vi) Contingent liabilities

Other problems being encountered in the "fiscal and debt nexus" relate to contingent liabilities (Kaur, Mukherjee & Ekka, 2018) and off-balance sheet transactions. These cause problems in the assessment of debt sustainability of a sovereign state. Furthermore, disclosure and transparency are key to ensure that lenders and other key stakeholders are able to get informed about the true fiscal and debt situation of a country (Hakura, 2020).

5.3.3 Graphical presentation of the relationship between fiscal policy and debt sustainability:

Figures 3 shows that there was a relationship between revenue and debt servicing and between expenditure and debt servicing from 2002 to 2005 but the relationships changed in the post HIPC period as borrowing started increasing and debt servicing remained at the same level until 2010. After the year 2010, debt servicing started deteriorating and was against rising debt servicing costs. This can be alluded to the USD$750 million Eurobond acquired in 2012 (Brautigam, 2021).

The post-2012 period shows that revenue and expenditure were rising and this can be matched with rising debt boosting public expenditure, economic activities and public revenue while Debt servicing remained steadily low up to 2018 while revenue and expenditure were rising from 2015 to 2021. This was against rapid rise in debt stock as a result of further acquisitions of Eurobonds in 2014 ($1billion) and 2015 ($1.25), (Kalikeka et al, 2019).

The year 2019 indicates a breakaway of the relationship with high decline in debt servicing while revenue and expenditure remained. There was a jump in debt stock from 2014 to 2016 and afterwards the debt burden increased rapidly due to high interest rates on the Eurobonds totaling USD$3 billion. This increased the credit risk and prompted the IMF to classify the country to be at high risk of debt distress (Brautigam, 2021). Overall, most government expenditure during the period under review had been financed by borrowing. This reason is supported by fiscal deficits indicating negative fiscal balances (Appendix 3).

5.4 RO 2

To assess the adequacy of fiscal policy on public debt sustainability

5.4.1 The first step requires to look at the trend (see figure 4).

The year 2020 was one of the worst in Zambia's history. This was a period of economic lock downs but still spending was necessary due to measures aimed at preventing the spread of the Corona Virus disease. The figure above (figure 4.) indicates that Zambia recorded a negative GDP growth against rising debt, hence a sharp shift in the debt to GDP curve. This result was not different from other countries and the entire world on average. It led to defaults on loan terms though Zambia was the first on the continent to default (Economist, 2022) and was one of the first countries to apply for the debt service suspension initiative (DSSI).

The year 2021indicates the situation after the default and the DSSI. The ratio in 2022 remained at the same level as the previous year because of negotiations over the restructuring process which began in the year 2021. A slight stability in the curve signify the softening stance by the IMF and World Bank which also approved the bailout package but that is not significant.

Although the graph is showing gleams of hope to the restructuring process in the year 2023. The prolonged negotiations are proving injurious to the economy and may lengthen the recovery process. It is hoped that this process is concluded soon to pave way to predictable economic plans. Talvis and Vegh (cited in Carneiro, Nguyen and Odawara, 2016) stated that any disruption in the economy may cause a prolonged recovery process.

5.4.2. The second step involves testing data (refer to tables 4 and 6)

Zambia's fiscal problem is highly influenced by high interest rates on debt but this can be lessened by improving the fiscal balance through meaningful economic growth. In order to verify this assertion, it is important to check the effect of all independent variables on the dependent variable using the Multiple Regression.

(i) The Model Summary (Table 4)

Multiple coefficient R: this has been used to measure the relationship (correlation) between the dependent variable and the independent variables. R 0.80 indicates a strong relationship between the dependent variable and independent variables. 'Adjusted R Square' 0.557 indicates the actual value of the variance of 56 percent caused by predictor variables fiscal balance, interest rates, inflation rates and GDP.

The ‘Standard error of estimate' model indicates by how much the model overestimates the dependent variable on average. The errors of 81.4 relates to the dependent variable. This figure represents errors of over ZMW 81 million Zambian Kwacha average created by inefficiencies in the predictor variables.

(ii) Regression Coefficient (Table 6)

Research results in chapter four reveal that interest rates have contributed to rising debt servicing costs. For example, the Standardized Beta shows that real interest rates have the greatest value of a standardized coefficient beta of 0.350 indicating higher influence on debt. This result means that any increase in interest rate increases debt by 350 million Kwacha. Fiscal balance, however, indicates a large negative beta (-0.761) denoting that any increase in one unit of fiscal balance can reduce debt by 761 million Kwacha.

Fiscal balance in this case can be increased to reduce debt. This is consistent with Blanchard's (2020) suggestion that fiscal rather than monetary measures are effective ways of improving the fiscal situation. The choice can be confirmed by the significance values where fiscal balance has a higher significant value of 0.046 (p <0.05) compared to interest rates significant value of p= 0.285. These results indicate that both interest rates and fiscal balance have influence on debt level. However, it is worth realizing that fiscal balance has a negative effect on debt sustainability as its increase means that the deficit narrows and hence borrowing is reduced.

(iii) Dominance Analysis (DA) of predictor variables

Table 9 indicates that despite the growth variable being significant under correlation Coefficients, it falls short-of the level of significance under Standardized coefficient beta. In both measurements, it is confirmed that fiscal balance has more significant influence on debt and fiscal authorities need to use this variable to control the debt level. This choice backs the result in Table 9 in which fiscal balance emerged as an important variable needed for debt reduction.

5.4.3 Thirdly, Diagnosis of results

(i) Linearity

The scatter graph confirms that linearity exists between predictor variables and the outcome variable because points are touching the line of best fit in each graph of the variables (see figure

5). The confirmation can be done by inspecting Pearson's correlation (table 7) which indicates that correlation is significant at 0.05 level for GDP and Fiscal Balance. These are variables that need to be managed in order to control debt to sustainable level.

(ii) Normal distribution

Figure 6 shows a histogram depicting the pattern that debt errors have taken. The graph indicates a normal curve in the earlier periods but there are also values outside the normal curve indicating that errors are not the same from one period to the other. This means that factors causing inefficiencies in debt management are not predictable.

(iii) Multicollinearity

Multicollinearity test is carried out to find out whether there is a relationship between predictor variables such that it becomes difficult to establish whether one individual variable has a causal effect on the outcome variable. Collinear is measured through the VIF which is not supposed to exceed 10 (VIF not >10). Results (table 8) indicate that:

GDP in this case has no strong correlation with other predictor variables.
Interest rates have no strong correlation with other predictor variables,
Inflation rates are not strongly correlated with other predictor variables,
Fiscal balance is not strongly correlated with other predictor variables.

(iv) Homoscedasticity

Homoscedasticity is a test taken to find out whether errors causing debt to rise has a certain pattern. The scatter graph above (figure 7) in indicates that residuals are fairly spread without a pattern and this shows the existence of homoscedasticity. This means that there is no consistence in the pattern of errors which have affected public debt in the last 20 years. Simply, the difference between the targeted debt levels and the actual debt levels have not shown the same pattern or trend.

(v) Autocorrelation

This test is required on data collected over the time period to check whether residuals (errors) in one period are related to residuals in another period. In testing autocorrelation, results obtained range from 0 to 4. The ideal result is 2 which indicates the absence of autocorrelation. The values below 2 indicate positive autocorrelation while those above two indicate negative

autocorrelation.

Zambia's result in table (table 4) indicates a positive autocorrelation of 1.51. This indicates the inefficiency of the estimates which produce biased, inconsistent and invalid test results (the outlier 73, 2022). However, since this result does not fall far from 2, it is closer to the no autocorrelation level. Kumar (2020) suggested the acceptable range of no autocorrelation to be between1.5 to 2.5. The only concern here is that the Durbin Watson result (table 4) is in the positive region signaling that past errors have contributed to increasing debt.

5.5 RO3

To establish factors affecting effective implementation of fiscal policy in Zambia.

These factors can be classified into endogenous to indicate those within the country's capacity to control and exogenous for those factors beyond the country's control.

5.5.1 Endogenous factors

(i) Derivation of fiscal balance

Zambia uses a non-Ricardian approach to deriving it's fiscal balance because it does not consider the debt stock nor secure income streams to be used for debt servicing. A non-Ricardian requires that a country generates higher growth to cover needed interest payments on debt (Domar, 1944). Despite, the shift from export led growth to consumption led GDP growth after the 2008 global financial crisis (Kohler & Stock hammer, 2022), Zambia falls short to using this method because of acquiring expensive loans such as Eurobonds which attract variable interest mostly higher that economic growth (Brautigam, 2021).

The non-Ricardian approach encourages borrowing beyond the country's capacity to repay. This is a source of imprudent expenditure in poor countries due to political schemes (Reis, 2022), and thus minimum efforts towards fiscal sustainability. Developed countries produce more and consume more and the GDP of such economies translate into improvement of citizen's lives. This makes it easy for GDP to have a visible impact on the economy.

A developed economy is capable of recording a low GDP and still carry high debt without much problems. For example, Japan's 2023 forecast indicates projected economic growth of 1.3 percent, debt level climbing to 247 percent of GDP and interest rate of 0.6 percent (FitchRatings, 2022, Nov 9). By contrast, Zambia's projected GDP is at 4 percent (ZNBC, 2022, Sept 11), debt level at 123 percent of GDP, interest rate at 9.25 percent (boz.zm). The main problem here is growth interest differential which is negative. This makes it difficult to sustain public debt as the non-Ricardian approach is not suitable in this situation.

(ii) Political will

The political will of the government to implement fiscal policies can impact their effectiveness. If the government lacks the commitment or the necessary resources to implement policies, they may not be fully effective (Appendix 2:3). Fiscal policy decisions can be influenced by political factors such as pressures to meet campaign promises or appease interest groups, which can lead to suboptimal policy outcomes (Appendix 2:1). Fiscal policy is 'deeply intertwined with politics' because it relates to the redistribution of wealth in society and conflicting interests are at stake (Alesina & Passalacqua, 2016).

Normally, political pressures can make or break government policies and this affects critical decision making including debt contraction and debt servicing which affect society. Lowe (1943) indicated that political authorities formulate policies which are aimed at fulfilling their political ambitions, as such they exercise economics of control. In addition, Ahmed (ERF World Bank Webinar, 2020) stated that a world devoid of politics does not exist. Moreover, even multilateral lending organizations such as the IMF and World Bank have political legitimacy to provide political solutions and not scientific solutions (Buchheit, 2021; IMF, 2021).

(iii) Political barriers

Politics are game changers in the success or failure of national goals. Beetsma (2022) stated that the success of any policy will depend on what is reasonably achievable within the fiscal framework and more importantly the political weight attached to the current and future plans. This was also supported by other researchers (Appendix 2:3, 9). In Zambia, Political barriers involve inertia in the political system caused by non-inclusiveness of the political parties in policy formulation on one hand. On the other hand, opposition parties make it hard for the ruling party to implement policies. An example, is the mining tax which has received a lot of debate since the privatization of the mines in the 1990s (Mabugu & Rakabe, 2019).

(iv) Social barriers

Social barriers relate to the social classes which are commonly denoted as a gap between the rich and the poor. In Zambia, the gap between the rich and the poor now stands at 30/70 (Appendix 2, 4). Barriers also include limiting factors such as difficulties faced in accessing credit, low wages and the lack of self-belief by the citizens to invest and create jobs. The

respondents stated that the government may carry out regular economic reviews, engage in public awareness campaigns and enhance participation in policy formulation of citizens. Further, from other countries models of fiscal policy implementation.

(v) High Population growth

Zambia's population is growing at 3 percent per annum. The international community has projected that Zambia population is expected to double in 26 years' time (UNICEF, 2021). This rise will create demand for more goods and services to be provided by the government. This is highly likely expected to create externalities such unemployment, poverty levels and for social services such as education and health.

(vi) Economic conditions

Economic conditions, such as economic growth, inflation, and unemployment rates, can affect the effectiveness of fiscal policies. In some cases, the policies may need to be adjusted to address changing economic conditions (Appendix 2:3).

(vii) Lack of growth sustainability

Zambia is able to grow the economy but fails to sustain growth (Lwazi, 2022; Smith et al, 2016). Estevao and Essl (2022) suggested that growth can be used to curb debt accumulation. After the 2008 financial crisis, the low interest rates on the global market of lenders were favourable for credit financing of sovereign projects (Bocconi, 2021). Zambia managed to acquire the first Eurobond of $750 million when the growth rate was at 7 percent at interest rates on the bond was at 5.3 percent (Kalikeka et al, 2019). However, the country started recording declining economy growth in 2013 and the 2014/2015 season was a turning point for future decline in economic growth against rising interest rates on debt (Smith et al, 2016). The country need to keep up with new developments because financial growth drivers change (Kohler & Stock hammer, 2022).

(viii) Inadequate monitoring and evaluation

Monitoring and evaluation are critical for ensuring that fiscal policy is implemented effectively and achieving its intended outcomes. However, in some cases systems may be inadequate, making it difficult to assess the impact of fiscal policy decisions (Appendix 2:1). This includes

the capacity to collect and manage revenue, implement policies, and monitor their impact (Appendix 2:3).

(ix) Lack of control of strategic assets

Zambia has been experiencing declining revenue against high costs of public expenditure and debt servicing. This problem emanates from the privatization of state-owned businesses which put national assets particularly the mines in foreign hands. The government in this respect has been placed in a weaker position. For example, in the last two and half decades government has not succeeded to make reasonable tax reforms to maximize revenue collection due to political differences as most measures are seen as un-transparent and too lenient on the mines (Mabugu & Rakabe, 2019).

Mabugu and Rakabe indicated that there is, thus, a 'pervasive influence of politics on fiscal policy'. Another problem is that Zambia surrenders most national assets to foreigners in the name of privatization. Most essential assets such as copper mines, new gold mines, airports, among other assets are controlled by foreigners. Palatiello and Pilkington (2022) stated that foreign ownership of local assets hinders local investment. This also gives them leverage over what taxes the government can afford to extract and in most cases, they threaten to cut down labour and force government to bend rules (Oloruntoba, 2022; Mabugu & Rakabe, 2019).

Zambia managed to run mines and parastatals for twenty seven years and it is not clear where that experience has been placed. It should not be time to look at past failures but time to continue building a functioning state and economy. However, as debt ratios dominate the current policy discussion, workable reforms require a healthy budget with a better framework to ovoid betting on the future. But this cannot be realized without being in control of strategic assets such as mines. The lack of capital accumulation by most of citizens make them wonder whether mineral wealth is a curse rather or a blessing (Lwazi, 2022).

(x) Lack of Public support

The level of public support for fiscal policies can impact their effectiveness. If the public does not support the policies, they may not be fully implemented or enforced (Appendix 2:3). Effective implementation of fiscal policy requires public support and participation. However, in many cases, the public may be uninformed or uninterested in fiscal policy issues, which can limit the effectiveness of implementation efforts (Appendix 2:1).

(xi) Lack of capacity to innovate

This is a barrier to producing substitutes and reduce imports. The lack of capacity to innovative is the main reason why the economy is lagging behind in development. Zambia was at the same level as South Korea, Singapore and Malaysia during the 1980s but these countries have moved far ahead because of the desire to innovate and reduce dependence on imported goods. Zambia also lacks diversification and this leaves the country to totally depend on copper exports which is vulnerable to adverse price movement (Dinh, 2022). The lack of capacity to innovate is a reason why Zambia has limited income streams and a lower tax base (Azzarello, 2016).

(xii) Corruption

The award of contracts for construction and supply of goods and services is marred with corruption and this is alluded to weak public institutions making accountability and thus the capacity to carry debt difficult (Rafindadi & Abdulazeez, 2019), among other local constraints.

(xiii) Implementation challenges

Effective implementation of fiscal policy requires a skilled and experienced workforce, as well as robust financial management systems (Appendix 2:1). However, many countries, including Zambia, face capacity constraints such as corruption, bureaucratic inefficiencies, and inadequate capacity of implementing agencies (Appendix 2:3).

(xiv) Limited data availability

To make informed fiscal policy decisions, policymakers require timely and accurate data on key economic indicators such as revenue and expenditure trends. In some cases, data may be incomplete or not available at all, making it difficult to implement effective fiscal policy (Appendix 2:1).

(xv) Lack of Frugality

Frugality refers to how a country takes advantage of deficit spending by being efficient and cost conscious. Argandona (2010) likened frugality to a virtue that determines the value of decisions in a society. This is linked to aspects of behaviour towards spending and saving. Zambia and most developing countries do not invest debt funds to earn higher return than the cost of servicing their obligations. Mostly, funds are invested in the unproductive sectors such

as social infrastructure or consumption. This is an imprudent way of using debt finance (Quora.com).

Although debt is one of the sources of financing spending (Ricardo, 1951), Turner (2015) suggested the best ways of using borrowed funds as investing in the manufacturing and exporting industries and not into infrastructure and consumption. It is also important to consider efficiency and effectiveness as most developing countries like Zambia are not as efficient as developed countries like Japan in the use of debt finance to generate higher returns than the cost of debt servicing (FitchRatings, 2022). Inefficient countries are referred to be profligacy (Orphanides, 2017) meaning wasteful or imprudent.

(xvi) Use of monetary policy to solve a crisis

A combination of economic stagnation and inflation (stagflation) is forcing big economies such as the US and the UK to synchronize tightening of the monetary and fiscal policy rates. High inflation is bad because it can make the Kwacha lose value, make production costs high, increase prices of goods and services and lower the value of wages (The Economist, 2022). Monetary and fiscal tightening measures have been adopted in Zambia to fight inflation.

The problem whichh has engulfed Zambia is that, whilst the country's economy stagnates during the debt crises, focus is put on monetary measures such as control of inflation and debt refinancing, among others. These are not ideal for a fragile economy like Zambia. In the current crisis, monetary policy is inadequate to save the economy. Sennoga and Balma (2022) suggested aggressive fiscal policy aimed at sustaining investment as needed to save the economy from stagnation.

The focus on monetary measures to solve a crisis create temporary solutions. Zambia is currently tightening the monetary policy to control inflation. This method is not ideal for the Zambian economy because the best method to tackle inflation is increasing the supply of goods and services. The problem is that whilst inflation has gone down, the consequence is that this measure has simply reduced money from circulation making it hard for citizens to afford goods and services. This may end up reducing economic activities and thus economic growth (Guenette, Kose & Sugawara, 2022).

These monetary measures are also failing in developed countries like the US. Because of

inadequacies of the monetary policy, the US in 2021 had to raise a debt ceiling (CNBC, 2021: Nov 2) and this year 2023 has just passed the bill to raise the debt ceiling again (CNN news, 2023: April 27). The USA prints some money to stimulate the economy without much trouble. Turner (2015) indicated that money printing is used to escape a debt overhang and also to stimulate demand in the economy. Turner further stated that this measure is a technically possible alternative to pure fiscal or pure monetary policies but labeled it as the "work of the devil" because it is very easy to be repeated or be used in excess.

Zambia in this regard is subject to lose focus of long-term solutions to the impending economic and debt crises. The solution in this case lies not in monetary tightening but measures that can sustain the economy in the long-term and this can be found in ensuring a functional fiscal policy (Keynes, 1936). The monetary policy dominance over fiscal policy should be reviewed because monetary policy should be expected to complement fiscal policy, meaning that monetary policy should simply be used to operationalize the fiscal policy through cash flows. Zambia may not need to rely on monetary tightening during bad economic situations because of its short-term solutions (Blanchard, 2020).

(xvii) Poor education system

The essence of education is to enhance capacity to invent, discovery and innovate in the local economy. Most prosperous nations have linked their education systems to their industries to maximize chances of finding local solutions. However, the situation in Zambia is different because there is lack of linkage between education and industry. The education system does not encourage critical thinking to enable learners discover new things or new ways of doing things (Trendmax, 2019).

However, the sad part is that not even reverse engineering is being taught in schools. This ends up relying on foreign expertise in most important industries such as the manufacturing and construction sector. For instance, the construction industry is dominated by China and India as well as the food and beverage industries (Mbadlwa, 2020). This situation makes the country loose potential earnings and foreign exchange as proceeds from these industries are easily externalized.

(xviii) Fiscal policy uncertainty

This anchors on whether government decision to continue expansionary or contractionary

fiscal policies is guaranteed (Wen, Lee & Zhou, 2022). Where government is unsure of what fiscal policy to use in the near future because of unknown factors, it affects economic decisions such as investment, targeting economic growth and also capacity to service debt. Uncertainty makes decision makers to lose concentration and focus.

Examples of uncertainty include whether government will continue supporting certain investments, grant further tax rebates or funding programs such as small scale business, farmers input program (FISP), continue servicing debt, or unrestricted access to loans. Also, uncertainty puts stakeholders' hopes in disarray as they do not know government's next step. It thus leaves most decisions to chance and ends up affecting investment decisions, innovation, savings and economic growth of the country (Wen, Lee & Zhou, 2022).

5.5.2 Exogenous

(i) International factors

Many developing countries, including Zambia, are highly dependent on external factors such as commodity prices or foreign aid, which can limit their ability to implement effective fiscal policies (Appendix 2:1,3,). Main problems include:

(ii) Import dependence

The manufacturing industry is at it's infant stage and lacks capacity to improve and grow in order to compete with foreign manufacturers (Mbandlwa, 2020). More imports means creating demand for other countries and this makes it hard to keep foreign currency in the Zambian economy. The country is import dependent amid growing population. It means creating demand for foreign produced goods (Palatiello & Pilkington, 2022), widening trade deficits and foreign exchange losses.

In addition, whilst foreign investment help to stimulate the economy, there is little effort to monitor most revenue from exports which is mostly externalized. Further, foreign businesses find it easy to evade taxes (Pearce et al., 2022). These factors cause continuous budget deficits and fiscal instability especially in bad economic times like the current one. Zambia's population is growing at 3 percent per annum (World Bank, 2021) and this is against the projected medium-term GDP averaging 4 percent. This should be taken as an opportunity to increase production instead of creating the market for foreign producers.

5.6 RO4

To suggest how fiscal policy can be implemented to ensure public debt sustainability in Zambia.

The FB to Debt ratio equation (equation 9) becomes a model suggesting that:
FB = (2.1i - 4.5g) B.
The country while generating economic growth of 4.5 percent GDP can borrow funds at 2.1 interest rates without jeopardizing the health of the economy.

Measures towards effective implementation of fiscal policy include economic growth (Reinhart & Sbransia, 2015), budgetary and financial technical methods (Petko and Zarkova, 2020).

5.6.1 Generating economic growth (Reinhart & Sbransia, 2015)

This involves the use measures that can generate higher growth than interest on debt (Blanchard, 2020; Frankel, 2019). The method requires the borrowing decision to be guided by economic growth. High economic growth is a best method to escape debt troubles for countries, like Zambia, which use the non-Ricardian approach to deriving the fiscal balance. Growth can be enhanced by increasing output which is measured as GDP growth (Fournier, Hisanaga & Nguyen, 2022).

There are four pillars of public spending that can enhance economic growth (library.fiveable.me-unit-5, 2023 Jan 7). These include supporting employment, infrastructure, education and innovation.

5.6.1.1 Supporting Employment

Increasing employment is necessary where the economy is operating below capacity, as in Zambia's case. This requires putting resources, including human capital, to work in order to increase output and enhance economic growth. The principle of functional finance states that fiscal policy cannot be limited by the financial limits. The only limits to fiscal policy stem from the level of employment and inflation (Vieira, 2022). This means that the country can spend to create employment while ensuring that this is done to create value in the economy in order to avoid increasing inflation.

Lemelin and Savard (2022) stated that governments try to find ways of enhancing economic growth. These may include generating employment through:

(i) Fiscal Decentralization (FD)

FD is the process of allocating mandate over regional or provincial authorities (Yuan et al, 2022). involves alignment of tax and spending powers to ensure inclusiveness of citizens needed to create sustainable growth (Sun & Razzaq, 2022). This is a fiscal structure that can enhance public support for fiscal policies and impact on their effectiveness. If the public does not support the policies, they may not be fully implemented or enforced (Appendix 2:3). This is where engagement with political parties, civil society and other interested group becomes important (Appendix 2:1).

This involves alignment of tax and spending powers to ensure inclusiveness of citizens needed to create sustainable growth (Sun & Razzaq, 2022). A Pioneer of FD Samuelson (1995) stated that FD is an effective way of fiscal policy implementation because it encourages participation of local leadership and people and thereby improves accountability, efficient and quality delivery of goods and services to the community and this is due to identification and ownership of the policy as theirs. This was also successful in the Roman Republic for over 400 years (Tan, 2022). Levi (1988) citing in Tan (2022) indicated that the social, economic and political powers shaped the tax collection system and as such tax maximization was dependent on the bargaining and concessions by the rulers.

FD is currently being used in many countries including the US, the UK, India, China, Japan, Vietnam, South Africa, Nigeria, and Brazil, among others (Campanaro & Duc Dang, 2018; Kaur, Mukherjee, A& Ekka 2018; Bloomberg, 2023; Vieira 2022; FitchRatings, 2022).The surprise to this FD is China which has gone far in this process and is able to classify best provinces in terms of capacity to contract debt and repay it. For example, Guizhou province is considered a poor province and normally struggles to service it's debts and has a history of defaults and bailed out by the central government as compared to rich provinces such as eastern Zhejiang, Jiangsu, among others (Bloomberg, 2023 April 16). Also, in the USA tightening of lending rates is done by regional financial institutions (The Daily Hodl, 2023).

Samuelson (1995) a pioneer of FD described it as a basis for improvements in accountability, efficiency and improved quality of public service delivery. The good features of FD include:
Accountability- FD empowers local government to control industries. Encourages

accountability in that lower governments strive to boost effectiveness in local resource allocation (Fredricksson et al., 2003). This is possible because local governments are close to citizens and thus have prior knowledge of the needs of citizens in such regions.

Efficiency- local government can have information advantage and can use it to solve local problems. Having local knowledge brings effectiveness in that it enables local government to provide goods and services that consumers need. In this way, there is avoidance of over-capacity and wastage of resources.

Improved quality of public service delivery- FD encourages inter-jurisdiction competition and provides consumers with a variety of choices. This leads to high quality standard of providing public goods and services. For example, there is a high possibility of owning infrastructure projects without compromising on quality. Here, models can emerge from some regions and quality standards set.

Ensure inclusiveness- this relates to avoid segregation on any basis be it political, gender, ethnicity or religious belief. People in the same area see a complete wholeness in making strides towards improving the living standards (Sun & Razzaq, 2022). There is a common goal towards this end and Zambia can use this to an extent of even getting rid of plural politics to ensure that everyone participates towards common goals. This will open up the door to ideas which would otherwise not be availed in plural dispensation.

Specialization- Relocating government ministries in provinces so as to align them with economic activities. This has the advantage of participation in decision making by the local communities (doc.govt.nz) and can ensure that each province becomes specialized in specific outputs and enhance creation of more industries to be recognized and relied upon by the rest of the country. Typical examples are mines on the Copperbelt. The western province also needs support to become dominant in rice production (Mongu rice) alongside packaging and processing businesses.

Competition- This can be a drift from political competition to performance-based competition. FD ensures that developmental needs are determined by the authorities close to the people. FD encourages competition, creativity, create more jobs and increase the tax base for government revenue (Luo & Liu, 2022).

Reduction in rural urban drift- High FD can lead into provision of high-quality public goods and services. High quality public goods and services can discourage migration which Tiebout, a classic proponent of FD, termed “vote by foot” (Tiebout, 1956 citing in Luo & Liu, 2022).

Political sensitivity- local governments (provincial authorities) are responsible for implementing central government policies which are in the interest of the public. This shifts

the burden from central government to local government as they are in c-arge of providing public goods to their residents. In this way, they are forced to adopt expedient measures to perform better or else risk being voted out. Shi, Shi & Guo (2020) referred the desire by local governments to impress the electorates to making the "political sky blue".

Master and agent relationship- Zambia can use FD by making local governments in provinces and districts to operate as agents of the central government. Some concerns may be raised about this system particularly that provincial governance may use this as an opportunity to serve their own interests. However, these fears may be allayed by the following factors:

Administrative contractual setup- the important part of the decentralization system is the relationship that bonds central government, provinces and districts (grass root). Central government takes the lead, provincial governments coordinate while grassroots implement (Ma & Shi, 2016). Here, transparency and disclosure are the key principles in this relationship (IMF, 2021).

Semi-autonomy- the structure is flexible and permits local governments to exercise control of funding arrangements. This motivates local governance to develop their economies and encourages competition among provinces. Competition normally creates long-term benefits mostly aligned to economic development goals of the entire country.

(ii) Modern Money Theory (MMT)

MMT states that unemployment is caused by the government spending too little while collecting taxes (Vieira, 2022). The theory hinges on the belief that those looking for work and are unable to find it in the private sector should be given transition work managed by the local community at a minimum wage funded by the government.

Pioneers of MMT include Randy Wray and Stephanie Kelton who diverty from the academic context by drawing attention to the post- Keynesian ideas and theories that most researchers have overlooked (Carnevali & Fontana, 2022). It is, therefore, one of the longstanding post-Keynesiam literature. MMT is build on the functional finance theory (FFT). It advocates for the use of sovereign currency in preference to debt and indicates that there the use of the currency cannot be constrained (Drumetz & Pfister, 2021).

MMT is taken as a Technique of inflation targeting by ensuring that the economy continues running at, but never above or below, full capacity. This involves using fiscal spending and taxation to maintain inflation target rather than using interest rates (grattan.edu.au, May 13 2022). This entails managing the economy through fiscal policy, not monetary policy, and ensure that government put idle human capital to work (cato.org, 2019).

Further, government can use MMT on a temporary basis to support economic recovery and this may involve acquiring bonds from the open market and re-sell them later or hold them to maturity. The US used this method to stimulate the economy after the 2007-2008 financial crisis (Whalem & Reichling, 2015) while the U.K recently in 2022 bought bonds back to steam out the crisis created by the new Prime Minister (BBCnews, 2022). This is a characteristic of monetarization which involves the the central bank's interventions in the primary market for bond sales instead of the commercial banking sector (Carnevali & Fontana, 2022).

The importance of MMT is that it is very relevant to developing countries which wish to control their macro economies to benefit citizens (taxresearch.org.uk, Jan 11 2021). Initially, MMT relied on monetary policy of "fiat money" since local borrowing could be paid off by printing money while keeping interest rates at low rates by the Central Bank (Johnson, 2022). Use of monetary policy in this manner created a number of problems including inflation and encouraged frequent printing of money to avoid a crisis but this practice just makes a problem to temporarily get faded and never get resolved in the medium to long-term (Blanchard, 2020).

Lavoie (2013) indicated that MMT as a fiscal too does not create inflation and this was evident through a balanced sheet analysis. Lovoie argued that “a government deficit financed by bond sales to the central bank would create an equivalent amount of monetary reserves and bank deposits once the monetary reserves are transferred from the government account at the central bank to the current accounts of suppliers of goods and services to the government.”

(iii) Public Service Employment (PSE)

PSE program is aimed at providing a job to everyone who needs it at a minimum wage, and is a better alternative to increasing taxes on a few working citizens. The PSE has the advantages of reducing poverty, creating economic growth and spilling over the benefits to the private sector without creating inflation (Wray et al., 2018).

Similar to the PSE program, the MMT contrasts the neoclassical economic theory understanding of the relationship among deficits, taxation and inflation, and asserts that “in the political economy model, policy makers can use the fiscal policy to increase expenditure in the social sector where such a policy is not discretionary without increasing inflation (Mejia & Albrecht, 2022).

Discretionary expenditure such as social cash transfer, discretionary pay for the unemployed

are the main cause of budget deficits. The MMT can better be used on social expenditure that add value to the economy. These may include supporting people with skills such as Art Crafts, sculpture, Painting Art, music, Theatre (Acting) and sponsoring of modelling, athletics and other games. These can be classified as fine arts because they have higher standard of artistic expression than ordinary low arts (creativearts.com, 2022, Dec 2). This feature makes fine arts unique, appealing to visual and senses as to be of high value.

Craft Arts- these are hand-made items depicting our national and African cultural and include ornaments, furniture, utensils and others. The industry, once supported can be used to employ more people and open opportunities to more talented citizens. This can also increase Craft goods quality, generate more local and foreign revenue and contribute to the country's economic growth.

Painting Art- The contribution of this industry on the world map is unquestionable. There are international gatherings to show a collection of various art paintings which attract people from all walks of life. These gatherings give opportunities to showcase talents from various parts of the world. Further, art paintings can attract an unbelievable value at auction sales that would not be possible in local market. Zambia can make this industry as a source of employment through supporting people with talent so that they can compete at national and international level. This can lead to attracting more citizens to the industry and therefore use it as a source of employment.

Music- The music industry in Zambia has contributed to creation of employment.

Theatre- the film making industry in Zambia is still at it's infancy stage. The production of films is currently being coordinated by foreign experts using foreign media platforms. This has been the case for production of Kabanana and currently others like Ulendo and Kwatu. The government's decision to suspend duty on film and music instruments up to 2025 is a good effort (ZRA, 2023). This effort need to be extended to cover not only registered businesses who order equipment for resale but also cover individuals who have the capacity to acquire such instruments directly from foreign suppliers. Theatre should be incorporated in the school curriculum to include primary schools

(iv) Reforming Agriculture sector

Agriculture is a very important sector because of its contribution to food security, jobs and government revenue. Zambia among other countries see agriculture as a main stay industry because it is sustainable. The agriculture industry can become the heartbeat of the economy if harnessed. The current global supply shocks and ballooning inflation (Forbes, 2022; Market Watch, 2022) have resulted from low agriculture output because of disruptions by the Corona virus pandemic and the Russia-Ukraine war (trtafrika.com). These have created food shortages and rising cost of living crisis in most poor countries (IMF, 2022). Agriculture is capable of turning Zambia's economic fortune in the positive direction because of its multiplier effect in the economy if supported and has potential to create other industries and millions of jobs.

(v) Support waste re-cycling industry

Zambia can support growth of this industry to provide jobs, and be on course to innovate and reduce waste and carbon emission in order to work towards the Paris agreement of securing the friendly and sustainable environment and infrastructure in future (Cox, 2018).

5.6.1.2 Growth through Education

Helping citizens to acquire knowledge and skills form the basis for productive and effective human resource. This may include **reforming the education system** for long-term investments (Financial Times, 2023 April 17).This is because the use of education is to acquire knowledge and contribute to the society in finding solutions to problems. However, this is not the case for Zambia because a specific example is a mining industry and the engineering schools which have not taken up the mantle to assist the country on how the extractive sector can be improved using local solutions or even taking up running mining operations for the benefit of the country. Zambia needs to include in it's curricular history covering the 1st industrial evolution, industrialization, digital technology and now the 4th revolution covering artificial intelligence (AI) to encourage critical thinking in learners. Industrialization increases employment and the tax-base (Ofori, Kwesi & Simplice, 2021).

For example, Trend Max (2019) shows that in response to the World War II, Massachusetts Institute of Technology (MIT) received heavy government investment and discovered the most advanced airspace machinery in the world. The media further indicated that the other institution is California Institute of Technology which discovered 'Vitamin C', an instrument to measure the intensity of an earth quake, and creation of a 'Big Bang' theory filming and

mission impossible. Creation of Billionaires- education has proved invaluable in the creation of millionaires. For example, Stanford University has produced created innovators and industries. Stanford University has created industries which are leading the world. These include HP, VM ware, Google, Yahoo, and the Sun micro system (Sun stands for Stanford University Network). These were all as a result of academic discoveries. Harvard University is also home to the Facebook (fb) owner (Trend Max, 2019).

5.6.1.3 Growth through Infrastructure development

Public infrastructure investment ensures that economic wealth reaches a broader citizenry size and improve the quality of life (gcu.edu). Building infrastructure such as roads, technology and communication systems such as phone towers and radio and tv links, health facilities, and others, tend to ease life and businesses of citizens. Infrastructure development can be used to promote rapid economic growth and jobs which are key in improving financial resources of the country (geeksforgeeks.org).

Infrastructure is key in enhancing economic activities in Zambia and can be used to bridge the gap between the rich and the poor (Whitehouse.gov.). Examples are the road networks, electricity supply and communication towers reaching rural areas.
Zambia is using Public-private partnerships (PPPs) as an alternative source of financing infrastructure development. PPPs can help to leverage private sector expertise and financing to deliver projects more efficiently and effectively (Appendix 2:1).

These partnerships can help to leverage private sector resources and expertise to finance and implement public projects, reducing the burden on public finances. It is an alternative to acquiring debt for infrastructure projects (Pearce et al, 2022). PPP can be a source of financing major projects and has proved successful in many countries including developed countries such as the UK and the USA and also other developing countries (Yurdakul, kamasak & Ozturk, 2022).

Zambia has used the PPP initiative recently to develop the Lusaka –Ndola dual carriage way and this will improve traffic flow and help in reducing accidents (National Assembly of Zambia, 2023). PPP has other benefits such as sparing government funds from immediate commitment and that financers of these capital projects are wealth individuals and firms.

However, PPP has disadvantages such as inflating of the project cost in order to defraud the government, lack of skill transfer because most private partners are foreigners, and externalization of funds reimbursed by the government. These practices tend to reduce the country's capacity to improve the fiscal balance and liquidity in the economy. For example, it has been revealed that the contractor Macro Ocean Investments Consortium was awarded a contract for rehabilitation and upgrading of the Lusaka-Ndola road into a dual carriage way (Ministry of Infrastructure, 2023, March 2). Macro Ocean is a foreign company and this means that all the risks stated above exist.

The only caution to this contract is that, it is on the build operate and transfer (BOT) basis allowing the investor to recoup the investment from road Toll fees. This should not, nevertheless, preclude the government from clarifying on concerns raised over the contract period and the source of funding (Lusaka Times, 2023). In any case, it is prudent that the contract does not end up denying the country more revenue through externalization of proceeds by the contractor.

5.6.1.4 Growth through Innovation

This is a basis in most countries wishing to advance the economies. Zambia in this regard need to be innovative in order to put its immense natural resources to good use. This requires support to education, research institutes and other professionals to enable them maximize their potential and add value to the local resources so that the country can rip full benefits (Wan et al, 2022). Innovation can result into substituting some imports with locally made goods.

(i) Research and Development (R&D)

R & D can be used to provide long-term investment needed to ensure that the country does not remain behind in knowledge and technology. Zambia needs to develop a culture of hardworking and belief in citizens. Lessons can be learned from Japan which relied on local resources to develop when the western technology was introduced after the recession of 1949 and that provided a basis for learning and improving on the local economy by the citizens themselves (Wu, 2023)).

(ii) Control of strategic assets

Zambia's major income earner is copper which provides 75 percent of total national income (Pearce et al, 2022). Countries which manage to control their strategic assets decide on the course that the economy can take. Zambia must learn from countries like those in the middle-east which have used their oil resources as basis for development. For example, oil industries

are wholly owned by local investors and this means that export earnings are invested back in the economy.

The capacity to control this resource In countries like the UAE, Saudi Arabia and others have helped them to reinvest oil proceeds into other economic sectors such as the Air Transport industry (Emirates, Qatar airlines and agriculture and manufacturing industries). Other countries which have used this method include the USA, Canada and Great Britain used mineral proceeds to invest in other economic sectors to create more industries (AngloAmerican, 2022).

(iii) Create local millionaires

Wealthy citizens are likely to provide credit to the government and support the country in difficult times (Economist, 2022, April 30; FitchRatings, 2022). Zambia managed to run mines and parastatals for twenty seven years and it is not clear where that experience has been placed. It should not be time to look at past failures but time to continue building a functioning state and economy.

However, as debt ratios dominate the current policy discussion, workable reforms require a healthy budget with a better framework to ovoid betting on the future. But this cannot be realized without being in control of strategic assets such as mines. The lack of capital accumulation by most of citizens make them wonder whether mineral wealth is a curse rather or a blessing (Lwazi, 2022).

As the world continues to develop, the number of millionaires also keeps on rising. These are individuals who invest in various businesses, properties and other ventures. Wealthy individuals contribute to local employment, goods and services, economic growth and development of communities and countries. Empowering local citizens so that they control local resources and create wealth and eventually become multi- millionaires is what developed countries do (FitchRatings, 2022). Zambia in this regard has no millionaires to influence local economic activities but leaves much activities in the hands of foreign investors who control the private sector.

Unlike Zambia's negative attitude, Rwanda has been ranked as the first on the top ten of countries on the continent with the fastest growing millionaires' population (Business Insider Africa, 2023 April 20).Local wealthy citizens are a source for credit because they are likely to accumulate both foreign and local currencies (Aybarc, 2019). Another advantage is that locals tend to be loyal to the country and can support the country even in difficult economic times.

This is different from foreign 'jumpy investors 'who diversify easily because they are motivated by higher return investments (Economist, 2022, April 30).

Further, local millionaires can help to support production and reduce imports dependence. Wray (2015) proposes policies that increase aggregate demand of locally produced goods and services as this limits imports, helps in creating jobs, economic growth and improve reserves. The growing number of private millionaires In most countries have helped to boost foreign reserves and act as providers of needed credit by the government. Japan, the USA and other wealthy economies prefer borrowing locally to foreign borrowing as this reduces vulnerability to foreign factors (FitchRatings, 2022; Miyazaki, 2006). Swiss citizens would prefer a tax increase to foreign debt (Economic Raven, 2021). Growing local using local resources motto of the Fourth National development Plan (4NDP, 1989-1993) and the Long-term vision of attaining a middle-income national status by 2030 indicate that little has been done in uplifting lives of citizens.

5.6.2 Budgetary Method (Petko and Zarkova, 2020).

The ideal solution is to run a balanced budget which requires to restrict expenditure to revenue and avoid borrowing (Ricardo, 1951). Where this is not achievable, other measures may include:

(i) Fiscal rules: Fiscal rules are specific targets or limits on government spending, revenue, or deficits that are designed to promote fiscal discipline and reduce the risk of unsustainable debt. Fiscal rules can be enforced by an independent fiscal council or other oversight institution (Appendix 2:1). These rules are designed to promote fiscal discipline, reduce budget deficits and public debt, and ensure the sustainability of public finances. Some examples of fiscal rules include debt-to-GDP ratio targets, balanced budget rules, and expenditure limits (Appendix 2:3). For example, "the golden rule" as a measure provides the level of deficit that must be allowed. In some countries in order to curb debt accumulation deficits are pegged as a percentage of GDP to ensure fiscal discipline (Hamad & Abarahim, 2022). The SADC region has recommended deficit financing not to exceed 3 percent of GDP (Redda, 2020).

(ii) Performance-based budgeting: Performance-based budgeting is a budgeting approach that links budget allocations to performance measures, such as outputs or outcomes. This can help to ensure that government resources are allocated to activities that are most effective in achieving desired policy outcomes (Appendix 2:1).This measure can encourage the use of borrowed funds on:

Well evaluated projects: projects which are capable of yielding more return on in investment (Hilton, 2021).
Self-sustaining projects: projects which are capable of generating revenue to service debt (Hilton, 2021).

(iii) Zero-based budgeting: Zero-based budgeting is a budgeting approach that requires each budget item to be justified from scratch in each budget cycle, rather than simply assuming that previous budget allocations were appropriate. This can help to promote efficiency and reduce wasteful spending (Appendix 2:1). Zero based budgets can help to avoid unjustified borrowing that can strain the country's fiscal capacity.

(iv) Two tier budgets: The country needs to use the expansionary fiscal policy prudently to help the country avoid future debt crises possibly aiming at achieving the balanced budget which may include preparing two separate budgets, a functional budget and a financial budget (Toporowski, 2020). A functional budget to contain taxes and expenditure to manage economic growth and a financial budget to take care of taxing of the wealthy, higher incomes and collection of non-tax revenue (National Assembly of Zambia, 2022) to be channeled towards debt servicing debt.

(v) Medium-term expenditure frameworks (MTEFs): MTEFs are budget frameworks that cover a period of several years and are designed to align budget allocations with medium-term policy objectives. MTEFs can help to promote strategic planning and improve the predictability of budget allocations (Appendix 2:1). Some of the measures government is taking in this case include increasing mining output from the current 800,000 metric tons to 3 million metric tons in ten years' time (Pearce et al., 2022; The Economist, 2022), sustainable financing of the agriculture sector while reducing procurement costs (Pearce, 2022; IMF, 2022), industrialize the economy and increase citizen's participation (8NDP).
However, the challenge is that the mining sector is predominantly controlled by foreign interests and history indicates that the country loses a lot of revenue through tax evasion and unfair transfer pricing practices by foreign owners (Oxfarm, 2018). Other problems are that mineral prices are controlled on the world commodity market and is subject to fluctuations and are thus not guaranteed. This over reliance on mining has brought us to the current problems of lack of diversification, creation of ghost towns and unemployment. Moreover, mining is a wasting asset and increasing mining output should be expected to increase environmental

degradation with little tax benefits and employment.

The best way to maximize the benefits of mining expansion requires ownership of this strategic asset is retained in the hands of local people with government taking a leading role in ensuring that the industry is given adequate support to succeed. The IMF loan of USD $1.3 million could have been avoided if the country was in control of the mines because these funds should have been raised from one month's copper export if the country had control of mining proceeds (SABC, 2022 Jul 25).

Local control of this major sector can also help in deciding the course that the country can take because proceeds from mineral can be retained in the country and invested in other sectors like agriculture and the manufacturing sector to diversify the economy. Lessons can be drawn from countries such as Saudi Arabia and UAE which have managed to diversify their economies by maximizing revenue from oil sales (CoolVision, 2020 March 13).

(vi) Tax reform: Tax reform involves restructuring the tax system to promote more efficient revenue collection and reduce distortions. Tax reforms can include measures such as simplifying the tax system, broadening the tax base, and reducing tax rates (Appendix 2:1). This also includes reducing inefficient spending and raising domestic revenue, cutting back inefficient public investment, eliminating fuel subsidies, increasing corporation tax, VAT and excise tax (IMF, 2022).

5.6.3 Technical financial methods (Petko and Zarkova, 2020).

These include measures such as issuing irredeemable debt. Irredeemable debt involves debt perpetuities that retire after the last instalment (Corey et al, 2018). Debt perpetuities require payment of interest on debt until it retires and no payment is needed to redeem the debt or refinance it (Corey et al, 2018). Hamilton and Flavin (1986) referred this to debt zeroing to infinity. This can save the country from worries about future obligations particularly that repayment of the principal involves huge cash flow.

(i) Use the money market method (MMM): such as running open debt contracts that can permit buying and selling bonds on the market without committing to debt maturity (Fastenrath, Schwan & Trampusch, 2016),

(ii) Independent fiscal institutions: Independent fiscal institutions are public agencies that are

responsible for providing independent analysis and advice on fiscal policy. These institutions can help to promote transparency, accountability, and credibility in the implementation of fiscal policies. They can also provide objective assessments of the impact of fiscal policies on the economy and public finances (Appendix 2:3). The debt office in this regard needs to be semi-autonomous to enhance the capacity and it's integrity. This may be achieved by detaching the debt office from the ministry of finance to encourage professionalism and reduce political influence from overriding decisions of technocrats (Kalgina & Tsaregradskaya, 2018). This can empower it to give credible advice on debt matters which can be respected by the authorities.

(iii) Green fiscal policies: Green fiscal policies are policy instruments that use fiscal incentives and disincentives to encourage environmentally sustainable behavior. For example, taxes on carbon emissions can encourage the use of renewable energy sources and discourage the use of fossil fuels, reducing greenhouse gas emissions and promoting sustainable development (Appendix 2:3). Zambia is also joining the rest of the world in fighting climatic change and adoption green- practices to protect the environment. The strive towards a smart Zambia is one of the efforts (7NDP).

(iv) Automatic stabilizers: Automatic stabilizers are policy instruments that automatically adjust government spending and revenue in response to changes in the economic cycle. For example, unemployment benefits increase during a recession, providing a stimulus to the economy, while taxes automatically increase during an economic boom, reducing inflationary pressures (Appendix 2:3). This option is limited for Zambia because the economy does not have enough resources to provide unemployment benefits. These come into effect to avert the impact of a crisis and follow adjustments rather than automatic responses. Examples include taxes incentives and social cash transfers (Lastunen et, 2021).

5.6.4 Debt to GDP ratio Forecasting

Zambia's debt to GDP ratio forecasts in figure 8 indicate that prospects are based on three scenarios, being the optimistic, weak, and pessimistic scenarios. These can be explained as follows:

(i) Optimistic- this scenario indicates that debt will decline after the debt relief of USD$8.4 million is approved (IMF, 2022, Sept 7; Bloomberg, 2022, Sept 6). This figure represents almost 40 percent of foreign debt and is expected to lower debt to about 60 percent of GDP in

2023. This hope has been rekindled by assurances from the IMF strategist Ceyla (Reuters, 2023, April 13) that the restructuring process could be concluded early due to the willingness of some lenders as the major creditor China is willing to co-operate in the debt restructuring process (Financial Times, 2023 April 14). The sharp decline is expected to start curving in at a steady rate between 30 and 40 percent of debt to GDP ratio in 2024 and continue to decline to 25 percent mark in 2025 and Lary around 16 percent in 2026. Other factors which will make this trajectory possible include more foreign investment in the economy particularly the expected increase in mining output.

(ii) Weak- this route represents the current level and assuming that the restructuring process does not produce more favourable results for Zambia. If this situation is faced, the debt ratio should be expected to drop to less than substantial amount, reaching 100 percent ratio in 2023. It is expected that debt ratio will continue declining at a moderate rate reaching 80 percent in 2024 and 60 percent in 2025 before recording a 50 percent ratio in 2026.

(iii) Pessimistic- this scenario assumes that no haircuts are considered in the restructuring process. It, therefore, indicates that the debt ratio will be in a downward trajectory but at a gentle slope beginning this year 2023 at a debt ratio of 110 and will be on a shallow decrease at 100 and 90 in 2024 and 2025 respectively and wander around 80 in the year 2026. This still indicates high debt level and may be alluded to more borrowing especially as we get closer to the 2026 general election.

The common feature in all the three scenarios is the potential rise in the debt to GDP ratio. The factors which are likely to influence this increase include the state of the global economy and borrowing. Borrowing is expected to increase as the country gets closer to the 2026 election. The world economic outlook is not healthy at the moment and it is likened to the resurgence of the 2008 financial crisis (Daily Hodl Staff, 2023 April 15).

The post-COVID-19 period seems to be even more severe than the previous financial and economic crises of 1980s. It is a combination of the financial, economic and debt crises and thus posing danger to all sectors of the global economy (Market Watch, 2022). There is a possibility of prolonged high inflation as a result of disruptions in the supply chain by the pandemic and governments, in developed and developing countries, are fighting to control inflation by raising interest rates.

These developments are expected to adversely affect Zambia because the country relies heavily

on imported goods, hence importing inflation and, the reason that most of debts are denominated in foreign currency, rising interest rates automatically raises interest rates on foreign debt.These prospects suggest that the Zambian economy falls in a weaker scenario. Where the economic recovery is expected to take longer, fiscal policy is needed to boost domestic demand (Napo, 2022). In this case, there is need to use fiscal policy to support the domestic economy so that it can grow and become resilient to withstand difficult factors ahead.

5.7 Chapter Summary

The results indicate that Zambia uses a mixture of expansionary and contractionary fiscal policies but expansionary fiscal policy is more dominant because of high borrowing for infrastructure development. Zambia needs to re-assess how it uses the mixed fiscal policy and have an understanding that planning for infrastructure development is not sufficient ground to avoid future debt crises (Calabrese, 2021).

The duty of the fiscal authority is to create a functional fiscal policy (Keynes, 1936) but Zambia fails to create a functional fiscal policy particularly in the crisis period because of inadequate income streams. Results indicate that the country can use the fiscal balance to sustain debt and this requires raising it to 4.5 of GDP. Impediments to effective implementation of fiscal policy include import dependence, lack of control of strategic assets, poor quality of education, lack of frugality and concentration on monetary solutions, among others.

The government plans to improve the fiscal balance include increasing copper output to 3000 tons in ten years, reform the agriculture sector, industrialization, use PPP for major capital projects and sustainable fiscal adjustment (IMF, 2022). These may be attained through government taking a leading role to ensure that the mining industry is owned and controlled by local people to maximize revenue, support agriculture, improve education curricula and increase the tax base through fiscal decentralization.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter summarizes findings from the previous chapters in relation to the main research objective "finding an effective way of implementing fiscal policy to ensure public debt sustainability in Zambia". The chapter consists of seven sections which include introduction (given), conclusions, recommendations, practical implications, limitations of the study, direction for future research and a chapter summary.

6.2 Conclusions

6.2.1 RO1

Relationship between predictor variables and the outcome variable

Public debt and budget deficits are the two critical macroeconomic variables that influence fiscal policy of the country and this creates challenges for the authorities to sustain the national budget (Redda, 2020). The two are related to fiscal problems in many ways. Firstly, borrowed funds are required to be repaid (principal and interest) and thus debt servicing payments affect public revenue (Gazali, 2020). Secondly, expansionary fiscal policy is used when the Zambian government desires to meet some project expenditure which cannot be met through the budget and the government turns to borrowing in order to finance the deficit. This increases Zambia's debt.

Thirdly, contractionary measures are aimed at reducing public expenditure and reducing borrowing. Government had in the recent past suspended infrastructure development as a way of reducing further borrowing (Parliament, 2022). Fourth, fiscal policy is related to public debt sustainability when a natural disaster occurs. For, example, the effect of drought and floods in recent years cannot be forgotten (Davies, 2023). Pests such as army worms, grain borers and locusts have also impacted negatively on the Zambian economy (National Assembly of Zambia, 2017). Most of these occurrences are financed through borrowing where aid is inadequate.

Finally, the relationship is even more serious when Zambia enters a debt crisis. Debt overhangs and debt crises (Cordella, 2010) divert resources needed for investment to debt servicing and this stifles investment and economic growth.

6.2.2 RO2

Assessment of the adequacy of fiscal policy on public debt sustainability

6.2.2.1 Test results

(i) Correlation and regression results

Research results show that both the adjusted R square and the Standard error of estimate indicate that predictor variables fiscal balance, growth, inflation and interest rates have influence on debt (Table 4). However, Fiscal balance contribution to debt reduction is immense indicating 761 reduction in debt per unit increase in fiscal balance (Table 6). Therefore, the country's focus should be improved fiscal balance through achieving higher growth targets than interest rates.

(ii) Dominant predictor variable

Fiscal balance has more significant influence than other predictor variables at 95 percent level of significance. This was confirmed in the dominance analysis which is a summary of correlation coefficient and standardized coefficient beta. This means that government needs to reduce fiscal deficits as it is more important in lowering the debt level and consider increasing GDP growth as a second priority.

6.2.2.2 Diagnosis of results

(i) Linearity test

The linearity test indicates that economic growth (GDP) and fiscal balance (fiscal deficits) are correlated at 95 level of significance. It means that fiscal balance needs to be managed to generate economic growth or else fiscal deficits may cause debt to accumulate.

(ii) Normal distribution test

The result indicates that errors causing inefficiencies in debt management over the period under review were not the same from one period to the other.

(iii) Multicollinearity test

The test result indicates that there is no combined effort of predictor variables towards the outcome variable.

(iv) Homoscedasticity test

The result indicates that there is no established pattern by errors causing debt accumulation over the 20 year period.

(v) Autocorrelation test

The period under review indicates that errors in one period are not correlated with errors in other periods. This is because the autocorrelation of 1.51 is within the acceptable range between 1.5 and 2.5 (Kumar, 2020). This may cause the problem of producing biased, inconsistent and

invalid test results (the outlier 73, 2022) because it is contrary to the Watson Dublin test which indicates a positive result that past errors have contributed to debt accumulation.

6.2.3 RO3

Factors affecting effective implementation of fiscal policy

Major limitations include lack of growth sustainability, import dependence, lack of control of strategic assets, political and social aspects, poor quality of education, lack of frugality and concentration on monetary solutions.

(i) Lack of growth sustainability

Zambia is capable of achieving economic growth but fails to sustain it (Smith et al, 2016; Lwazi, 2022), because financial sources are not anchored on the strong foundation to provide resilience in difficult economic times. This is the major cause of fiscal deficits, weaker growth, currency depreciation and rising debt servicing costs, among other problems (Estevao, Robinson & Sommer, 2019).

(ii) Lack of control of strategic assets

Lack of control of strategic assets is another factor which contributes to sluggish growth because the country fails to shape the course of the economy as most strategic assets such as mines are controlled by foreign investors. This fact puts the government in a weaker position to extract the right taxes (Lwazi, 2022). Further, the extractive industries use unfair practices such as tax evasion, transfer prices and repatriation of funds (Oloruntoba, 2022). This makes it difficult to sustain economic growth.

(iii) Lack of frugality

Zambia lacks efficiency in the utilization of debt finance especially by not investing into productive sectors that can yield higher return on investment. Hilton (2021) suggested investment into self-sustaining projects that can generate revenue to afford debt servicing. More investments such as power generating plants of lower Kafue gorge and toll Gates are needed to increase on revenue streams (Zambia Daily Mail, 2022).

(iv) Use of monetary tightening

During a crisis, Zambia uses monetary tightening in an effort to stabilize the economy. This

measure exacerbates the crisis instead of reducing it because it slows down economic activities and thus cripples the capacity to generate revenue and economic growth (Badia et al, 2020).

(v) Deriving the fiscal balance

Zambia fails to meet conditions for both the Ricardian view and the non-Ricardian view of deriving the fiscal balance because it fails to generate the fiscal surplus and also higher growth rates than interest rates. For example, the current projection of GDP at 4 percent (8NDP) against monetary rates of 9.25 percent (boz.zm) and forecast medium term global interest rates of 6 percent (CNBC, 2023; bloomberg.com) do not provide fertile ground for the use of the non-Ricardian approach to deriving the fiscal balance.

(vi) Lack of countercyclical fiscal policy

Zambia has no capacity to counter adverse economic cycles such as a crises because fiscal measures come too late to make the difference (Carneiro, Nguyen & Odawara, 2016). It thus makes it difficult for Zambia to satisfy the definition of public debt sustainability which does not require extraordinary measures such as getting external support to resolve a fiscal crisis (Omotor, 2021; Hakura, 2020).

(vii)Unsustainable fiscal policy

Willems and Zettlelmeyer (2022) indicated that fiscal policy is unsustainable where it involves a change in fiscal policy as a result of using pro-cyclical fiscal policy in difficult economic times. In this regard, Zambia fails to maintain a policy and loses a grip on the economic direction of the country.

(viii) Fiscal policy uncertainty

This anchors on government decision to continue expansionary or contractionary fiscal policies (Wen, Lee & Zhou, 2022). Where government is unsure about the fiscal policy to take it affects economic decisions such as investment and revenue generation. Where the desire to invest is affected it thus stifles economic growth.

(ix) Political barriers

Political barriers involve inertia in the political system caused by non-inclusiveness of all the political parties in policy formulation and also difficult to strike an agreement on important matters of the nation such as tax holidays for investors, tax regimes and debt contraction (Lwazi,

2022).

(x) Poor quality of education

Lack of proper education provides a barrier because countries use education as a long-term investment to improve on the future of the economy. However, there is little support to improve on scientific technological, innovation and discoveries to produce substitute products in order to reduce imports. This is contrary to what other countries do (Gill et al, 2014).

6.2.4 RO4

Suggested ways to ensure effective implementation of fiscal policy.

The government is required to raise GDP by 4.5 percent and borrow at 2.15 percent of interest to make public debt sustainable (Bohn & Henning, 1998) at a ratio of 60 percent (Redda, 2020). This should be the guide as long as the country continues using the non-Ricardian approach to deriving the fiscal balance (Afonso & Coelho, 2022). There are three available measures that Zambia can use to ensure effective implementation of fiscal policy and these include:

6.2.4.1 Growth enhancing measures

These include supporting infrastructure development, employment, education and innovation (library.fiveable.me-unit-5, 2023 Jan 5).

(i) Infrastructure development

Zambia must continue using infrastructure development as a source of employment, enhancing economic capacity of the country and economic growth (unacademy.com). The choice of Public Private Partnership (PPP) as alternative to acquiring debt for infrastructure projects (Pearce et al, 2022) is right at the moment when the country has not resolved a debt crusis. However, each choice may have merits and de-merits and these depend on contractual terms such as agreed interest rates for debt, transparency (Debrun et al, 2019) and fair clauses for PPP.

(ii) Employment

Provision of employment is one method of stimulating economic growth, also known as pump priming, the economy (Frankel, 2019). Vieira (2022) stated that fiscal policy cannot be limited

by financial constraints but the only limits relate to employment and inflation. Thus, the Zambian government can create employment by increasing spending while escaping inflation through Public Service Employment (PSE), the Modern Money Theory (MMT), and fiscal decentralization (FD).

The PSE program is aimed at providing a job to everyone who needs it at a minimum wage, and is a better alternative to increasing taxes on a few working citizens. The PSE has the advantages of reducing poverty, creating economic growth and spilling over the benefits to the private sector without creating inflation (Wray et al., 2018).

The Modern Money Theory (MMT) backs a belief that unemployment is caused by the government spending too little while collecting taxes (Vieira, 2022). The government's duty is to reduce unemployment by increasing spending. Therefore, those looking for work and are unable to find it in the private sector should be given transition work managed by the local community at a minimum wage funded by the government.

Fiscal Decentralization (FD) supports the creation of provincial government systems to enhance Fiscal decentralization which can be an effective and efficient way of easing debt management problems (Sun & Razzaq, 2022). FD encourages participation and support of citizens in fiscal policy implementation (doc.govt.nz). FD has been identified as a worldwide trend over the last decades (Wang & Lei, 2016) and is successful in many countries including the US, India, Vietnam, and China, among many more (Kaur, Mukherjee & Ekka, 2018; Bloomberg, 2023 April 16).

FD instils a sense of ownership in the provincial and district leadership, encourages accountability, efficiency and quality delivery of goods and services to the community. Revenue targets, growth targets, among other indicators, can be used as building blocks for national targets. Although FD requires amending the national constitution, it provides valuable contributions to national development. If anything, the essence of the constitution is to spearhead national goals for the benefit of its citizens.

(iii) Education

Countries use education as a long-term investment. The desire to mprove the education system requires to involve critical thinking that can give learners capacity to discover, innovate and create value to benefit industries and thus development of the country. Crises teach lessons and

should be positively used as opportunities to innovate and adapt to changing needs. This is true to current challenges as other countries have managed their crises to even emerge as creators of new industries, jobs and wealthy individuals (Economic Raven, 2021, Feb 13) through adding value to the education system, and research and development (TrendMax, 2019).

(iv) Innovation

This involves improvement in production of goods and services (Wan et al, 2022). It requires support to education, research institutes and other professionals to enhance their creativity in order to maximize their potential and add value to the local resources so that the country can rip full benefits (Wan et al, 2022). Innovation can result into substituting some imports with locally made goods.

Innovation cannot succeed where the capacity to do so is limited. This can be lessened where the country assumes "control of strategic resources". Control of strategic assets such as mineral resources can allow the economy to use mining proceeds to improve the agriculture and manufacturing sectors and thus diversify the economy. This can lead into creation of more jobs and a larger tax base (Insider, 2023, April 23). A leaf can be taken from oil rich countries such as Saudi Arabia and UAE which have used their resource to improve other economic sectors (CoolVision, 2020).

Another measure requires supporting local citizens to succeed in creating wealth do that they become "millionaires". Zambia needs a deliberate policy to empower and support local intreprennuires so that they can maximize their potential (Business Insider Africa, 2023 April 2). Local wealthy citizens are a source of credit provision where they accumulate both foreign and local currencies (FitchRatings, 2022). Another advantage is that locals tend to be loyal to the country and can support the country even in difficult economic times. This is different from foreign 'jumpy investors' who diversify easily because they are motivated by higher returns on investments elsewhere (Economist, 2022, April 30).

6.2.4.2 Budgetary measures (Petko and Zarkova, 2020)

The ideal solution is to run a balanced budget which requires to restrict expenditure to revenue and avoid borrowing (Ricardo, 1951). Where this is not achievable, other measures may include:

(i) Fiscal rules

The rules are designed to promote fiscal discipline, reduce budget deficits and public debt, and ensure the sustainability of public finances. For example, “the golden rule” as a measure provides the level of deficit that must be allowed. In some countries, in order to curb debt accumulation deficits are pegged as a percentage of GDP to ensure fiscal discipline (Hamad & Abarahim, 2022). The SADC region has recommended deficit financing not to exceed 3 percent of GDP (Redda, 2020).

(ii) Performance-based budgeting

This involves linking budget allocations to performance measures, such as outputs or outcomes. The measure can help to ensure that government resources are allocated to activities that are most effective in achieving desired policy outcomes. This measure can encourage the use of borrowed funds on well evaluated projects which are capable of yielding more return on investment and self-sustaining projects which are capable of generating revenue to service debt (Hilton, 2021).

(iii)Zero-based budgeting

Zero-based budgeting is a budgeting approach that requires each budget item to be justified from scratch in each budget cycle. This can help to promote efficiency and reduce wasteful spending.

(iv)Two tier budgets

This involves running a functional budget and a financial budget (Toporowski, 2020). A functional budget to contain taxes and expenditure to manage economic growth and a financial budget to take care of taxing of the wealthy, higher incomes and collection of non-tax revenue (National Assembly of Zambia, 2022) to be channeled towards debt servicing debt.

6.2.4.3 Financial technical measures (Petko and Zarkova, 2020)

(i) Issuing irredeemable debt

This involves debt perpetuities that retire after the last instalment (Corey et al, 2018). Debt perpetuities require payment of interest on debt until it retires and no payment is needed to redeem the debt or refinance. This can save the country from worries about future obligations particularly that repayment of the principal involves huge cash flow.

(ii) Use the money market method (MMM)

This method relates to measures such as running open debt contracts that can permit buying and selling bonds on the market without committing to debt maturity (Fastenrath, Schwan & Trampusch, 2016). It has the advantage of getting rid of troublesome bonds for less costly bonds.

6.2.4.4 Projections

Prospects suggest that the Zambian economy falls in a weaker scenario. Where the economic recovery is expected to take longer, fiscal policy is needed to boost domestic demand (Napo, 2022). This was evidenced by low revenue collection of 19.7 percent of GDP in 2021 (theigc.org). The country is expected to miss on attainment of it's vision-2030 due the debt distress situation that requires high relief (world bank.org).

6.3 Practical or Managerial Implications of Findings

6.3.1 Theoretical

(i) Specific research title

This study differs from other studies on the Zambian economy in that it specifically considered the relationship that exists between fiscal policy implementation and public debt sustainability. Whilst other studies relate public debt to single variables such as economic growth (Saungweme & odhiambo, 2018) or debt and a crisis (Pearce et al, 2022; Kalikeka, Nalishebo & Muleya, 2019).

(ii) Reviewed variables

Most studies which look at debt sustainanability such as Khalladi (2019) in the study of Tunisia's debt sustainability considered the predictor variable exchange rate instead of inflation rate. This reseaerch considers inflation rates to be more relevant because Zambia has foreign and local debt. Exchange rates ignore the effect on local debt component. Inflation therefore takes care of the debt reduction effect that the government can use on local debt (Reinhart & Sbriansia, 2015) and also the reason that inflation affects the exchange rate.

(iii) Stages of assessment

The research added a fourth stage to the three stages suggested by Ncube and Rajhi (2014) approach who suggested that the debt sustainability analysis should be conducted in three stages, being calculating the debt stabilization primary balance, establishing historical drivers

of debt, and looking to the future prospects. The addition involves relating the outcome variable and predictor variables, debt and fiscal policy. Also, to the suggestion of effective implementation through an orthodox growth solution, the study included the budgetary and financial technical solutions (Petko and Zarkova, 2020)

(iv) The fiscal reaction function (FRF)

This study has used Bohn (1995) FRF to arrive at a suitable level of borrowing. The FRF shows a relationship between public debt and fiscal balance. This model has been used by other researchers such as Ogbeifun and Shobande (2020), Burger, Stuart, Jooste & Cueva (2012) and Mello & Luiz, 2008) among others. The FRF has been used for Zambia's case and indicates the decision to maintain the ratio of GDP and interest rates of 4.5:2.15. This brings the equation to {PB= (2.15i- 4.5g) B}.

6.3.2 Methodological

Zambia must prepare to spend to embrace Fiscal Decentralization. An economy that reduces spending limits potential investment and thus suffers from the fallacy of composition (Palatiello & Pilkington, 2022). FD will remove political, social and other barriers. Fiscal policy decentralized to provinces will ensure that decisions will be made by people close to the economic problems. It will thus permit citizens to innovate and control strategic assets. In addition, national revenue and GDP growth targets will be an aggregate of provincial targets and thus provincial economies will stand steadfast to compete and this eill lead into improvements in national targets (Chemick & Reschovsky, 2020).

6.3.3 Policy

Zambia must use growth targets to inform borrowing decisions or else generate a fiscal surplus (Ricardo, 1951). The growth rate needs to exceed interest rates to make debt sustainable (Blanchard, 2019). This will lessen chances of defaulting on loan terms. In addition, authorities need to ensure that fiscal pronouncements are aligned with actual situations on the economy to defuse anxiety (Melosi, Morita & Zanetti, 2022). For example, since national debt matters affect the general public, more transparency could help to ensure that people become aware of the debt level and where necessary adopt a system of debt display on a wall clock like in New York to show how much debt is increasing per second (Last week tonight, 2021; Chapter 31: Deficits and Debt).

6.3.4 Managerial

Establish a semi-autonomous and professional debt office. The debt office needs to be effective and efficient to avoid severe debt crises in future. This requires making the debt office semi-autonomous to encourage professionalism and reduce political influence from overriding decisions of technocrats (Kalgina & Tsaregradskaya, 2018)).

6.4 Recommendations

The main objective of the study is to establish an effective way of implementing fiscal policy to ensure public debt sustainability. This entails suggesting ways that are feasible within Zambia's resource capacity whilst not ignoring factors that impede effective implementation of fiscal policy. Recommendations, in this regard, fall into three categories namely growth enhancing strategies (Reinhart & Sbransia, 2015), budgetary strategies and financial technical strategies (Petko & Zarkova, 2020).

6.4.1 Growth enhancing strategies

Reinhart & Sbransia (2015) refer to using growth as " a standard fare of officialdom" because of its reliability as a measure of effective economic performance. Zambia can enhance growth in four ways, being infrastructure development, employment, innovation and education (fiveable.me-unit5).

6.4.1.1 Infrastructure development

Public infrastructure development is means of rebooting the economy through the construction sector to increase economic activities, create jobs and reduce poverty. Many developed and developing economies are using this method and include Rwanda (New Africa Channel, 2022), India, USA, among others. India currently has a highest GDP record of 9 percent due to increased infrastructure development (CNN, 2023). Zambia must continue investing into infrastructure because it tends to improve lives of the vulnerable in society and is one form of bridging the gap between the rich and the poor.

Infrastructure development is a way of ensuring inclusive economic growth as it gives broad access to economic opportunities (whitehouse.gov.). However, it is important to finance non-revenue generating investment such as social infrastructure with local revenue to avoid a debt burden (Ricardo, 1951) or long-term cheaper debt to insure the country from liquidity risk (Ellison & Scott, 2022). The current CDF allocation is a starting point but it is inadequate for the required infrastructure development. Further, there is need to establish institutions in order

to remove politics out of the fund.

Zambia has a record of funding infrastructure development and has mainly used borrowing as a source of funding. The country still continues facing the problem of inadequate infrastructure for citizens and debt crises. In order to provide a robust and effective solution to this problem, the country needs a shift from the centralized system to decentralization and this can be achieved through fiscal decentralization (FD) because it involves people′s support. It is a smartest way of promoting inclusive leadership and governance system (Gaspar & Eryaud, 2017) by allowing the provinces (states) to generate revenue, decide on expenditure and borrowing.

FD requires citizens in provinces to own fiscal policy because of their participation in the formulation and implementation of the process. FD provides room for local grown solutions that also get fine-tuned to specific problems such as right technology, right skills, and processes needed to tailor goods and services to Zambian standards for needed development (Wu, 2023). This will not only facilitate building needed infrastructure but also help to create a strong tax capacity to support fiscal policy (Gaspar & Eryaud, 2017). FD as a system can also help to reduce political and ethnic barriers (Sun & Razzaq, 2022).

6.4.1.2 Employment

In order to create more employment, Zambia needs to move from the traditional way of creating employment such as dependence on foreign direct investment and annual public service employment (PSE). This can be achieved through the modern money theory (MMT). MMT aims at using sovereign currency to create employment (Kim & Griffin, 2022) and is consistent with the philosophy of functional finance (functional fiscal policy, 1936). It involves using money printing as a fiscal tool to create employment without increasing inflation (Drumetz & Pfister, 2021). The use of MMT in helping the economy to create jobs has been defended by Lavoie (2013) through the balance sheet equation.

This method avoids limiting the economys capacity to create employment and economic growth needed to generate and sustain liquidity in the eeconomy. It ensures managing the macro economy to benefit citizens (taxresearch.org.uk.). Vieira (2022) stated that fiscal policy cannot be limited by financial constraints and the only limits are inflation and employment. This is also supported by former US president Lincoln who saw money to work for citizens rather than money being a master.

The use of MMT is backed by the theory of functional fiscal policy (Keynes, 1936) and sound finance (Lerner, 1943). MMT is an alternative to borrowing and can save the country from debt troubles. Although the terminologies differ, it is evident that the USA's used of stimulus packages after the 2008 financial crisis and MMT was one method of injecting funds in the economy. Another example is China's subsidized production (Branstetter, Guangwei & Mengjia, 2022), which may not have created any cash flow internally, can be alluded to the conspicuous use of the MMT.

Zambia, in this respect, has fewer limits in the use of the MMT. The limits can simply be related to a number of raw material imports needed for production. However, where there is an opportunity to reduce the cost of imports or produce goods using entirely local materials, this method need to be used to create more employment. The main advantages of MMT are that the country can never become insolvent, and can regulate the economy by issuing money and buying bonds through the central bank (Mitchell et al, 2019).

6.4.1.3 Innovation

Firstly, Zambia needs to take control of its resources because there is no country that has ever been developed by foreigners. This is because ownership of domestic production ends up directing income flow to foreign countries (Palatiello & Pilkington, 2022). Therefore, a country that subjects it's resources to foreign ownership looses it's capacity to develop. Lessons can be taken from Japanese who used the western technology as a launch-pad local technological advances through their own resources (Wu, 2023).

Similarly, most Arab kingdoms such as Saudi Arabia, the UAE, Qatar and others are able to decide the course of the economy because they are in control of oil wealth. This has even allowed them to diversify into various industries such are air transport, manufacturing and agriculture sectors (Cool Vision, 2020). However, it should be noted that natural resource diversification is not a condition for development. This is because diversification without development has happened before in Brazil and Argentina (Gill et al, 2014).

History is also similar to the UK's and USA's diversification process from mining. For example the success story of California's diversification was spearheaded by the scientific research at the Berkeley and Stanford Universities (Gill et al, 2014). This successful diversification was due to jelling of sustainable industries such as Hollywood film industry, vineyards of central California, the Silicon Valley, education, infrastructure, active community and government support.

Zambian citizens must take upon themselves to utilize it's wealth because they should be

primary beneficiaries (Webster, 2013). It is thus worth learning from what successful countries do to improve their economies. This approach will lessen citizens view of natural resources such as minerals as the resource curse (Karanfil & Omgba, 2023).

Zambia's mineral deposits will not run out any time soon but there seems to be little benefits because of rising unemployment and poverty levels (usaid.gov; Zingel & Modern, 2022). Control of strategic assets can reduce foreign ownership of local resources (Palatiello & Pilkington, 2022) and also avert repatriation of foreign currency. Deliberate policies such as investing proceeds into agriculture, education, and research and development can be achieved with more government revenue (Liebenthal & Cheelo, 2018). Webster (2013) stated that Zambians must be the primary beneficiaries of mineral wealth and they must act politically to achieve this reality.

The second approach the country needs to take is "creating millionaires". It is what successful developed and developing countries do (FitchRatings, 2022; Business Insider Africa, 2023 April 2). Local wealthy citizens are a source for credit because they are likely to accumulate both foreign and local currencies and can support the country even in difficult economic times. Full support of local investors is an important economic measure and requires that increasing output is supported by near term fiscal policy and make gradual fiscal adjustments in the medium term (Fournier, Hisanaga & Nguyen, 2022).

Further, local wealthy citizens can participate in the management of the economy and have the capacity to take the corporate social responsibility (CSR) seriously because they are part of the community and cannot prioritize returns for their businesses to bate the future of the country. This can save the government from the need to tax in order to afford spending on health, education and others (treasury.org.nz). The other advantage is that it can become easier for Zambia to borrow and settle debt in it's local currency (business insider.com. 22 July, 2022)

6.4.1.4 Education

The education system needs to be revised to make it relevant to specific industries so that education can be used as a base for academic discoveries which can be fed into industries to improve their operations (TrendMax, 2019). This requires government to commit more funds towards this course in order to enhance critical thinking in the learner and therefore provide opportunities to come up with novel home grown solutions.

6.4.2 Budgetary strategies

(i) Two tier budgeting system

The country needs to use the expansionary fiscal policy prudently to avoid future debt crises possibly aiming at achieving the balanced budget which may include preparing two separate budgets, a functional budget and a financial budget (Toporowski, 2020). A functional budget to contain taxes and expenditure to manage economic growth and a financial budget to take care of taxing of the wealthy, tax higher incomes and collection of non-tax revenue (National Assembly of Zambia, 2022) to be channeled towards debt servicing.

(ii) Borrowing decision

Zambia is required to raise the fiscal balance by generating a minimum of 4.5 GDP. This can be achievable by removing limitations which include import dependence, lack of control of strategic assets, poor quality of education, lack of frugality and concentration on monetary solutions. This GDP should be used as a guide in borrowing decisions and the current borrowing rate based on GDP need not exceed 2.15 interest on loans. Where high rates are expected, the interest to growth ratio of 2.15: 4.5 need to be maintained.

(iii) The choice between expansionary and contractionary fiscal policies

Zambia needs to use a mixture of expansionary and contractionary fiscal policies with caution and aim at achieving a functional fiscal policy (Keynes, 1936). The ideal situation seems achievable by investing debt finance into productive sectors especially where higher returns are expected and use tax revenue on social expenditure and consumption (Ricardo, 1951). This approach will be able to balance between the use of the Ricardian and the non-Ricardian approaches to fiscal balance derivation.

In the current delicate economic situation, the government can use discretionary fiscal policy to reduce taxes and increasing government spending to increase aggregate demand (economicshelp.org). This is consistent with government's duty to create a functional fiscal policy (Keynes. 1936). The measure should be expected to increase employment, consumer spending and investment. The solution is critical to the health of the economy and it is not by surprise that even developed countries like the UK and Japan governments have approved subsidies on fuel, gas and electricity to help households and firms (BBC news, 2023 March 15; FitchRatings, 2022 Nov 9).

Expansionary fiscal policy involving tax cuts and increased public expenditure is important in hard times. In the current situation where prospects indicate that Zambia's economy falls in a

weak category, Napo (2022) suggested to use fiscal policy to support the domestic economy so that it can grow and become resilient to withstand difficult factors ahead. Moreover, economic crises, debt crises and recessions can be fixed by expansionary fiscal policy (khanacademy.org).

6.4.3 Technical financial strategies

These strategies include indirect measures to control financial factors in order to curb public debt escalation while relieving the economy to enhance needed growth and sound liquidity. These include:

(i) Active fiscal policy

Zambia does not need to wait for a crisis in order to use fiscal adjustments. The use of this policy should be continuous because active fiscal policy is a recipe for debt sustainability (Elgin, Williams, Yalaman & Yalaman, 2021; Mackiewicz, 2021). This will make it timely to counter adverse economic situations (Carneiro, Nguyen & Odawara, 2016). Active fiscal policy should be predictable and communicated on time to avoid affecting economic decisions (Wen, Lee & Zhou, 2022).

Zambia's fiscal policy should not only be active but also be maintained where it is in the long term interest of the country. Zambia's fiscal policy seems not to be inline with the long-term vision of the country because it is subject to change due to objectives of the party in power. There is a tendency to abandon projects once there is a change of government. This obscures the long-term view to generate future taxes (Wong, 2022). The risks include wasting resources and sometimes create costly mistakes that may lead to economic stagnation (Arestis et al (2021).

(ii) Monetary tightening

The Zambian government must avoid raising Interest rates to control inflation because it is a temporary solution as inflation is likely to be contained in the short term and burst in the near future (Blanchard, 2020). Long-term measures to help rebounding from a cost of living crisis should relate to protecting the vulnerable while not loosing sight of the fiscal stance to curb Inflation (Gaspar & Eryaud, 2017).

Lowering inflation durably must come with fiscal support through investment in production sectors that enhance economic growth needed for economic stability (Cochrane. 2022). This means that monetary tightening needs to be dominated by the fiscal stance to manage the

economy by creating employment and reducing inflation to ensure long-term stability (Cato.org, 2019).

(iii) Open loan contracts

The country can use the money market method (MMM) to avoid locking loan contracts to maturity. This can allow the country to keep loan contracts open to allow the disposal of expensive loans and acquisition of cheaper loans on the market (Fastenrath, Schwan & Trampusch, 2016). This measure can also make it easy to monetize bonds particularly the local debt (Carnevali & Fontana, 2022). Another measure the country can use is to issue irredeemable debt. Debt issued as perpetuities are forms of irredeemable debt and can save the country from costs associated with refinancing and debt redemption (Corey et al, 2018). Perpetuities can be applied to long-term debts especially those for the social infrastructure and must attract low fixed interest rates (Cochrane, 2015).

6.5 Limitations of the study

(i) This study faced challenges in data extraction because fiscal and debt are connected to political decisions. The other problem is that it required paying attention to pronouncements, news updates and activities around the globe which may have impact on the Zambian economy. It is, therefore, possible that this study may not contain some of the information which may be out there to the general public.

(ii)The study was conducted at a time when the country was on the crossroads as uncertainty surrounded the conclusion of the restructuring process. The time and the outcome of the restructuring process were not known and it was not clear whether haircuts would be involved or partial relief given, especially that part of the debt was owed to private investors. This made prediction of the future debt level difficult.

(iii) Fiscal policy and debt sustainability are inextricably linked to monetary policy. This made it hard to isolate the effect of monetary policy in the study. A more complete picture of debt sustainability would be to combine the effect of both fiscal and monetary policies though this involves more work.

(iv) Fewer fiscal experts were another limitation because most respondents requested to go back and read about fiscal policy before they could give responses. Only institutions such as MFNP, PMRC, ZIPAR and JCTR had fewer experts in this field. Other institutions and individuals found it difficult to give responses and in some cases completely failed to do so.

6.6 Direction for future research

This study has opened the door to explore more in terms of fiscal policy implementation. However, the study did not specifically look at the political side of policies but indicated that politics have huge impact on policy formulation and implementation (Beetsma, 2022). Further, data obtained was unable to accommodate non-financial variables such as political risk, corruption and quality of government institutions. Future research may look into these factors and their impact on debt. There is also a current trend towards incorporating factors such as environmental, pandemics, droughts and floods. Future research may also consider referring to the Multidimensional Vulnerability Index (MVI) to produce a more relevant debt sustainability report (UN, 2022; Pacific Islands Forum 50, 2022).

6.7 Chapter Summary

Zambia uses a non-Ricardian approach to determine the annual fiscal balance which does not required consideration of debt stock. The country needs to reconsider this approach because it lacks capacity to generate higher economic growth rate than interest rates on loans like in developed and emerging countries. The fiscal balance can be improved by considering growth targets which can be achievable after removing limitations which include import dependence, poor quality of education, lack of control of strategic assets, and so on.

The country needs to increase its fiscal balance by 4.5 of GDP and borrow at 2.15 interest rates to make debt sustainable. Fiscal decentralization will be pivotal in improving debt management and generation of a health fiscal balance because of its high qualities in efficiency and effectiveness. This research had limitations which included the difficult encountered in collecting data because debt matters are politically sensitive and there was uncertainty on the restructuring process. Future researchers may advance these findings by incorporating the political and other non-financial variables.

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APPENDIX

Appendix 1. Questionnaire: Semi-structured interviews.

Main Research Objective: To establish a better way of implementing fiscal policy to ensure public debt sustainability in Zambia.

1. to relate fiscal policy implementation to public debt sustainability in Zambia.
(a) Why does fiscal policy implementation affect public debt sustainability in Zambia? (b) How can Zambia improve implementation of fiscal policy to ensure public debt sustainability?

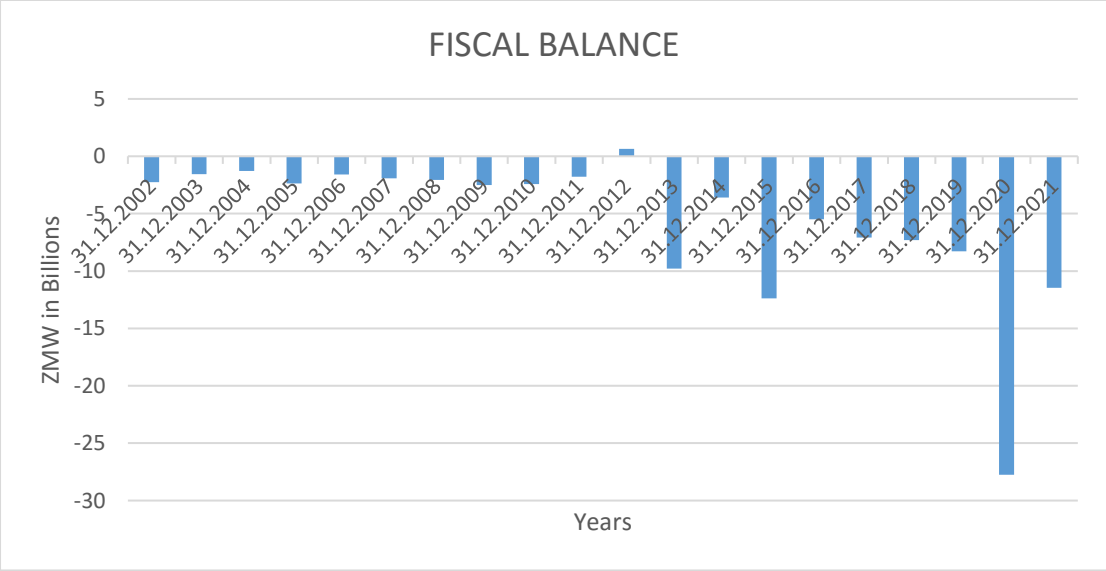
2. to establish factors affecting effective implementation of fiscal policy in Zambia.
(a) What are the factors affecting effective implementation of fiscal policy? (b) How can these factors be delt with to ensure smooth implementation of fiscal policy?

3. to suggest how fiscal policy can be implemented to ensure public debt sustainability in Zambia.
(a) What are the alternatives to the current system of implementing fiscal policy?
(b) What are the necessary changes needed to align the current system to the proposed system (s) ?
(d) How feasible is this proposed system?

Appendix 2. Questionnaire summary of responses

Respondents	Expertise	Location	Written Responses	Phone interviews	Face to face interviews
MFNP	Fiscal and debt	Lusaka	written		
BOZ	Monetary policy	Lusaka		Phone interview	
PMRC	Policy Analysis	Lusaka	written		
JCTR	Policy Analysis	Lusaka	written		
ZIPAR	Policy Analysis	Lusaka	written		
Others (10)	Finance & economics	Lusaka		4 Phone interviews	3 Face to face interviews
Total (15) Recorded(12/15)			4 written	5 Phone interviews	3 Face to face interviews

Appendix 3. Graph of fiscal balances for the period 2002 to 2021



Appendix 4. Projections

DEBT/GDP PROJECTIONS

	DEBT TO GDP	OPTIMISTIC SCENARIO	WEAK SCENARIO	PESSMISTIC SCENARIO
2021	125.70	125.70	125.70	125.70
2022	124.00	124.00	124.00	124.00
2023	124.00	74.40	99.20	111.60
2024	124.00	44.64	79.36	100.44
2025	124.00	26.78	63.49	90.40
2026	124.00	16.07	50.79	81.36

Appendix 5. The Fiscal Reaction Function (FRF) Framework

Bohn (1995) referred FRF to an error correction mechanism which ensures that whenever public debt to GDP ratio increases, government reacts by improving the primary balance in order to avert further escalation of the debt to GDP ratio (IMF, 2011). Ogbeifun and Shobande (2020) referred this to a relationship between public debt and fiscal balance (primary balance). Using Bohn's idea, Burger, Stuart, Jooste & Cueva, 2012; Mello & Luiz, 2008) derived the following equation:

$$D_t = (1+i_t) D_{t-1} - S_t \quad (1)$$

Where Dt is Public debt, St represents primary balance (surplus or deficit) and it is the nomin al interest on debt. All variables are ratios of GDP (Ikikii, 2017)

The above equation can be used to incorporate GDP and generate equation two by multiplyin g Yt on both sides of the equation.

$$D_t/Y_t = [r_t - g_t / 1+g_t] [D_{t-1}/Y_{t-1}] - [S_t /Y_t] \quad (2)$$

Where change Δ in $D_t/Y_t = 0$, Yt is GDP (output), rt is real interest rate, and gt is real growth rate.

Making primary balance the subject produces equation three which is a rule that determines the primary balance needed to maintain the debt target.

$$[S_t /Y_t]= [r_t - g_t / 1+g_t] [D_{t-1}/Y_{t-1}] = \alpha [D_{t-1}/Y_{t-1}] \quad (3)$$

Where $\alpha = [rt - gt / 1+gt]$

The desire to maintain a debt level is normally influenced by the behavior of the fiscal author ity. This behavior is normally characterized with an inertia to keep the debt stable. In order to incorporate this effect, equation four is created,

$$[St / Yt] = \alpha [Dt-1/Yt-1] + \xi t \quad (4)$$

Where ξt represents strength of government's action towards debt sustainability (Bohn,1998).

The rule is that $\alpha > 0$, denoting that fiscal policy is sustainable. This condition is feasible where economic growth rate (g) is equal to interest rate growth (g=r). However, where r> g, debt increases rapidly and becomes unsustainable.

Empirical framework

Fiscal balance is calculated as,

$$PB = T-G \quad (5)$$

Where T represents tax revenue and G public expenditure.

Zambia mainly generates a primary deficit instead of a primary surplus due to lower tax revenue than public expenditure. This makes it inevitable to access debt (B) in order to cover the needed funds to meet expenditure. This then creates a problem of how to service debt particularly paying for the interest on loans. The need to pay interest on loan increases government expenditure (G) and thus deepens the deficit. The cost of interest on debt can be expressed as iB, where 'i' denotes interest. The impact of the change in debt B on the Primar y balance is, Δ Change in B=iB-PB.

Frankel (2019) suggested three stages needed as efforts towards debt sustainability. These include, calculating the growth rate of debt, calculating the required primary balance, and calculating the sustainability index.

Debt growth rate is a percentage change in debt and is denoted as $gB = \Delta B/B$. The effect of this change on the PB can be expressed as,

$$gB = (iB-PB)/B, \text{ Growth rate of debt formula.} \quad (6)$$

Required primary balance (PB*) is what is needed for debt to become barely sustainable. This is where a Zambia's debt needs to grow at the same rate as GDP (Y). This can he calculated in four steps:

1. Substitute PB* for PB in the debt growth formula, $gB = iB-PB^*/B$,
2. Equate the debt growth formula to GDP growth, $iB-PB^*/B = gY$, to ensure that the growth rate of debt is equal to the growth rate of GDP,
3. Multiply both sides of the equation by B to obtain $iB-PB^* = gY B$,

4. Rearrange to solve for PB*, to obtain, PB*= (i-gY) B. (7)

The equation indicates that PB* increases as interest rates (iB) rise and decreases as growth rate (gY) rises. Hence, the primary balance hinges on the difference between interest rate and growth rate of GDP (Ncube & Rajhi, 2014).

Appendix 6. Database

Sources - Ministry of Finance and National Planning (MFNP) and Bank of Zambia (BOZ). (Author's computations).

YEAR	FOREIGN DEBT ($) million	FOREIGN DEBT ZMW (Billion)	DOMESTIC DEBT ZMW (Billion)	TOTAL DEBT ZMW (Billion)	REAL GDP	INTEREST RATES	INFLATION RATE	TOTAL REVENU ZMW (Billion)
31.12.2002	$7,140.30	33.85	4.85	38.7	3.3	40	26.7	2.91
31.12.2003	$6,378.00	29.23	6.27	35.5	5.1	26.1	17.2	3.68
31.12.2004	$7,080.00	33.06	5.25	38.31	5.4	22	17.5	4.75
31.12.2005	$5,055.70	17.29	8.28	25.57	5.2	24.9	15.9	5.63
31.12.2006	$1,892.10	7.82	8.8	16.62	6.2	13.6	8.2	6.62
31.12.2007	$1,106.50	4.24	8.14	12.38	6.3	14.8	8.9	8.52
31.12.2008	$1,199.80	5.86	8.37	14.23	5.8	16.2	16.6	10.11
31.12.2009	$1,521.20	7.67	9.79	17.46	6.4	18.5	9.9	10.32
31.12.2010	$1,667.60	7.99	10.87	18.86	7.6	11.6	7.9	13.77
31.12.2011	$1,980.00	9.62	14.18	23.8	6.6	14.6	6	19.52
31.12.2012	$3,179.60	16.35	15.07	31.42	7.3	13.1	7.3	22.37
31.12.2013	$3,512.90	18.94	19.74	38.68	6.7	15.4	7.1	24.48
31.12.2014	$4,729.60	30.17	23.52	53.69	4.7	18.5	7.9	30.3
31.12.2015	$6,704.37	73.71	27.51	101.12	2.9	23.6	21.1	34.1
31.12.2016	$6,947.10	68.71	32.98	101.69	3.8	25.8	7.5	38.9
31.12.2017	$8,915.54	84.97	48.36	133.32	3.5	18.9	6.6	42.6
31.12.2018	$10,047.80	105.2	58.26	163.46	4	18.9	7.5	52.8
31.12.2019	$11,658.70	150.63	80.23	230.87	1.4	28.1	9.1	60.5
31.12.2020	$12,738.30	233.24	130.21	363.45	-2.8	22.9	15.7	65.7
31.12.2021	$13,041.20	259.52	192.99	452.51	3.6	29.5	22.1	96.5

YEAR	REVENUE	REVENUE	TOTAL EXP	EXCHANGE	DEBT SVC	DEBT SVC	DEFICITS	FISCAL
	EXPORTS ($)million	EPORTS (ZMW) ZMW (Billion)	less Intr	RATE	($)	(ZMW)	(ZMW) ZMW (Billion)	BALANCE
31.12.2002	237.3	1.12	5.17	4.74	125.3	0.59	1.03	-2.26
31.12.2003	301.9	1.38	5.24	4.58	187.2	0.86	1.35	-1.56
31.12.2004	457	2.13	6.02	4.67	373.2	1.74	0.44	-1.27
31.12.2005	538	1.84	7.99	3.42	156.5	0.54	1.03	-2.36
31.12.2006	580.1	2.4	8.21	4.14	71.8	0.3	1.11	-1.59
31.12.2007	917.6	3.51	10.44	3.83	60.5	0.23	0.11	-1.92
31.12.2008	953.9	4.66	12.18	4.88	64	0.31	1.4	-2.07
31.12.2009	978.8	4.94	12.82	5.04	55.5	0.28	1.64	-2.50
31.12.2010	660.8	3.17	16.19	4.79	51.2	0.25	1.68	-2.42
31.12.2011	714.7	3.17	21.31	4.86	87.4	0.42	3.36	-1.79
31.12.2012	1,057.40	5.44	21.73	5.14	286.4	1.47	2.77	0.64
31.12.2013	1,134.30	6.12	34.27	5.39	238.6	1.29	9.39	-9.79
31.12.2014	973.9	6.21	33.89	6.38	248.5	1.59	9.94	-3.59
31.12.2015	1,154.80	12.68	46.48	10.98	381.7	4.19	18.3	-12.38
31.12.2016	6,473.40	64.02	44.38	9.89	585	5.79	12.5	-5.48
31.12.2017	8,152.30	77.69	49.67	9.53	666.7	6.35	15	-7.07
31.12.2018	9,110.90	95.39	60.11	10.47	983.2	10.29	21.1	-7.31
31.12.2019	7,228.10	93.39	68.77	12.92	1,196.20	15.45	27.3	-8.27
31.12.2020	8,002.90	146.53	93.44	18.31	617.7	11.31	46.6	-27.74
31.12.2021	11,114.60	221.18	107.97	19.9	206.7	4.11	36.7	-11.47

Appendix 7. Studies on Zambia's public debt sustainability

Author &Date	Period & Country	Research title	Methodology	Findings	Conclusions	Recommendations
Saungweme & Odhiambo (2020)	Zambia 1970-2017	The impact of public debt service on economic growth: Empirical evidence from Zambia	Debt service – economic growth nexus, employing the autoregressive distributed lag (ARDL) bound analysis technique	•impact of debt service on economic growth in Zambia is time variant, •the neutrality of public debt service on economic growth is confirmed in the long-run •in the short-run the relationship is negative	•Zambia needs to achieve macroeconomic stability, •Zambia needs to realize sustainable economic growth.	•Zambia needs to undertake active fiscal consolidation to avoid budget overruns, •ensure that debt repayments are not financed from new debt, •Zambia must smoothen it's debt redemption profile by continuous debt mgt. strategies and policies.
Saungweme & Odhiambo (2018)	Zambia 1964-2015	An analysis of public debt servicing in Zambia: trends, reforms and challenges		•non-concessional loans posed the threat to the future debt sustainability, •the economy was susceptible to domestic & foreign interest rates, •the country had frequent debt rescheduling at commercial rates, •the country capitalized non-liquidated service obligations at commercial rates	•Zambia experienced severe debt servicing problems prior to 2005, •debt servicing problem eased after 2006 debt relief, •the country despite current high debt, it has remarkable economic performance,	•aligning public sector infrastructure spending with revenues, •continue diversifying the economy to minimize external shocks such as copper price fluctuation on the global market,
Siyanga (2018)	Zambia 1970 - 2015	Does public debt spur or hinder economic growth in Zambia?	ARDL analysis	•there was a long-run relationship between debt & growth, •the relationship was insignificant in the short & long-run,	•debt overhang occur in Zambia, •public borrowing causes a crowding effect,	•gvt should develop a debt mgt policy, •gvt should borrow prudently, improve project appraisal & selection, •encourage diversification & promote export growth, •invest debt in productive sectors.
UNICEF (2023)	Zambia	Analysis of the 2023 national budget		•2023 budget seemed contractionary by decreasing by 3.2 %, •inflation dropped to 9.9 % in 2022 from23 % in 2021. •fiscal deficit in 2023 was projected at 7.7 % of GDP compared to 9.8 % in 2022 •total revenue to increase to 111.6 in 2023 from 98.9 in 2022 billion,	•revenue to GDP to decrease from21.2 % in 2022 to 20.9 % in 2023 •copper output has stagnated due to depletion of ore reserves, lack of capitalization & unfavorable fiscal regime •CDF has been underutilized due to centralized process	•use expansionary policies to create employment •cut back on inefficient subsidies •cushion people from economic hardships through social spending, •scale back tax concessions to promote fiscal sustainability

				increase by 12.8 % •need to close employment gap in key sectors such as health & education		
UNICEF (2016)	Zambia	Zambia's political economy and fiscal space analysis		•economy grew rapidly during 2004-2014, • growth declined rapidly following the fall in copper prices in 2015, • declining revenue after 2015 and rising debt burden, • the state of the economy required protection of priority sectors from budget cuts, •increase efficiency in spending in priority sectors such as investment in child focused programs,	•Low growth and high debt, & Budget planning lacked Public input •gvt has a consultative budget system with civil society and churches involved. •opportunities are available for investment in key sectors to expand the resource base, •fiscal space for Zambia is constrained by slow growth, high fiscal balance & high debt	•UNICEF should foster collaborative relationship with government, •gvt should scale up investment in priority sectors for children, •child rights advocates should lobby for fiscal space for children's welfare •least alternative is additional debt to support growth over the medium term needed to enhance tax revenue
Pearce et al, (2022)	Zambia	Zambia's road to economic recovery through growth, jobs and stability		Findings were that Zambia recorded growth of 3.3 percent in 2021 due to improved businesses mostly mining, and quarrying		Recommendations were that mining transformation was needed, & well financed agriculture sector

Appendix 8. Some other studies on public debt sustainability

Author &Date	**Period & Country**	**Research title**	**Methodology**	**Findings**	**Conclusions**	**Recommendations**
1. Censon et al. (2023)	Philippines, Thailand & Vietnam	Impact of fiscal policies of the Philippines, Thailand and Vietnam on MSMEs & their effects on GDP growth	Panel regression analysis of fiscal policy measured using gvt expenditure & household consumption & MSMEs employment as supporting variables.	Fiscal policies affected MSMEs growth leading to GDP growth Gvt expenditure had positive significant relationship to a number of MSMEs in these countries MSMEs employment had a negative relationship to government expenditures.	GDP growth can be influenced by their MSME growth,	Formulate sound measures to ensure opportunities provided by MSMEs are maximized
2.Ellison & Scott (2022)	1694-2018. UK	Managing the UK national debt	Database of the UK debt management office	•Variations in the market value of bonds resulting in holding returns for investors. •UK has never defaulted on marketable debt.	•Substantial cost advantage in issuing short-term bonds. • Long-term debts are attractive & suitable for countries with history of defaults. •Default risks are not always the reasons for long-term debt	•Issue short-term bonds •Issue long-term bonds for fiscal insurance. •Focus on specific risk s on the bond market.
3. Smith (2020)	1700-2016 UK	Debt and defence the UK experience	Long span data from Bank of England and the Finance	UK credibility as a borrower boosted it's war fighting ability, post-world war debts-GDP ratios were very high,	Longer run data may be informative, high relationship between military expenditure	•Understanding a causal relationship between GDP, inflation, interest rates, debt &

			Secretary's office. Used the regression technique	debt & GDP are tied because of financing expenditure by debt, there was fiscal structural instability, military expenditure are largely exogenous	& national debt, high relationship exists even after long-trend control of income growth and interest rates.	military expenditure requires a more structural model , constructing such a structural model would be a challenging task
4. Hassan, Ahmed & Thabet (2022)	2010-2020 Iraq	Analysis of the relationship between the internal public debt and the public deficit in Iraq	Central Bank of Iraq annual bulletin, Ministry of Planning & Development cooperation, central statistical organization.	•Annual data indicates excess expenditure over revenue for the period. •Increased consumption spending increased demand and inflation. • Deficit financing was increased by expansionary expenditure which increased debt.	•Debt consumes oil revenue, •debt hinders development. •Iraq failed to diversify the economy even with surplus revenue.	•Develop an economic policy to invest in agriculture and manufacturing sectors.
5. Hamad & Abarahim (2022)	2004-2020 Iraq	Analyzing and measuring the relationship between the Golden Rule of financial discipline and the Federal Budget Deficit in Iraq	Series data from Central Bank of Iraq, and the directorate general of statistics and research.	•Relationship between golden rule of financial discipline and budget deficits in budget. •Golden Rule reduce deficits in the public budget. •The rule helps to meet government objectives	•Maintain deficit at 3%of GDP or else increase debt, •operational expenditure lead to deficits and debt, •Country dependent on oil revenue	•Control specific ratios set for the golden rule, •Achieve a policy of fiscal discipline, diversify income sources, •combat corruption & establish sovereign fund to reduce public debt.
6. Gazali (2020)	1998-2014 Indonesia	Budget Deficit & Debt: Descriptive analysis of Indonesia's case	Used descriptive statistics on data from Bank Indonesia and the Ministry of Finance	•Plans to increase revenue also increase expenditure, •deficit size increased each year, •balanced budget efforts fail due to acquisition of loans	•Budget deficits are due to less revenue than expenditure, •taxes & other income are insufficient to support economic activities •each year deficit is financed by borrowing, •debt burden increases every year.	
7. Pamies & Reut (2020)	EU	Assessing public debt sustainability: some insights from an EU perspective into an inexorable question	Panel data from ECB	• difficulties in distinguishing liquidity crisis from solvency problems, •the problem relating to the right debt threshold as a guide, •the debt burden indicators, •striking the right balance between the breadth of the analysis, •the requirement for concise and clear conclusions.	•EU debt crisis was a reminder that debt sustainability analysis needs to be taken seriously even in developed countries. •aging population and climate change increased spending, •Fiscal buffers were low in most member states compared to debt ratios of around100 percent and above	•Debt sustainability analysis was needed to reflect a wide range of fiscal risks, multiple interactions and institutional factors. •the debt sustainability analysis needed not rely on a single calculation but on a number of tools as an analytical framework.
8. Colombo et al. (2022)	Selected countries globally	Fiscal multipliers and informality": investigation of the role of informality affecting the magnitude of the fiscal multiplier in a panel of 141 countries		strong negative correlation between the degree of informality and the size of the fiscal multiplier	The relationship was not dependent on the country's level of development and quality of institutions but on country characteristic in terms of trade, financial openness and exchange rate regime	Since the larger informal sector raises the prices in response to fiscal shocks, there was need to separate between public goods and private goods to avoid raising prices in high informality countries.
9. Ford & Roberts (2017)	Belize	Belize's debt sustainability	•debt dynamic equation to assess the outcome of government's	•frequent debt crisis •Restructured debt three times in ten years •linking of debt sustainability	•IMF recommended fiscal consolidation but the government in Belize resorted to a	•finding the solution to avoid further frequent restructuring, • the economy needed

			plan to extend the period to the next 12 years, and •then determine the fiscal policy effort needed to reduce the debt ratio to the reasonable level by the year 2028	to GDP growth	gradual fiscal consolidation •GDP was high when the debt ratio was 60 percent and below, •needed fiscal balance of 3.3 percent of GDP would help achieve this goal,	fiscal balance of 3.3 percent of GDP, •All successes were dependent on structural and management reforms were carried out.
10.Abuselidze (2021)	Georgia 2009-2019	The influence of Covid-19 on the public debt growth and default risks: A fiscal sustainability analysis	Qualitative & quantitative method, based on data from Ministry of Finance, ministry of economy & sustainable development, national bank, parliament & dept. of statistics. The period was acceptable by public debt structure, indicators & its compliance with the thresholds,& by public debt growth rates. The purpose was to develop the public debt mgt. assessment model	•Georgia's debt includes domestic & foreign debt received from financial sources approved by the IMF. •at the initial budget planning process the country determines the debt needs to avoid liquidity risk & paying extra expenses due to large amounts of debt. •the initiator of taking foreign debt is the ministry of finance & is also a spending institution for find in ng specific projects. •the budget for 2018 indicated that 86 % of debt was allocated to wards infrastructure development. •increase in liabilities was due to attract investment credits. •there was no connection between the current debt and the current expenses but if the budget could not support expenditure, it would be necessary to reduce expenditure.	•the budget is a complex process, determining the state debt forecast parameters & maintaining them, helps with achieving a set of macroeconomic indicators. •the budget is an important precondition for maintaining taken political course. •the operational balance of the state was negative because of the need for expenditures. •if current expenditure will be planned effectively gvt. savings will be increased & converted into investments. This will result into less debt.	•authorities should only address debt if the priority directions of the country require finance, •consider debt if mobilization of tax revenue is not sufficient for adequate financing of programs. •increase the share of state budget revenues and related expenditures in the overall domestic product.
11. Ackah et al (2020)	2011-2018 Ghana	Balancing debt with sustainability? Fiscal policy & future of petroleum revenue management in Ghana	Data from Bank of Ghana and Ministry of Finance	•Oil revenue had not done much to ensure fiscal discipline & reduce budget deficit, •rising oil revenue had not resulted into increased revenue relative to GDP	•oil Revenue simply replacing other revenue, •oil public debt policy rating deteriorating	•Non-oil revenue should be assessed and improved, •strengthen institutions such as the Revenue Authority, •Auditor general's department & PIAC to support effective implementation
12. Arestis, Ferrari-Filho, Resende & Terra, (2021)	2005-2011 Brazil	A critical analysis of the Brazilian 'expansionary fiscal austerity': why did it fail to ensure economic growth and structural development?		•fiscal austerity, tight monetary policy and the president Impeachment affected investment, • the crisis was exacerbated by the pandemic despite earlier poor growth of -4.0 percent. They recommended structural c		
13. Elgin, Williams, Yalaman & Yalaman, (2021)		Fiscal stimulus packages to COVID-19: The role of informality	Novel Cross-country dataset to test fiscal policy responses to economic crisis induced by the pandemic	•Countries with a relatively larger shadow economy before the pandemic have adopted a smaller fiscal policy package. •This reinforced literature that countries with larger shadow economies follow pro-cyclical policy as opposed to counter-		

				cyclical policies.		
14. Akongwale, (2020)	2005-2016 Sub Saharan Africa	Essays on fiscal policy implementation and governance: Evidence from Sub-Saharan Africa	A dynamic panel data GFMM technique was employed.	•Results confirmed the positive contribution of conditionally improvement in fiscal transparency.		Recommendations included that: •Institutional reform in the budget process to increase fiscal transparency, •increase space for multi-party politics to avoid opacity in management of public finances, •and also capacity building in governments for proper checks and balances
15. Kaur, Mukherjee & Ekka1, (2018)	1980-2016 India	Debt sustainability of states in India: An assessment	empirical estimation of inter-temporal budget constraint and fiscal policy response function (Bohn,1998)in a panel data framework	• European countries' debt sustainability after the 2008 world economic recession •The debt position at the state level was sustainable in the long run. •problems encountered in distinguishing liquidity from solvency crises •interest rates were low •huge contingent liabilities adversely affecting the debt position of states and these could only be sorted out by restructuring	•it was important that guarantees were also captured with other debt obligations, •disruptive events such as aging population & climatic change increased expenditure and caused short-long term crises •a single calculation was not adequate to measure debt sustainability •Guarantees were treated separate from debt	•multiple measures were needed to measure debt sustainability, •study emphasized the separation between solvency & liquidity crisis, • Guarantees and contingent liabilities were supposed to be added to reflect the correct debt.
16. Qin (2022)	China 2007-2019	Fiscal expenditure structure, vertical fiscal imbalance & environmental pollution	Provincial panel data, conducted empirical test using a fixed effect model	Expenditure on people's welfare reduced environmental pollution, fiscal imbalance reduced increased pollution,	Vertical fiscal imbalance weakness distorted fiscal expenditure & increased pollution,	Motivate local gvts with incentive measures eg. Fiscal decentralization, regulate pollution through restrictive "green GDP" to improve fiscal expenditure & pollution.
17. Khalladi (2019)	Tunisia	Public debt sustainability assessment: a stochastic approach for Tunisia'	stochastic debt sustainability analysis (SDSA) developed by Celesun, Debrun and Ostry (2006) in the assessment of the risks associated with the interaction of the fiscal and macroeconomic variables (interest, growth and exchange rates)	Tunisia's debt was unsustainable under projections of the baseline scenario	Tunisia needed a continuous and timely fiscal response to debt accumulation, given by alternative scenarios, otherwise the debt would become unsustainable.	
18. Redda (2020)	South Africa, 2000-2018	Sustainability of public debt and budget deficit in South Africa	Secondary data obtained from Bank of South Africa, statistical office & corroborated from IMF data	•public debt & budget deficits against low growth appear to be unsustainable, •declining economy, due to low GDP, is not in a position to generate sufficient tax revenue to narrow the deficit	•budget deficits & public debt are cointegrated & have a long-run association, •the driving force between two variables could be similar,	•state owned companies should be self-sustaining & contribute positively to economic growth, •more studies were needed to establish

			were used for analysis. Econometric modelling involving vector error correction model, granger non causality test, stationarity and cointegration tests were carried out.	and reduce debt, •SA's debt level & deficits are not sustainable if current trajectory persists.	•the VECM & Granger non causality test have suggested a unidirectional causality exists running from budget deficits to public debt, •rising debt levels were attributed to massive bailouts of state owned Eskom.	sustainable public enterprises, •create employment to reduce staggering unemployment rate, •find ways to grow the economy, reduce unemployment, poverty levels & increase tax base, •increased tax base will ensure more tax revenue pay-off public debt and narrow budget deficit.
19. Ikue et al (2021)	Nigeria 1960-2019	Macroeconomic deficits and public debt sustainability in Nigeria	The unit root cointegration & granger causality to test the sustainability of budget & trade deficits in the framework of Non- Ponzi game. Data was from the debt mgt. office, Central Bank of Nigeria & World Bank.	•Nigeria's public debt policies were not sustainable, •revenue have been low leading to dependence on local and foreign borrowing, •domestic currency has been weakened due to more imports than exports	•there is no causal relationship between fiscal and trade policy in Nigeria, •rising trade deficit and fiscal deficit has no relationship on each other in the recent time,	•authorities should institute stringent fiscal reforms •put in place a seamless & efficient tax return filing procedure to raise tax receipts •vigorously address the corruption in the facets of the economy to ease the effect on deficit financing.