

Examining the moderating effects of financial leakages and sanctions on relationship
between capital expenditure and economic growth

By

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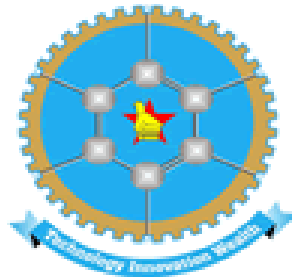
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THE APPROVAL FORM

We, the undersigned do hereby certify that George Anthony Chigora fulfilled conditions of the ordnance and regulations for the Degree of Doctor of Philosophy in Finance of School of Entrepreneurship and Management, Chinhoyi University of Technology.

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Declaration

I, George Anthony Chigora do hereby declare that this research study is a result of my own work, except to the extent indicated in the acknowledgements, references and by comments included in the body. I also declare that it has not been submitted in part or in full for any other degree to any other university.

A handwritten signature in black ink, appearing to read 'G. A. Chigora', with a stylized, cursive script.

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Acknowledgement

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Dedication

This research work is dedicated to my late mother Conelia Jesca, you are a very powerful source of unfathomable inspiration to me.

ABSTRACT

The modern-day theory of economic growth contends that capital expenditure is an engine for economic growth. This study examines the moderating effects of financial leakages and sanctions on capital expenditure impacts on economic growth in Zimbabwe. The moderating effects of these variables, in Zimbabwe, have not been empirically examined. The methodology of the study was guided by positivism philosophy. This study used quantitative secondary data largely from the World Bank and the Government of Zimbabwe, using autoregressive distribution lag (ARDL) to interrogate the relationship between capital expenditure and economic growth. The annual Gross Domestic Product and capital expenditure for this period were interpolated into quarterly figures using the Lisman and Sandee Quarterly Distribution Formula. An empirical analysis of the data for the study period was therefore conducted using the quarterised data. The main findings were that capital expenditure has positive effects on economic growth. However, both financial leakages and economic sanctions have significant negative moderating effects in the short-run and long-run on the relationship between capital expenditure and GDP growth rates. Financial leakages (Corruption) cause misallocation of state resources resulting in reduced impact of capital expenditure on GDP growth rates. Sanctions exert adverse effects on free inflows of Foreign Direct Investments and international trade of goods and services causing deceleration of economic growth in Zimbabwe. The recommendations of the study are that the government of Zimbabwe should deploy even more resources towards capital expenditure to stimulate economic growth. However, very strong measures to eradicate corruption should be enforced through transparent and accountable accounting and reporting system particularly on state procurement system. The signing of integrity pledges should be made mandatory to all public servants including politicians. The government of Zimbabwe should directly engage the United States of America government to have the Zimbabwe Democracy and Economic Recovery Act repealed. This would create an environment conducive for free international trade of goods and services. Furthermore, it would attract inflow of quality Foreign Direct Investments, which is usually accompanied by transfer of latest technology.

Key Words: Capital Expenditure, Economic Growth, Financial Leakages and Sanctions, GDP.

LIST OF ABBREVIATIONS AND ACRONYMS

AfDB African Development Bank

ARDL Autoregressive Distribution Lag

FAO Food and Agricultural Organisation

FDI Foreign Direct Investments

GDP Gross Domestic Product

GoZ Government of Zimbabwe

IMF International Monetary Fund

MDA Ministries, Departments and Agencies

RBZ Reserve Bank of Zimbabwe

UNDP United Nations Development Program

WB World Bank

ZIDERA Zimbabwe Democracy and Economic Recovery Act

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

In Zimbabwe, there has been deployment of significant capital expenditure. However, little economic growth has been realised, thus questions continue to emerge on the impact of government capital expenditure on economic growth. The reasons of the economic deterioration are the subject of this study. Furthermore, Zimbabwe has been experiencing serious macroeconomic challenges which led to its economic deterioration (Mhlanga *et al.*, 2021). This thesis, therefore, examines the dual moderating effects of financial leakages (corruption) and sanctions, on capital expenditure impacts on economic growth in Zimbabwe.

Capital expenditure deployment is a major tool used by countries with the view to foster economic growth. Zimbabwe has for years made major budgetary allocations for capital expenditure, towards infrastructure financing, with the intended outcome being to stimulate the growth of the economy. The study posits that capital expenditure, stimulates, and effectuates economic growth. If the postulation is correct, does capital expenditure support this contention even during moderating effect of financial leakages and economic sanctions? However, economic growth rates in Zimbabwe have remained stagnant or negative, in some cases. The study aims at examining the fiscal dynamics of Zimbabwe by including the dual moderating effects of financial leakages and sanctions in the model. The study posits that government capital expenditure has positive effects on economic growth. That is:

$$\text{Capital Expenditure} \Rightarrow \text{Economic Growth}$$

The relationship between public expenditure and economic growth remains an area of deep investigation. The study assumes that public expenditure incorporates capital expenditure. The above proposition contradicts some previous studies investigating relationships in the same locus.

In this study, the efficacy of capital expenditure is assumed to have been affected by financial leakages and economic sanctions. The financial leakages which almost amount to financial haemorrhage have made resources allocated for capital expenditure utilised for unintended purposes as asserted by Gossel (2018). Sanctions

are punitive measures imposed on a country by other countries resulting from policy disagreements. They are exercised through trade and financial embargoes. Sanctions increase the cost of doing business for both local and foreign investors by raising the country's risk factor which makes the country an unattractive investment destination. The study examines the dual moderating effects of the financial leakages and economic sanctions on capital expenditure impact on economic growth in Zimbabwe, during the period 2009 to 2019. It interrogates the mediating effects of the financial leakages and the sanctions on the efficacy of capital expenditure on economic growth. Zimbabwe has experienced other economic challenges including but not limited to price instability, shortage of foreign currency, contraction of the agricultural sector, shortage of electricity, depreciation of local currency and high inflationary pressures which eroded disposable income. These challenges are not part of this research study.

1.2 Government Capital Expenditure

The government capital expenditure is funded through the national budget as provided in the government Budget Estimates. The budget is presented by the Minister responsible for finance to parliament for approval through the Appropriation Act administered by the same Minister responsible for finance. The funds are however, allocated to the implementing Ministries, Departments and Agencies (MDAs). On average, developed economies like the United Kingdom, Australia and United States of America, total government spending stands at 18.5% of GDP. For Zimbabwe the total government expenditure to GDP averaged 13.05 % for the years 2009 to 2022 as captured in the World Bank Report (2022) on Zimbabwe.

Budgeting is important in the provision of funds used for capital expenditure. However, when the total expenditure is more than the total revenue it results in a budget deficit. When adjusting the level of the budget deficit, the provision for capital expenditure tends to suffer. This is because of the recurrent expenditure which is usually non-discretionary due to payment of employees' salaries.

In 2019, Zimbabwe suffered a reduction in revenues due to the decline in global prices for gold, platinum, and other mineral commodities, coupled with unresolved supply-side constraints, which reduced the value of mining exports (World Bank, 2019). The Bank goes on to state that Zimbabwe experienced a deflationary trend in

response to macroeconomic imbalances. The budgeting process is therefore important as it determines the level of capital expenditure which is subject of this research study.

1.3 Economic Indicators

The GDP in Zimbabwe was increasing consistently for the period 2009 to 2022 as shown in Table 1.1. The highest growth rate was in 2010 with growth of 19.67%. In 2011 it dropped to 14.19%. There was a marginal increase in 2012 of 16.67%. This GDP growth rate dropped in 2013 from 16.67% to only 1.99% - a huge drop in one year. The years 2019 and 2020 witnessed negative growth rates of -6% and -7.8% respectively. The GDP growth rates were as per the 2022 African Development Bank, report. The drop in the GDP growth rates was inconsistent with the increases in annual capital expenditure.

In Table 1.1 there are the percentage increase and decrease in actual capital expenditure incurred by the government of Zimbabwe. The year 2009 was taken as the base year. The actual capital expenditure incurred in 2009 increased in 2010 by 765%. The 2010 actual capital expenditure declined by (79%) in year 2011. In year 2012 it increased by 77% with a marginal increase of only 3% in 2013. The drop from 16.67% in 2012 to 1.99% in 2013 was too sharp. There is no pattern in levels of capital expenditure from one year to another as can be seen in Table 1.1.

Table 1.1 Macroeconomic Indicators for Zimbabwe from 2009 to 2019

YEAR	GDP (US\$ million)	GDP Growth Rate %	Increase/ (Decrease) Capital Expenditure
2009	9,66	7.4	0%
2010	12,042	19.67	765%
2011	14,102	14.19	(79%)
2012	17,115	16.67	177%
2013	19,091	1.99	3%
2014	19,496	2.38	(89%)

2015	19,963	1.78	577%
2016	20,549	0.70	125%
2017	22,041	4.70	(51%)
2018	24,201	3.30	820%
2019	20,707	-6.00	255%
2020	21,5100	-7.82	(92%)
2021	28,3700	8.47	162%
2022	20,6800	3.40	(62%)

Source: Adapted from the African Development Bank (2022). Actual Capital Expenditure

The researcher compiled graph captured in Figure 1.1 above to contrast the movement in GDP to actual capital expenditure. The audited actual capital expenditure figures were from the Ministry of Finance Economic Planning and Investment Promotion. It was noted that the GDP figures were constant while the actual capital expenditure figures were increasing phenomenally.

In 2009 the Zimbabwe economy was fully dollarized as it adopted the United States Dollars as currency of trade. Prior to dollarisation the country was using Zimbabwe Bearer Cheques. In 2009 capital expenditure amounting to US\$63,118 million was incurred on infrastructure projects by the government using voted funds. In 2012 the capital expenditure increased to US\$315,098 million. The financial years 2018 and 2022 saw capital expenditure increasing. Whilst the capital expenditure and GDP were increasing during the period 2019 to 2020, the GDP growth rates were decreasing. The severity of stagnation of economic growth rate despite the increase in capital expenditure was further demonstrated by the negative trade balance indicators shown in the UNCTAD trade Table 1.2.

Table 1.2 Trade balance indicators

	2005	2010	2015
Balance, % of GDP	-7.74	-23.84	-17.73
Balance, % of imports	-21.05	-44.58	-47.17

Financial flows

(US\$ millions)	2005	2010	2015
2019			
FDI inflows	102.80	165.90	421.00
280.00			
FDI outflows	1.10	43.30	22.00
33.33			
Personal remittances, % of GDP	--	11.74	10.25

Source: UNCTAD Statistics 2019

The above FDI figures amounting to US\$969.7 million show a moderate increase in the inflows for the five-year interval periods from 2005 to 2019 according to United Nations Conference on Trade (UNCTAD) (2019) report on Zimbabwe. This shows that both actual capital expenditure figures and FDI were increasing. However, the macroeconomic indicators from the AfDB show that the GDP growth rate was stagnant. This was not in sync with the increase in actual capital expenditure and FDI which were increasing.

Table 1.3 Comparison of Budget and Actual Capital Expenditure

Year	Capital Expenditure Budget US\$ million	Actual Capital Expenditure US\$ million	Actual as Percentage of Budget (%)
2009	181,650	63,118	34.7
2010	180,000	545,732	303.2
2011	391,721	113,579	30.0
2012	610,000	315,098	51.7
2013	500,878	324,540	64.8
2014	431,350	36,432	8.4

2015	290,500	246,662	84.9
2016	257,361	555,091	215.7
2017	366,650	269,581	73.5
2018	824,530	2,480,777	300.9
2019	1,897,525	8,809,145	464.2
Total	5,431,286	13,723,324	252.7

Source: Government National Accounts 2009 – 2019

In 2009, at the inception of dollarization, a budget of US\$181,650 was hardly met with actual capital expenditure only accounting for US\$63,118 (34.7%) of the budget. Such a small capital expenditure amount explains the level of impact this could have had on economic growth. However, the situation gradually improved with the following year witnessing an increase above budget of 303.2%. The period 2016 to 2019 saw consistent and significant increase in actual expenditure, in most cases, above the budget.

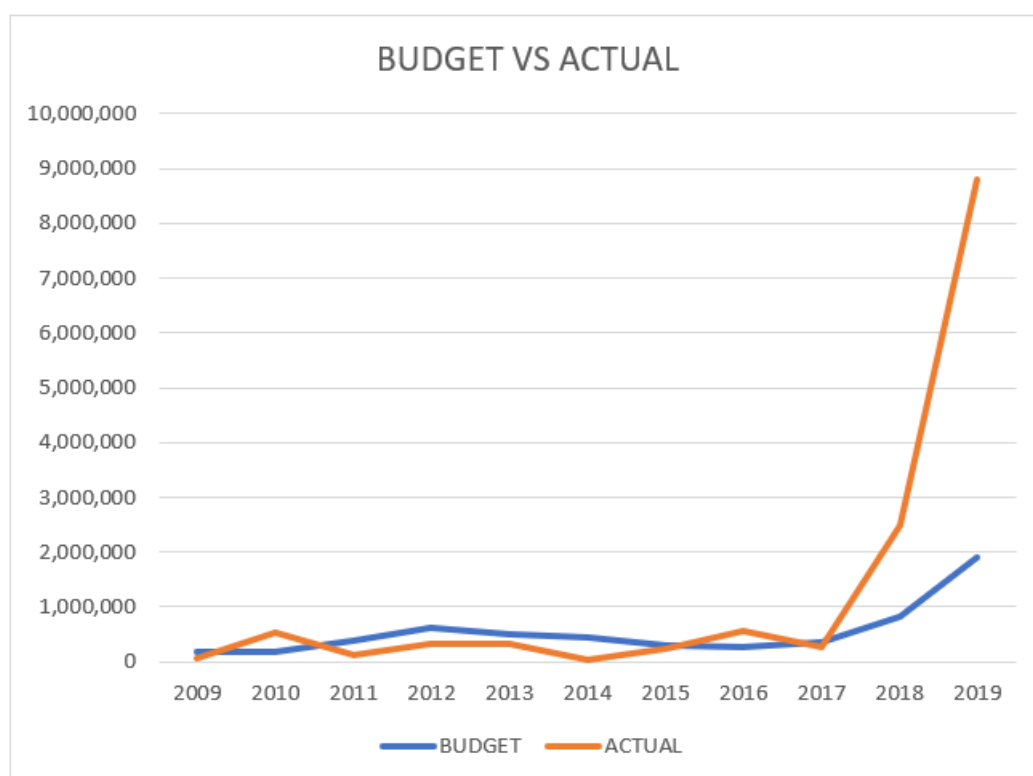


Figure 1.1: Graph on Budget vs Actual Capital Expenditure

Source: Researcher's compilation: Figures from Ministry of Finance, Economic Development, and Investment Promotion (2024)

Gross capital formation (formerly gross domestic investment) consists of outlays on additions to fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads and railways. This also included schools, offices, hospitals, private residential dwellings, commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales and work in progress (World Bank National Accounts Data and OECD National Accounts Data Files, 2020). The gross capital formation for Zimbabwe for the period 2009 to 2019, is shown in Table 1.4. According to the World Bank (2020) the performance was far below the global performance. The average global performance was 25% of GDP whereas that of Zimbabwe was 10%.

Table 1.4 Gross Capital Formation as percentage of GDP.

CAPITAL ESXPENDITURE		
YEAR	ZIMBABWE	GLOBAL
	%	%
2009	13	23
2010	19	24
2011	17	25
2012	10	25
2013	9	25
2014	10	26

2015	10	26
2016	10	25
2017	10	26
2018	10	26
2019	7	26

Source: World Bank national accounts data, and OECD National Accounts data files 2020

The macroeconomic indicators for selected economies on the global economic growth rate for the period 2011 to 2019 as per the International Monetary Fund statistics published in April 2021 are shown in Table 1.5. The performance of Sub-Saharan Africa was also doing much better as shown in Table 1.5. Also shown in Table 1.5 were the performances of Kenya and Botswana whose economies are comparable to that of Zimbabwe. In the case of Botswana, it is a neighbouring country to Zimbabwe making it even more comparable.

Table 1.5: Major Macroeconomic Indicators of Selected Economies

YEAR	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
World	4.3	3.5	3.5	3.6	3.4	3.4	3.8	3.6	2.9	-3.3
Advanced economies	1.7	1.2	1.4	2.1	2.3	1.7	2.4	2.2	1.7	-4.7
USA	1.6	2.2	1.8	2.5	2.9	1.6	2.2	2.9	2.3	-3.5
Euro Area	1.6	-0.9	-0.2	1.4	2.1	2.0	2.4	1.9	1.3	-6.6
EM & DE	6.4	5.4	5.1	4.7	4.3	4.6	4.8	4.5	3.7	-2.2
China	9.5	7.9	7.8	7.3	6.9	6.7	6.8	6.6	6.1	2.3
India	6.6	5.5	6.4	7.4	8.0	8.2	7.2	6.8	4.2	-8.0
Brazil	4.0	1.9	3.0	0.5	-3.5	-3.3	1.1	1.3	1.1	-4.1

SSA	5.3	4.7	5.2	5.1	3.2	1.4	2.9	3.2	3.1	-1.9
Botswana	6.05	4.46	11.34	4.15	-5.72	7.04	4.00	3.98	3.35	-8.73
Kenya	5.12	4.57	3.8	5.02	4.97	4.21	3.84	5.65	5.11	0.25
Zimbabwe	14.19	16.67	1.99	2.38	1.78	0.76	4.71	4.82	-6.14	-6.25

Note: EM & DE is Emerging Market and Developing Economies.

SSA is Sub-Sahara Africa

Source: IMF, World Economic Outlook, April 2021.

Furthermore, according to the World Bank, the GDP growth rate of the global economy had been consistently increasing over the period 2009 to 2019. Whilst the GDP growth rate for the rest of the world was increasing that of Zimbabwe was dropping as seen from 19.7% in 2010 to negative (-7.4%) in 2019 as shown in Table 1.6.

Table 1.6 The World and Zimbabwe GDP Growth Rate

Year	World GDP Per Capita % Annual	World GDP Growth Rate % Annual	Zimbabwe GDP Growth Rate % Annual
2009	-2.86	2.0	7.4
2010	3.063	4.7	19.7
2011	1.945	4.2	14.2
2012	1.319	1.7	16.7
2013	1.465	2.3	2.0
2014	1.662	1.7	2.4
2015	1.686	3.3	1.8
2016	1.426	3.4	0.7
2017	2.132	3.5	4.7
2018	1.852	3.9	3.5
2019	1.255	3.9	-7.4

Source: World Bank (2020) (<http://data.worldbank.org>) NY.GDP.MKTP.KD.

ZG

1.4 The Zimbabwe Annual Percentage GDP Growth

The World Bank (2020) National Accounts Data and OECD National Accounts data files state that annual percentage growth rate of GDP at market prices is based on constant local currency. The Zimbabwe aggregates are based on constant 2015 prices, expressed in U.S. dollars. They state that GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products (World Bank, 2020). It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. The World Bank (2020) report states that an economy's growth is measured by the change in the volume of its output or in the real incomes of its residents. Sibanda and Makwata (2017) contend that in 2013 business confidence in Zimbabwe declined and the stock market fell by one third, a billion dollars left the banks followed by the failure of 9 commercial banks. The authors further opine that three years into ZIMASSET were marked by rapidly deteriorating growth rates. According to AfDB (2023) the Real GDP growth continued to be subdued. In 2016 and 2017, the economy continued to experience a volatile macroeconomic environment. The Bank further indicates that Zimbabwe has a weak infrastructure. The real GDP growth was 3.5% in 2018, -6.1% in 2019, -7.8% in 2020, 8.5% in 2021, 3.0% in 2022 (AfDB Statistics Department, 2023).

1.5 Capital Expenditure and Economic Growth

The modern-day theory of economic growth by Solo-Swan as cited by Babatunde (2018) contends that expenditure on infrastructure has positive effects on economic growth. In Zimbabwe there has been deployment of significant capital expenditure. However, little economic growth has been realized. Questions continue to emerge on the impact of government capital expenditure on economic growth. There are contradicting views on whether the government should continue to prioritise capital expenditure given the impact of particularly the dual moderating variables, financial leakages, and economic sanctions. Nonetheless, the moderating effects of these

variables on capital expenditure impact on economic growth remains an area of empirical contestation.

Onifade *et al.* (2020) aver that there is existence of a level relationship between public spending indicators and economic growth in Nigeria. Specifically, there exists a positive impact of public capital expenditure on economic growth which were however, not significant. Furthermore, studies by Gupta (2018) and Diyoke *et al.* (2017) reveal a strong positive correlation between government spending and economic growth. In another study by Dudzevici *et al.* (2018), using data from eight European Union member countries the study found a strong positive association between public spending and economic growth. Idris and Bakar (2017) and Ihugba and Njoku (2017) found positive impact of government expenditure on output growth. Chimobi (2016) investigated national income and government expenditure nexus in Nigeria and found that there is stable long run relationship between the fiscal variable and economic growth. Diyoke, *et al.* (2017) in their study on government expenditure and economic growth in lower middle-income countries in Sub-Saharan Africa established that government expenditure can have a positive effect on economic growth. Nyarko *et al.* (2019) contend that government capital expenditure in Ghana has a positive effect on economic growth.

Molefe and Choga (2017) analysed the impact of government expenditure on economic growth in South Africa over the period 1990 to 2015 using VECM model. Their results suggested that government expenditures have a negative long-run relationship with economic growth. Ebaid and Bahari (2019) using data for Kuwait found a unidirectional causality running from expenditure to economic growth. Furthermore, Olayungbo and Olayemi (2018) using Vector Error Correction Model for the period 1981 to 2015 using data from Nigeria established that government expenditure has negative and significant impact on economic growth in both short and long runs. While controlling for structural breaks in ARDL model, Awode and Akpa (2018) supported the findings of Olayungbo and Olayemi (2018). These studies' findings neither contradict nor affirm the submissions of neoclassical growth models and Wagner's law. These findings are established in developing countries battling with bribery and corruption. However, using ARDL technique on data from Afghanistan for the period 2004 to 2019, Barlas (2020) found that current

expenditures on infrastructure and education have positive impact on economic growth.

1.6 Financial Leakages (Corruption)

Financial leakages comprise of both administrative costs and corruption which increase the ultimate cost of capital expenditure (Grossel, 2018). They are diversion of funds from some iterative process. In the Keynesian depiction of the circular flow of income and expenditure, financial leakages the none-consumption uses of income, including saving, taxes, and imports. They occur when there is a withdrawal of money from the government Treasury that results in a reduction of the national income such as taxes, savings, and imports. Data on official budget allocations are typically the only source of information on public spending in low-income countries (Grossel, 2018). Unfortunately, such information poorly predicts what the intended beneficiaries receive in terms of resources and services. This is particularly so in countries with weak institutions. Surveying the supply side of service delivery can provide a useful reality check. The research study looked at the results to gauge the extent to which public resources for capital expenditure filter down to the intended facilities. The study focused on central government funding for capital expenditure and the outcomes with respect to total actual expenditure.

Grossel (2018) contends that corruption is prevalent in both developed and emerging countries and has increased with financial globalisation. Furthermore, they assert that internationally, corruption has been found to have a range of adverse effects while in Sub-Saharan Africa, corruption has been identified as one of the main reasons for the failure by most of the countries in the region to achieve their strategic development goals (SDG). Rent seekers are likely to create distortions to extort bribes, which in turn would suppress a country's development.

Nyoni (2017) opines that corruption is found in the award of contracts, dispensation of justice, and misuse of public offices, positions, and privileges. Corruption is generally understood as the abuse of public power for private gain. Abdukadir (2018) defines "corruption"- as illegal behaviour (misused power) especially by people in official positions or any person related to responsibility in the public sector which leads to misallocation of resources which diminishes social welfare and anticipated

development of the society. In economics perspective, the increasing number of rent seeking and corruption are caused by several factors which include international trade barriers. It is the violation of formed rules governing the allocation of public resources by officials in response to offers of financial gain or political support. Choruma (2017) avers that corruption stalls Zimbabwe's economic agenda.

Nyoni (2017) asserts that bribery is often described as the most common and frequently occurring corrupt practice. It is a payment, in money or in kind, that is given or taken in a corrupt relationship. A bribe could be a fixed sum, any favour in money or kind or certain percentage of a contract on behalf of the state or otherwise distribute benefits to individuals, businessmen or clients. These are payments, demanded and or needed to speed up matters, make things progress more swiftly and or favourably through the government bureaucratic machinery. Mugun (2021) contends that high corruption phenomenon is a common problem faced by several developing countries due to weak bureaucracy, weak law, and justice enforcement. They assert that corruption decreases the growth rate of per capita income directly by decreasing the productivity of existing resources, and indirectly, through reduced investments and discourages investment savings and culture of hard work among the Eastern African countries. Price control conducted by government, the applicable multiple exchange rates, and the low rate of government officer's salary (Mauro, 1997) cited by Mugun (2021). The author further states that the effect of corruption is extensive including the decrease on human resource quality, poor road infrastructure development and hindered economic growth.

Nyoni, (2017) contends that in cases where entrepreneurs are asked for bribes before enterprises can be started or corrupt officials later request shares in the proceeds of their investments, corruption acts as a tax, though one of a particularly secretive nature, given the need for secrecy and the uncertainty as to whether bribe takers will keep the privately agreed plan. Corruption could also be expected to reduce growth by lowering the quality of public infrastructure and services, decreasing tax revenue, causing talented people to engage in rent-seeking behaviour rather than productive activities and distorting the composition of government expenditure. Furthermore, there are some theoretical counter-arguments. The grease-the-wheels theorem argues that government employees who are allowed to demand bribes might work harder

energised by corruption thereby helping some businesses get around the costly bureaucratic impediments.

Nyoni, (2017) cites Transparency International who indicated that Zimbabwe was among the world's top 25 most corrupt counties in the world. The Transparency International investigation indicated that Zimbabwe was ranked the 154th nation out of 175 countries, in terms of the Corruption Perception Index in 2011. This demonstrated that Zimbabwe scored negatively on governance and corruption indices, such as the Corruption Perceptions Index (CPI) by Transparency International. It measures the extent of corruption in a country when contrasted to other countries. Zimbabwe had a low score on the CPI, signifying high perceived levels of corruption in the public sector. The CPI ranks 180 countries and territories by their perceived levels of public sector corruption, according to experts and business people. Focusing on economic corruption, Chitambara (2015) revealed that the state of corruption in Zimbabwe has been described as systemic and endemic and is often cited as one of the biggest obstacles to economic growth and development. The Consumer Price Index (CPI), with 0 being highly corrupt and 100 being the highly clean or free of corruption. The CPI for Zimbabwe contrasted with Botswana and Kenya are as per Table 1.7. The CPI indicates existence of corruption in Zimbabwe and Kenya with Botswana performing very well. Corruption, according to Transparency International, has some significant negative impact on economic growth. For the period 2012 to 2022, Zimbabwe scored below 25 which is close to highly corrupt.

Table 1.7 Transparency International Corruption Perception Index (CPI)

Year	Number of Countries	CPI Zimbabwe	CPI Botswana	CPI Kenya
2012	176	20	65	27
2013	175	21	64	27
2014	175	21	63	25
2015	167	21	63	25
2016	176	22	60	26
2017	180	22	61	28
2018	180	22	61	27

2019	180-	24	61	28
2020	180	24	60	31
2021	180	24	56	30
2022	180	24	60	32

Source: Transparency International (2022) Corruption Perceptions Index 2009 to 2022

This study looked at the effects of corruption as a moderating variable on capital expenditure be it on infrastructure development or on procurement of capital goods. The above Transparency International CPI is important to the study in that it demonstrated the existence of corruption in Zimbabwe.

1.6.1 Administrative Costs

Nyoni (2017) opines that the negative effects of financial leakages are the high transaction cost. Financial leakages associated with administrative costs arise out of compliance to regulations and transactions with legal environment and actors. They include the process of weighing the costs of procedures, hierarchic authority, interaction with private sector and citizens within the legal environment. In Zimbabwe there is a legal requirement to comply with the Public Procurement and Disposal of Public Assets Act (Chapter 22:23) for all capital expenditure on projects or infrastructure by the central government, state owned enterprises and municipalities. The tendering process is lengthy and time consuming and can be costly. Bulut, *et al.* (2016) contend that bureaucracy refers to a solid mechanism and conduct of national public service for uniformity or power. By means of praxis, all bureaucratic transactions are seen equal to the negative outlooks as redundancy, arbitrariness and sometimes economic inefficiency by citizens. The bureaucratic cost implies that state departments need to try to minimize the costs of regulation and transaction with legal environment and actors. It also refers to the process of weighing the costs of procedures, hierarchic authority, interaction with private sector and citizens within the legal environment. It is widely accepted that the bureaucratic cost in developing countries are the results of hierarchy and administrative structure, which can be out of efficient economic control. It can be a problematic issue also in developed countries or supranational structures as well. Looking at EU's accounts for 2015, it was seen

that EU had spent €8.7 billion of its €145 billion budget on administration costs which is some 6% of the total. This is becoming more critical for the developing countries, as their reform process is recalled.

A study examining the position of dynamically developing countries such as BRICS and Turkey can be helpful to understand the relationship between the bureaucratic costs and the legal system. This study analyses bureaucratic cost, and the legal system indicators such as judicial independence, impartial courts, regulatory costs, and the protection of property. The aspect of positioning the regulatory transactions effects in a state of law and efficient state economy for an ascendant bureaucracy can be traced in a method that uses panel data analysis for those countries to the relation and the availability causality. The systems that are put in place under a bureaucracy make decision-making slow. Bureaucracies can render systems formal and rigid, which is needed when following safety procedures.

Bureaucratic costs therefore refer to the costs of solving the transaction difficulties that arise from managerial inefficiencies and the need to manage the handoffs or exchanges between government departments to promote increased differentiation or to lower as the government's cost structure. Bureaucratic costs become a significant component of the government's cost structure because considerable managerial time and effort must be spent to reduce or eliminate managerial inefficiencies such as those that emerge from suppliers losing their incentive to innovation. Problems arise out of vertical integration when technology is changing fast. Vertical integration may lock the government into an old, inefficient technology and prevent it from changing to a new one that would strengthen its efficiencies. Thus, vertical integration can pose a serious disadvantage when it prevents a government from adopting new technology or changing its suppliers or distribution systems to match the requirements of changing technology. The administration cost impact on speed of acquiring capital expenditure goods. Corruption which is a moderator on capital expenditure hides in bureaucratic costs.

1.7 Economic Sanctions

The other intervening variable under this study is economic sanctions. They affect the economy through failure by the country to export and earn income. Furthermore, through sanctions, the country fails to attract quality investment and technology.

Countries interested in importing goods and services and investors are afraid of high-country risk and blacklisting by the powerful countries who impose the sanctions. Due to sanctions, access to markets become elusive and expensive. Özdamar, *et al.* (2021), state that economic sanctions are restrictions over economic activity imposed by international actors on a targeted country for a specific purpose. They further assert that the purposes of sanctions are to enforce behavioural change. Splinter and Klomp (2021) have found weak but significant positive effect of economic sanctions on the likelihood of a growth deacceleration. The authors assert that this was the case on sanctions on trade in most countries in Sub-Saharan Africa. The multilateral sanctions were aiming at the business sector which cause sudden negative growth accelerations. Economic sanctions can result in multiple consequences, with varying intensities depending on factors such as who has imposed them and the targeted areas. Allen *et al.* (2020) evaluated some advances and policy implications of sanctions and their effects and the different types of sanctions and their consequences and confirmed that they have negative effects on the targeted countries.

However, there are contradictory findings on the impact of sanctions on Foreign Direct Investments, which may shrink due to the expectations of higher risks and lower profits for investors. These may be caused by trade or investment restrictions. Sanctions decrease financial flows between countries imposing them and the targeted country as contended by Besedes, *et al.* (2017). Sanctions also lead to lower availability of international financing. Decreasing access to financing and possible overall economic shocks, increases the likelihood of banking crises, especially under financial and costlier sanctions (Hatipoglu & Peksen, 2018). The threats of sanction may increase corruption by creating expectations of increased rivalry for resources, especially in states where corruption is already frequent (Balanov, 2017).

Zallé (2017) contends that political risk associated with sanctions, incurred by a country, has some influences on the country's economic growth. However, democracy and governmental stability have positive direct effects on economic growth. Zallé (2017) further opines that most African countries have faced economic, political, and sometimes institutional crises. In economic literature, it is generally accepted that political instability is detrimental to private investment and consequently to economic growth. Sanctions can cause political instability for a

government which leads to suboptimal macroeconomic policies with negative effect on economic growth. Such risk is also associated with frequent changes in economic policy and therefore volatility in economic growth rates (Halla & Ahmad, 2012). Zallé (2017) contends that each country has a set of characteristics that determine its level of political risk. The author further states that there is a consensus that socio-political instabilities depress investment and reduce economic growth. Sanctions related political instability weakens institutions, promotes corruption, and discourages investment of any kind. It engenders hesitation among potential investors, penalises capital accumulation and hampers economic growth.

1.8 Financial leakages through Agriculture Procurement

Zimbabwe is an agricultural-based economy. Agricultural production is capital intensive as it uses heavy machinery such as centre pivots, tractors and combine harvesters which constitute part of the capital expenditure under study. The procurement of the equipment is affected by financial leakages and sanctions. The financial leakages make the cost higher and sanctions make it difficult to import the heavy agricultural machinery. The agricultural output in Zimbabwe declined.

Furthermore, land reform and distribution had a negative effect on output as can be seen from low constant agricultural production of a few selected key mainstay agricultural crops Table 1.8, as per the report by the Food and Agriculture Organisation of the United Nations, (2019)

Table 1.8: Agricultural Output for Zimbabwe from 2009 to 2019

Yield Year	Maize (hg/ha)	Wheat (hg/ha)	Soya Beans (hg/ha)	Tobacco Unmanufactured (hg/ha)
2009	4,642	30,000	15,000	13,560
2010	8,751	27,786	13,557	11,652
2011	6,568	26,605	12,054	10,662
2012	7,912	24,902	15,300	15,013
2013	7,449	23,429	13,142	11,698
2014	9,301	22,150	11,767	14,301

2015	5,803	20,486	9,459	12,948
2016	4,405	19,013	11,958	16,479
2017	13,993	17,542	15,513	9,315
2018	13,506	16,379	18,680	17,587
2019	8,871	15,891	13,333	25,076

Source: Food and Agriculture Organization of the United Nations (FAO) 2019

Hawkins (2008), states that the disorderly and hurried way in which the land reform and redistribution program was carried out contributed greatly to a decrease in production. From then on, agricultural output, which was once Zimbabwe's pride, began to fall drastically. Kanyenze (2003), in a discussion paper organised by UNDP indicates that Zimbabwe's economy was the fastest shrinking in the world, at 18 percent per year (Zimbabwe situation referenced www.zimbabwesituation.com 2003). The most detrimental effects of the land reform program on the economy have been that the commercial farmers were utilizing economies of scale to achieve high yields at the lowest possible costs. The Land Reform program redistributed land by partitioning land into smaller farms, thereby eliminating this cost-cutting mechanism.

1.9 Problem Statement

Zimbabwe experienced hyperinflation and macroeconomic challenges during the period 2009 to 2022. The gross domestic product and the economic growth rates declined to negative in some years over this period (World Bank Report, 2020). The collapse of the Zimbabwe economy showed up in both local and international ratings in which the country ranked 124 out of 137 in the World Economic Forum's Global Competitiveness Index for 2017-2018 (New York Times, 2017). This was despite the government deploying huge amounts for capital expenditure for infrastructure projects to stimulate economic growth. The country is on one hand under economic sanctions and on the other financial leakages (corruption) which in sub-Saharan Africa has become cancerous. The previous studies did not analyse the moderating impacts of two confounding variables financial leakages (corruption) and economic sanctions on capital expenditure and economic growth in Zimbabwe. Deployment of capital expenditure has been of major concern to countries all over the world due to

its significant impact in fostering economic growth. The study posited that capital expenditure stimulates and effectuates economic growth. The study interrogates this relationship and provides financial and policy guidance on deployment of capital expenditure to arrest plummeting economic growth of the country.

1.10 Research Objectives

The objectives of this research are: -

- a) To establish the moderating effect of financial leakages (corruption) on the relationship between capital expenditure and economic growth.
- b) To examine the moderating effects of economic sanctions (on FDI and International Trade Inflows) on the relationship between capital expenditure and economic growth.

To examine the effects of Capital Expenditure on Economic Growth

- c) To establish internal economic variability in Zimbabwe's economic growth pattern consequent of capital expenditures.

1.11 Research Questions

The study addresses the following research questions: -

- a) What optimisation tools can be deployed in capital expenditure processes to enhance economic growth?
- b) What economic instruments can be deployed to minimise effects of financial leakages (corruption) on economic growth?
- c) What economic instruments can be deployed to minimise effects of economic sanctions on growth?
- d) What is the effect of Capital Expenditure deployments on economic growth?

1.12 Hypotheses

This study posits the following three main alternate hypotheses informed by the above four research objectives:

H1: Capital expenditure positively impacts on economic growth.

H2: Financial leakages negatively impact on the relationship between capital expenditure and economic growth.

H3: Sanctions negatively impact on the relationship between capital expenditure and economic growth.

1.13 Significance of the Study

The moderating effects of financial leakages and economic sanctions on capital expenditure impacts on economic growth remains unclear. There have been no empirical studies taken on this topic so far in Zimbabwe. The findings of this study will help come up with more focused interventions by the government of Zimbabwe particularly on deployment of capital expenditure and how to mitigate on the devastating effects of financial leakages and economic sanctions.

Zimbabwe, experienced economic challenges characterised by financial instability caused by financial leakages and economic sanctions. This was on the back of fast-track land reform and redistribution of year 2000 which attracted the sanctions. Ghomi, (2021) on effects of economic sanctions against Iran confirmed that economic sanctions are associated with considerable costs in terms of real GDP losses that are long-lived. Gharehgozli (2017) indicates that for the first 3 years after the implementation of the sanctions in Iran, economic sanctions were costly to the country. Frank (2018) finds a significant negative effect of sanctions on trade, while Kohl and Reesink (2019) cast doubt on the robustness of economic sanctions. Hinz (2017) studied the global effect of recent sanctions on Russia, Iran and Myanmar and found that the overall cost of these sanctions in 2014 was about US\$50 billion, which is equivalent to 0.4% of global trade. In another study, Crozet and Hinz (2018) find that the costs of the sanctions and counter-sanctions on Russia in 2014 were around 7.4% of its total exports. Gharehgozli (2017) applying synthetic control method, on the effect of the sanctions on Iran's economy after 2012 found that they resulted in around 17% decrease in GDP during the first 3 years, with the highest negative effect of 12% drop happening in the first year. Ghomi, (2021) avers that sanctions are a popular political instrument that is used to force countries to comply with international agreements and laws. Sanctions, along with poor domestic policies,

resulted in a significant and huge negative impact on the Iranian economy. However, the effects of sanctions on Zimbabwe need further investigation to establish the effects of the sanctions imposed by USA and European Union in 2000. The significance of this study has theoretical, practical and policy ramifications.

1.13.1 Theoretical Significance

This study unveils the relationship between capital expenditure and economic growth in the midst of financial leakages and economic sanctions. The findings of the research are of critical importance as they contribute to both future researchers and policy makers in developing economies. This study was underpinned by the Positivism Philosophy to analyse the quantitative secondary data. Keynesian theory states that government should increase demand to boost growth (International Monetary Fund, 2014). Keynesians believe that consumer demand is the primary driving force in an economy. As a result, the theory supports the expansionary fiscal policy (The Balance, 2021). Its main tools are government spending on infrastructure, unemployment benefits, and education (Amadeo, 2021). Keynes (1936) argues that an economy's output of goods and services is the sum of four components: consumption, investment, government purchases and net exports being the difference between what a country sells to and buys from foreign countries. According to Keynesian economics, state intervention is necessary to moderate the booms and busts in economic activity of the business cycle. Gordon (2017) contends that public capital can play an important role in increasing long-run output and standard of living. He indicates that there is a role for government to raise social welfare by providing public capital, even when it must tax private resources to finance it.

The researcher supports the Keynesian theory of growth because when government invests in infrastructure in the economy that has significant downstream effects. Private sector companies supply the goods and services required in the implementation of the capital projects. This study empirically analyses the effects of the deployed capital in Zimbabwe. This makes the Keynesian theory most relevant to this study. This dovetails with the research question on the relationship between capital expenditure and economic growth in the midst of financial leakages and economic sanctions.

The Neo-Classical Theory of growth advanced by Solow–Swan (1956) as an exogenous growth model on the effect of government expenditure on growth through production factors is considered to be only transitional. The capital formation and government investment are captured under capital expenditure. Neo Classical Theory of Growth highlights that if productivity is to increase, the labour force and capital should be provided with more resources. The new growth theorists argue that there is both a short-term impact and a long-term impact of government intervention through fiscal stimulation on economic growth during the transition to equilibrium. The Classics and the Neo-Classicals consider fiscal policies to be futile because of the crowding-out effect. The theory also argues that technological change has a major influence on an economy and that economic growth cannot continue without technological advances (Banton, 2020).

The Neo-Classical Theory opines that the effect of government expenditure on capital is considered transitional. However, government expenditure can also have long term effects in the case of capital expenditure with long run positive impact. The Classical and Neo-Classical theories considered fiscal policies to be futile because of the crowding out effect. However, fiscal policy drives government budget and can have positive effects when it favours capital expenditure. The researcher advocates that fiscal policy is not futile but progressive in the long run when it supports more capital expenditure for infrastructure development.

1.13.2 Practical Significance

It was important to establish whether the findings were reliable and could be generalized for real-world applications. Practical significance gives confidence that the research results did not occur by chance. The GDP growth rates were significant indicators on the performance of the economy. The moderating effects were considered of practical significance when the hypothesis was close to the truth and correct. This helped in avoiding faulty conclusions from the use of secondary quantitative data as statistically significant. Results that were below the lower confidence limit were automatically excluded. However, the GDP growth rates were declining despite significant deployment of funds towards capital expenditure. The findings of this study informed the formulation of policy on the allocation and deployment of funds towards capital expenditure in the midst of moderating variables,

financial leakages and sanctions. Positive relationship between capital expenditure and GDP, influenced the level of funds set aside for infrastructure development. This was due to its downstream developmental effect. The findings influenced policy on setting aside funds for capital expenditure.

Financial leakages have cancerous effect on the total cost of developmental infrastructure. It could impact negatively on GDP by decelerating economic growth. The study identified corruption as a moderator on capital expenditure impacts on economic growth. The pathways of corruption were identified and suggested ways to mitigate them. Economic sanctions had influence of inflows of international trade of goods and services and foreign direct investments. In the absence of sanctions, the country would freely trade with international community and attract quality FDI. This would be accompanied by transfer of technology necessary for economic development. The research findings influenced formulation of policies and strategies to lobby for the removal of sanctions by the imposing countries.

1.13.3 Policy Significance

This study makes some important contributions to policy on how to split the national budget into capital and recurrent. The Policy Significance of the study was therefore guided by the theorem on allocation of budgetary resources as espoused in the Budget Theory by Key (1940). The government has the role to allocate capital expenditure for economic development. It becomes an enabler to drive infrastructure projects to grow the economy. This is supported by the Wildavsky (1961) theory that the budget is about meeting competing needs. The study analysed the relationship between capital expenditure and economic growth.

Policy Significance recommendations from the study informed on the value of the relationship between capital expenditure and economic growth. The findings were of material value to the government of Zimbabwe on formulation of policy and decision making on deployment of capital expenditure in the short and long term. Modalities and measures to deal with financial leakages were identified to inform how to deal with them. Furthermore, policy measures were made on how to have the economic sanctions resolved.

1.14 Scope of the study

The scope of this study was the domain of the consequential relationship between capital expenditure and economic growth. It was to examine the contention on whether this relationship was affected by the dual moderating variables of financial leakages and economic sanctions or not. On financial leakages examined cost implications and on sanctions impact on inflow of international trade receipts and inflows of FDI. The study period of 14 years from 2009 to 2022, is the period when the economy was fully and partly dollarized. The quantitative data for this fourteen-year period was quarterised using the Lisman and Sandee Quarterly Distribution Formula. The quarterised data was sufficient to capture the intervening effects of financial leakages and economic sanctions on capital expenditure impacts.

1.15 Background of the Study

Zimbabwe undertook a Fast-Track Land Reform and Redistribution Programme in year 2000 which facilitated the expropriation of land from 4,500 white commercial farmers and reallocated it to 169,347 indigenous farmers of whom 149,743 were model A1 and 19,604 were model A2 (Ministry of Lands, Agriculture, Fisheries, Water and Land Resettlement, 2021). This attracted economic sanctions imposed by the United States of America (USA) through the enactment of the Zimbabwe Democracy and Economic Recovery Act (ZIDERA) in 2002. Supplementing the US' legislative sanctions of ZIDERA were Executive Sanctions (Executive Order 13288) of March 2003 renewable on a yearly basis. The European Union also introduced its own sanctions through the Common Position 2002/145/CFSP in February 2002. This resulted in massive capital flight and withdrawal of financial support by the Bretton Woods Institutions (International Monetary Fund and The World Bank). The Executive Orders which were put in place in 2003, were removed through Executive Orders 13818 of 4 March 2024. However, removing ZIDERA would require legislative action by the US Congress to repeal it.

Furthermore, the country experienced hyperinflation, high interest rates, depreciated currency in Real Time Gross Settlement (RTGS), arrears to the World Bank and IMF, unstable exchange rates and unsustainable debt (Mhlanga and Ndhlovu, 2021). However, these challenges are not part of this study which is limited to the

moderating effects of financial leakages and economic sanctions on the relationship between capital expenditure and economic growth.

1.16 Organisation of the Research Study

The research study consist of five chapters: chapter one on Introduction; Chapter Two, on Literature review; Chapter Three, Methodology; Chapter Four, Discussions and Chapter Five, Conclusions and Recommendations.

1.16.1 Chapter One Introduction

Introduction covered background, the problem statement, and objectives of the study significance of the study, theoretical significance, practical significance and policy significance. The study also looked at hypotheses, and scope of the study.

1.16.2 Chapter Two Literature Review

Literature Review looked at what was already in the public domain with respect to area of study. It reviewed relevant published scholarly literature including journals articles to identify main themes and to extract knowledge. It was an in-depth review of studies related to factors on capital expenditure and economic growth. The search included available publications on financial leakages (corruption) and economic sanctions on their moderating effects on the relationship between capital expenditure and economic growth. Reviewed relevant theoretical and empirical literature on corruption, and sanctions. The theoretical literature review identified gaps which were inadequate to explain new and emerging research gaps. It covered relevant theories on the research topic on Theoretical Review; Keynesian Theory; Classical Theory; Neo Classical Theory of Growth; Budgeting Theory; Empirical Literature Review and Country Specific Studies. The Conceptual Framework on the relationship between capital expenditure and economic growth amid mediating variables corruption and economic sanctions.

1.16.3 Chapter Three Research Methodology

The Research Methodology looked at Research Philosophy, ontological aspect and epistemological aspect. It covered quantitative research, research approach, research design, model specifications. The analysis used autoregressive distribution lag (ARDL) model, capturing capital expenditure and variables of concern corruption and sanctions. Addressed sources of the quantitative secondary data. Covered robustness checks, stationarity, heteroskedasticity, granger casualty tests, inferential statistics and descriptive statistics.

1.16.4 Chapter Four Results and Discussion

Results and Discussion dealt with data presentation analysis and interpretation which covered descriptive statistics, unit root test, lag selection, diagnostic tests stability tests, heteroscedasticity tests, normality test, bound test, empirical findings, and robustness of the model tests. Concluded with the empirical findings, and results.

1.16.5 Chapter Five Conclusions and Recommendations

The chapter presented conclusion and recommendations on the findings. There were recommendations to practice, recommendations, policy, and recommendations on theoretical implications and on future studies.

1.17 Chapter Summary

The background to the study covered the land reform and redistribution of 2000 which attracted economic sanctions on Zimbabwe. The modern-day theory of economic growth by Solo-Swan as cited by Babatunde (2018) contends that expenditure on infrastructure has positive effects on economic growth. In Zimbabwe there has been deployment of significant capital expenditure. However, little economic growth has been realized. Questions continue to emerge on the impact of government capital expenditure on economic growth. There are contradicting views on whether the government should continue to prioritise capital expenditure given the impact of particularly the dual moderating variables of financial leakages and economic sanctions. Nonetheless, the moderating effects of these variables on capital expenditure impact on economic growth remains an area of empirical contestation. Budgeting is important in the provision funds used for capital expenditure more so as a percentage of GDP. In the case of Zimbabwe, the GDP growth rate for the period

2009 to 2022 was decreasing despite the increase in capital expenditure. This was further demonstrated by the gross capital formation for Zimbabwe for the period 2009 to 2022 which, according to the World Bank, showed that the performance was far below the global performance which averaged 10% of GDP compared to the global 25%.

The next chapter addresses the review of related literature, theoretical and empirical studies, and presents the research gaps and conceptual framework of the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews related literature and focuses on the relevant theoretical and empirical studies on the dual moderating effects of financial leakages (corruption) and economic sanctions on the relationship between capital expenditure and economic growth in Zimbabwe. The theoretical literature review facilitated the identification of gaps which this study intended to fill.

The relevant theories on the research topic were, Keynesian Theory; Classical Theory; Neo Classical Theory of Growth; and Budgeting Theory. Empirical Literature Review focused on Country Specific Studies; Capital Expenditure; The Process of Government Expenditure; Economic Growth; Financial Leakages; and Sanctions. The chapter concluded by coming up with theoretical framework and identified the gaps to be filled by this study. Empirical and Neo-Classical theories on economic growth were also reviewed with specific reference on the relationships between capital expenditure and economic growth and the mediating variables of corruption and economic sanctions.

Empirical research on the economic impact of capital expenditure on economic growth has been carried out extensively in developed and developing countries both in the past and in recent years. However, circumstances differ from country to country due to peculiar inhibitory factors which affect them differently. Nyasha, *et al.* (2019) contend that the relationship between government spending and economic growth has attracted widespread attention over the years to establish the impact of government spending on economic growth. From the theoretical perspectives, there are the Keynesians that advocate for the positive impact of government spending on economic growth and the Classics and the Neoclassicals that postulate that government spending has a negative impact on economic growth (Álvarez-García & Rodríguez, 2017). There are also researchers that found a middle ground where government spending is postulated to have a positive impact on economic growth up to a certain optimal threshold, above which the impact turns negative.

Mazorodze (2018) investigated the effect of government expenditure on economic growth in Zimbabwe using time series data for the period 1979 – 2017. The study

used the Autoregressive Distribution Lag (ARDL) model. The findings were that some expenditure components have a positive and significant effect on long term economic growth. The study on Zimbabwe also concluded that investment expenditure is more powerful than consumption expenditure. Mbanye (2019) also examined, using time series data from 1980 to 2022, the causal linkages between government expenditure and economic growth in Zimbabwe using ARDL and Vector Error Correction Mechanism (VECM) models. The study found no causal relationship between consumption expenditure and economic growth in Zimbabwe. In addition to this, the study revealed that there is unidirectional causal relationship running from economic growth to capital expenditure, both in the short-run and long run. The study recommended that the Keynesian spirit which advocates the improvement of government expenditure through increased government revenue is unwarranted and counterproductive. Matallah (2019) examined the effectiveness of the fiscal policy on economic growth in Zimbabwe using annual time series data covering the period 1980 to 2010 and the Johansen co-integration approach and error correction model. The result of the study revealed that income tax and government consumption expenditure have a positive effect on economic growth. The study also found that government expenditure for capital harms the economic growth of Zimbabwe. Even on an empirical front, the possible impact of government spending on economic growth has been varied as well with some studies finding the impact to be positive (Kimaro *et al.*, 2017). Few contributions have aimed at studying the effects of capital expenditure on longer run growth, yet it is important (Agenor, 2019), in the context of reserve requirements of financial regulations designed to reduce short term procyclicality and mitigate the risk of financial instability which could potentially be detrimental to economic growth in the long term, as a result of their adverse effects on incentives to borrow and lend.

The link between public capital expenditure and economic growth has continued to generate a series of debates with some scholars concluding that the effect of capital expenditure on economic growth is positive through an increase in productivity (Waweru, *et al.*, 2021). Furthermore, Keynesian school of thought, government expenditure can contribute positively to economic growth. As a result, government spending augments the aggregate demand, which provokes an increased output depending on the expenditure multiplier (Romer, 1996) as cited by (Waweru, *et al.*,

2021). In East Africa, capital spending budgets have been experiencing an increasing trend. Nyarko-Asomani *et al.* (2019) found that capital expenditure played an important role in Ghana's economic growth. Paudel (2023) contends that Nepal should increase capital formation rapidly by adopting several macroeconomic policies so that sufficient allocation for the public spending is possible to accelerate economic growth in the country.

The increase in government expenditure could be to grow the economy through fiscal policy intervention. However, this could also lead to a policy dilemma on whether more public budgetary capital expenditure always resulted in economic growth. This study is aimed at addressing this fundamental question. Correlation between economic growth and capital expenditure structure is assumed by economics and finance. One of the major dilemmas in macroeconomic analysis is whether public financial spending can support economic growth or, on the contrary, limit growth. An examination of the capital expenditure effects of corruption and economic sanctions was worth examining as well as their effectiveness on economic growth.

The study is expected to add to the body of knowledge through the assessment of the impact of intervening variables corruption and sanctions on capital expenditure impacts on economic growth in developing economies. There are recommendations to policy makers on the impacts of capital expenditure on economic growth. This study also assists the research fraternity by putting together related literature on the subject in an analytical manner, making related future studies easier. Empirical studies on the impact of corruption and economic sanctions were gathered from various scholarly articles and journals. The literature on the impact of the structure of public finances on economic growth is generally split into capital expenditure, recurrent expenditure, and debt and tax analysis. In this study, only the literature related to capital expenditure is relevant.

2.2 Theoretical Review

The theoretical literature review concretely established the corpus of the existing literature on the relationships between the dual moderating effects of corruption and economic sanctions. The literature review focused on relevant theoretical concepts to address the research question based on the level of existing theories on the

hypotheses. In analysing the theories, the review addressed the gaps to be addressed by the research and the strengths and weaknesses of the research study. The literature reviewed academic work already done in relation to the research topic.

The relevant theories concluded by establishing the research gaps. Nyasha and Odhiambo (2019) contend that the effect of government expenditure on economic growth has attracted the attention of economists, policy makers and politicians. On the extreme end of the theorists' continuous discussions are the Classics, the Neoclassicals and the public choice theorists. They claim that government expenditure is bad for economic growth because of the crowding-out effect. The spending by government displaces investments by the private sector due to resource constraints. Besides these theorists, are those in the middle who have found a middle ground and settled on the view that the relationship between government spending and economic growth is non-linear. They contend that it has an optimal point below which it has a positive impact and above which it has a negative impact on economic growth. Friedman, (1997) as cited by Nyasha and Odhiambo (2019) acknowledges that as government spending increases from the optimal level of 15% of national income to 50%, the impact of public expenditure on economic growth tends to be negative.

Landau (1983) as cited by Nyasha and Odhiambo (2019) empirically examined the relationship between government spending and economic growth in 65 under-developed countries. Based on government spending that was disaggregated into capital and investment spending and using The Impact of Public Expenditure on Economic Growth panel data analysis techniques, the study revealed that though the effect was minute, government capital spending had a positive impact on economic growth. Further, they go on to cite Aschauer, (1989) who found that in the United States of America the core infrastructure on streets, highways, airports, mass transit, sewers, and water systems, had the most explanatory power for productivity. Leshoro (2017) put government spending and economic growth to an empirical test in the case of South Africa using annual data covering the period 1976 to 2015. Government spending was further disaggregated into various components which were government investment spending and government consumption spending. Using the autoregressive distributed lag (ARDL) estimation procedure, the results of the study

showed that government spending has a positive impact on economic growth in the study country. This was irrespective of the government expenditure component under consideration which were investment or consumption expenditure. These results were found to hold irrespective of whether the estimation was in the long run or in the short run. Okoye *et al.* (2019) examined the relationship between government expenditure both aggregated and disaggregated on the economic growth to determine the extent to which output growth in Nigeria was affected by government spending, during the period 1981–2017. They found that in Nigeria, capital expenditure had a positive impact on economic growth.

The main theories underpinning the study are Keynesian theory which advocates that government expenditure has positive effect on economic growth, classical and neo classical theories that advocate that government expenditure has negative effect on economic growth. These theories deal with economic enablers, investments, capital expenditure and revenue. These are necessary for economic growth. The study focuses on moderating effects of corruption and sanctions on relationship between capital expenditure and economic growth. These theories address these key issues of interest to the study.

2.2.1 Keynesian Theory

Keynesian Theory is a theory that says the government should increase demand to boost growth according to IMF, (2014) as cited by Amadeo (2021). Keynesians believe that consumer demand is the primary driving force in an economy. As a result, the theory supports the expansionary fiscal policy (The Balance, 2021). Its main tools are government spending on infrastructure, unemployment benefits and education (Amadeo, 2021). Keynes described his premise in “The General Theory of Employment, Interest, and Money” of 1936. It argued that government spending was a critical factor driving aggregate demand. Keynes argued that government spending was necessary to maintain full employment. Keynes (1936) advocated for deficit spending during the contractionary phase of the business cycle. Keynes (1936) argued that an economy’s output of goods and services is the sum of four components, namely: consumption, investment, government purchases and net exports. Net exports refer to the difference between what a country sells and buys

from foreign countries. Furthermore, any increase in demand must come from one of these four components.

According to Keynesian economics, intervention is necessary to moderate the booms and busts in economic activity of the business cycle. There are three principal tenets in the Keynesian description of how the economy works:

(a) Aggregate demand is influenced by many economic decisions both public and private. Private sector decisions can sometimes lead to adverse macroeconomic outcomes, such as reduction in consumer spending during a recession. These market failures sometimes call for active policies by the government, such as a fiscal stimulus package. Therefore, Keynesian economics supports a mixed economy guided mainly by the private sector but partly operated by the government.

(b) Prices, especially wages, respond slowly to changes in supply and demand, resulting in periodic shortages and surpluses, especially of labour.

(c) Changes in aggregate demand, whether anticipated or unanticipated, have their greatest short-run effect on real output and employment, not on prices.

Ramey (2020) contends that public capital can play an important role in increasing long-run output. The author opines that because of nonrivalry in consumption and non-excludability in use, the private sector will tend to underprovide key types of productive capital. Gordon (2017) highlights the contributions of publicly provided sanitation, clean water, and electrical infrastructure to increase in productivity in the U.S. during the first part of the 20th Century. In the post-World War II period, the U.S. interstate highway programme was linked to significant increases in productivity and output (Leff, 2020). In the USA, more recently, government infrastructure spending has also figured prominently in policy discussions regarding short-run stimulus (Ramey, 2020). The author further argues that government infrastructure spending is viewed by many policymakers as having advantages over government consumption spending for stimulating the economy during a recession. Gordon (2017) opines that government investment spending such as infrastructure spending can change the path of potential output. It provides two benefits of the Keynesian demand stimulus in the short run and neoclassical supply stimulus in the long run (Gordon, 2017). There are benefits of infrastructure spending, both in the long run

and the short run. Much of the theory and the empirical work suggest that even when there are substantial long-run benefits of infrastructure investment, the short-run benefits are probably lower than non-productive government spending. Both the neoclassical model and the New Keynesian model produce significantly higher multipliers at longer horizons.

Ramey (2020) asserts that government investment in public capital and particularly infrastructure, typically involves implementation delays and these delays severely mute the short run multiplier. Boehm (2019) notes that the long service life of private capital leads to a very high inter-temporal elasticity of substitution in investment demand. In a neo-classical model, government purchases have direct impacts on the economy. A new Keynesian model shows that policymakers advocate for infrastructure spending to jumpstart an economy during a downturn. New Keynesian model is on sticky prices but flexible wages. Broer *et al.* (2020) demonstrate that labour supply rises more in response to demand shocks in a benchmark New Keynesian model than in a neoclassical model because of an additional negative wealth effect.

Keynesians believe that, because prices are somewhat rigid, fluctuations in any component of spending, consumption, investment or government expenditures, cause output to change. If government spending increases, for example and all other spending components remain constant, then output will increase. Keynesian models of economic activity also include a multiplier effect that is, output changes by some multiple of the increase or decrease in spending that caused the change. If the fiscal multiplier is greater than one, then a one dollar increase in government spending would result in an increase in output greater than one dollar.

The central tenet of the Keynesian economics school of thought is that government intervention can stabilize the economy as contended by Sarwat *et al.* (2014). According to his approach, government public spending may increase the aggregate demand which further stimulates economic growth and employment creation. The Keynesian school of thought places importance on the size of the government through fiscal policies. According to Keynesian, fiscal policies boost economic activity, especially during recession, when the self-regulatory mechanisms in the economy fail to drive the economy back to equilibrium. The Keynesians are ardent supporters of

expansionary fiscal policies for economies to get out of recessions. With the entrance of new growth theories, Keynesian argument for fiscal policies as economic growth enhancers has gained traction and additional support. It is, therefore, the Keynesian view that even causality runs from increased government expenditure to increased economic growth through an expansionary fiscal policy. The Keynesian view postulates that the causality runs from government spending to economic growth. Kanayo (2020) states that macro-economic theory is a mixture of Classical theory based on the perception that flexible prices ensure market equilibrium and full employment are being maintained. The author further states that Keynesian economics is based on the assumption that aggregate demand is the primary source of uncertainty, thereby making government intervention inevitable. Liberto (2021) also states that the New Keynesian economics is a modern macroeconomic school of thought that evolved from classical Keynesian economics. In August 2007, when the first signs emerged of what would come to be the most damaging global financial crisis since the Great Depression, the New Keynesian paradigm was dominant in macroeconomics (Jordi, 2018). However, ten years later, from 2007, there has been some strong criticism against modern macroeconomics in general and against dynamic stochastic general equilibrium models that build on the New Keynesian framework. Those criticisms notwithstanding, the New Keynesian model arguably remains the dominant framework in academic research and in policy modelling (Jordi, 2018). Parui (2024) investigated a post-Keynesian macro-model on impact of fiscal expansion on aggregate demand and economic growth and analysed whether fiscal policy plays any role in stabilising the economy. The author's findings were that in some cases, sufficiently high government expenditure to GDP ratio is essential for achieving stability in the system. The new Keynesian theory differs from classical Keynesian thinking in terms of how quickly prices and wages adjust. The Keynes (1936) idea in the aftermath of the great depression that increased government expenditures and lowered taxes could stimulate demand and pull the global economy out of a downturn became the dominant way of thinking for much of the 20th century.

Kanayo (2020) further states that Keynesian theory is a school of thought that broadly states that government intervention is needed to help economies emerge out of recession. The idea comes from the boom-and dust economic cycles that can be

expected from market economies and positions the government to control the magnitudes of the cycles (Parui, 2024). Deployment of resources towards infrastructure development during intervening variables, corruption and sanctions, in Zimbabwe has not been empirically examined. This study examined this mediating effect.

2..2.2 Classical Theory

Adam Smith's enquiry in the Wealth of Nations (Smith, 1976) is the construction of a theoretical system for identifying the main drivers and causal processes of growth to formulate and promote policies that could achieve the objective of 'universal opulence'. The driving force of growth in Smith's theory is *saving*, what he referred to as 'parsimony' and that saving will lead to and be matched by equal levels of investment, involving the employment of stock as capital in production which is necessary for capital accumulation (Smith, 2023). However, the driving force in the (Smith, 1976) model is savings. The model ignores the efficient role of technological development which contributes to smooth running of an economy. Advancements in technology can minimise diminishing returns.

Smith (2023) contends that Smith's analysis of capital consists of two kinds;

firstly, there is 'circulating capital', which is conceived to be commodity inputs that change form as they circulate in the production process from one owner to the next, consisting of 'money', 'provisions', 'materials' and 'finished work';

and,

secondly, there is fixed capital used up in the production process, which is capital that affords revenue or profit by not circulating and not changing masters and consists of 'all useful machines and instruments of trade which facilitate and abridge labour', 'profitable buildings' (not 'dwellings'), 'improvements of land' (i.e. irrigation, fencing etc.) and the acquisition of human capital.

This sits well with the study on the impact of capital expenditure on economic growth. It brings forward how capital expenditure is raised and circulates in an economy. Infrastructure development involves circulation of capital expenditure within the economy. Smith states that fixed capital only functions with circulating capital, especially provisions for the necessary consumption of labour. The author further clarifies that all useful machines and instruments of trade are originally derived from a circulating capital, which furnishes the materials of which they are made.

The first principle of the Classical Economist was a *laissez faire* system which was mostly referred to as Economic Liberalism (Smith, 1776). Economic Liberalism believes that the economy was self-adjusting and turning positively without government intervention in the form of public expenditure.

Kenton (2021) contends that classical growth theory is a modern category of economic theory and sources of economic growth. Two important theorists associated with this include Adam Smith and David Ricardo. It was developed during the Industrial Revolution. Analysis of the process of economic growth was a central focus to provide an account of the broad forces that influenced economic growth and of the mechanisms underlying the growth process. The division of labour, the gains from trade, and the accumulation of capital were seen as the main driving forces of economic growth. Productive investment and the reinvestment of profits were the mechanisms that produced continuous economic growth. Changes in the rate of profit were a decisive reference point for an analysis of the long-term evolution of the economy. Adam Smith and David Ricardo argued that individual initiative, under freely competitive conditions to promote individual ends, would produce beneficial results to society. The conclusions of classical growth theory supported free trade among nations, individual free enterprise, and respect for the accumulation of private property. This becomes pertinent in the context of the land reform and redistribution which took land by force and attracted sanctions on Zimbabwe.

The classical theory of growth by Adam Smith stated that the division of labour among workers into more specialized tasks was the driver of economic growth in the transition to an industrial, capitalist economy (Smith, 2023). Capital accumulation is

critical to what influences firms' investment decisions (Boundi Chraki, 2022). Profitability and aggregate demand in private investment, supports the classical approach to capital accumulation. Adam Smith's Theory of Economic Growth The title of his famous work "An Inquiry into the Nature and Causes of the Wealth of Nations" reflects that economic growth and development were the main topics that concerned Smith. Smith (1976) contends about capital accumulation, population growth, and labour productivity. Smith was in favour of free trade and against government intervention. Smith stated that what really create wealth are the supplies of goods being produced and made available to the people in the markets and that the nation's output depends on the accumulation of capital and the efficiency of labour. Smith considered the government expenditures as unproductive. However, capital accumulation was for Smith the basic condition for growth. He thought that capitalists, by accumulating capital, contributed to the economic growth of the nation meanwhile they earned profits. The expansion of the supply would be possible only with an increase of capital, because although more workers would have to be employed, more fixed capital would be needed as well.

2.2.3 Neo-Classical Theory of Growth

The neo-classical theory of growth was advanced by Solow–Swan (1956) as an exogenous growth model. This was viewed to be exogenous, on the effect of government expenditure on growth through production factors considered to be only transitional. The capital formation and government investment are captured under capital expenditure. Neo Classical Theory of Growth highlights that if productivity is to increase, the labour force and capital should be provided with more resources. The Neoclassical growth models put forward by Solow (1956) did not prescribe the transmission channels through which government expenditure could affect long-run economic growth. The new growth theorists argue that there is both a short-term impact and a long-term impact of government intervention through fiscal stimulation on economic growth during the transition to equilibrium. The Classics and the Neo-Classicals consider fiscal policies to be futile because of the crowding-out effect, directly and indirectly. Government size was measured based on government expenditure whereas the quality was measured on governance. It contended that

investing in the capacity for enhanced governance is a priority for the improved growth performance of countries.

The basic Solow-Swan (1956) growth model provides an elegant solution to the “knife-edge” Harrod (1939) Domar (1946) problem by endogenizing the warranted rate via the saving-investment relation. The capital growth is a function of a fully adjusting income-capital ratio (inverse of the Harrod-Domar capital-output ratio) allowing smooth substitutability between capital and labour while keeping the natural rate exogenously fixed (Villanueva, 2023). The author states that this makes the warranted rate a negative function of the capital-labour ratio, allowing short-run adjustments in output or income during the transition to the exogenously fixed natural rate sum of labour augmenting productivity and technical change and working population growth. There are temporary and permanent growth effects of increases in the saving rate and in the coefficient of learning by doing. The theory argues that technological change has a major influence on an economy and economic growth cannot continue without technological advances (Villanueva, 2023). The growth theory posits that the accumulation of capital within an economy and how people use that capital is important for economic growth (Banton 2020).

Rosamond (2017) contends that in the 1980s a neoclassical counter-revolution in development theory and policy reasserted dominance over structuralist and other schools of thought in much of the world. The author opines that the emergence of this counter-revolution coincided with the abandonment by the developed countries of social democratic and Keynesian economic policies and in particular, the policy of controlling capital movements, as well as the post-World War II trading regime. Critics have pointed out that this counter-revolution also coincided with and seemed to offer justification and support for a wave of market-oriented interventions by the World Bank and IMF and efforts to forge a unified global market regulated only by institutions reflecting the interests of transnational capital. The neoclassical or neoliberal perspective represents a modification and further elaboration of modernising theory (Rosamond, 2017). However, in contrast to modernisation theory, neoclassical theorists see development as the outcome not of strategic state action but of the action of market forces (Rosamond, 2017).

2.2.4 Budgeting Theory

Budget Theory by Key (1940) on public budgeting, as a field of study, has grown tremendously in recent years both in form and substance. With such growth was a need to have a coherent theory or body of theories that allows one to understand the field, its underpinning fundamentals that guide its development and its scope for dealing with real world problems. Key (1940) tried to address the issue of public budgeting not having a theory of its own by offering a microeconomic solution to the problem, one that would increase allocative efficiency of government. Key (1940) based his theory on the same rationale that guided the economists to search endlessly for a function that would improve the welfare of society within the broader schemes of Paretian principle. Lewis (1952) tried to explain how the traditional microeconomic theory, particularly the concept of marginal utility, could be used to determine the relative value of a good or service to justify resource allocation that in the aggregate would improve social welfare. Attempts by other economists, such as Smithies (1955), were not much different from those offered by the mainstream welfare economists. Wildavsky (1961) contends that budgeting is more than allocating the scarce resources between X and Y activities. It is about meeting the conflicting needs of a society by bringing about compromises in the political marketplace through incremental adjustments in budget allocation. Mosher (1954) goes on to aver that budgeting is a measure of bureaucratic behaviour and administrative competence. Public budgeting is eclectic as it is multidimensional. As Albert Hyde puts it: “In their voluminous and complex formats, budgets simultaneously record policy outcomes, cite policy priorities and program goals and objectives, delineate a government’s total service effort and measure its performance, impact and overall effectiveness” (Hyde, 1992). Budgeting, according to Hyde (1992), is partly political, partly economic, partly accounting and partly administrative.

2.3 Empirical Literature Review

The Empirical Literature Review of the research study clarified how the investigations were done. This made it clear for other researchers based on what was done and the findings to the extent that the research can be replicated to validate the results if the process is redone. This empirical literature review explored past studies with a view to answer the research questions on the dual moderating effects of

corruption and sanctions on capital expenditure impacts on economic growth. The empirical literature review was important to provide answers based on evidence. It was dedicated to the discovery of concrete, verifiable evidence guided by scientific method, by removing personal bias through use of concrete, accurate and repeatable evidence with a view to draw accurate conclusions. Poku *et al.* (2022) assert that empirically, numerous studies have been conducted to examine the relationship between government expenditure and economic growth and that the results vary from country to country. Studies observe a positive relation (Balaj & Lani, 2017; Kunwar, 2019; Nyarko-Asomani *et al.*, 2019). The relationship between government expenditure and economic growth in Nepal using annual time series data covering 1975 to 2018 and an ARDL econometric technique, show that government expenditure has a positive and significant association with economic growth (Kunwar, 2019). Odhiambo and Nyasha, (2018) used time series data on Kenya for the period 1970 to 2017, to assess the impact of public expenditure on economic growth using ARDL. The results were consistent with the Keynesian concept as the evidence proved that the granger causality is unidirectional, running from government spending size to economic growth for both the long-run and short-run.

The empirical literature review guided the researcher to evaluate information currently available and historical background concerning the topic for thorough understanding of the research problem and establishment of research gaps. The empirical literature review entailed a critique and identification of research gaps from current literature on the dual moderating effects of corruption and economic sanctions on capital expenditure impacts on economic growth. It involved a review of government budgeted capital expenditure, corruption, economic sanctions, and GDP growth in Zimbabwe.

2.4 Budgeting

Budgeting is a core process in the management of any organization. It is necessary for the provision of financial resources to execute government programmes including infrastructure capital projects. Challenges facing public sector organisations and those that are related to austerity policies have highlighted a need to recognise that budgeting should go beyond the management control issue of keeping expenditure in line with funding. Therefore, over time, public budgets have taken on different roles,

becoming tools for bargaining and allocating power, for planning and controlling, for providing impulses to the economic and social environment and for ensuring transparency and stakeholder involvement (Sicilia & Stecolini, 2017) and (Saliterer *et al.*, 2018). This multiplicity of functions has translated into a variety of budget formats and bases and in an increasingly complex budgeting process. A key element of a budgeting system is its relationship with strategic management, with strategic planning and performance management. In many different settings and different ways, theorists have often noted strong links among these three themes and enhancements to the budgeting process (Prowle, 2014). Theory on budgeting therefore, becomes necessary. However, there is no one agreed theory on budgeting.

One explanation for the lack of theoretical progress may be found in looking at both the ideological and epistemological development of budgeting theory. A review of this development shows that the state of, or lack of, theory today is a natural by-product of the philosophical environment that formed the context for theory building in this field of study. Gibran, *et al.* (2009) contends that the focus of theory development was misdirected from the beginning and should now be redirected to make theoretical progress. They suggest an alternative direction in the search for a public budgeting theory that may offer greater potential for cumulative theory building. Gibran, *et al.* (2009) argues that these intellectual attitudes persisted throughout the development of public budgeting theory and constrained the development of a robust public budgeting theory. In their quest for understanding, theorists constructed multiple theories of public budgeting, each having strengths and weaknesses, but with no cumulative effect. However, they developed some useful tools that can help to begin assembling a more robust theory of public budgeting. Defining technical rationality as a way of thinking and living that emphasised analytical behaviour and a strong optimism about the possibilities of technology. Adams (1992) states that throughout the 1896-1920 period, the “scientific-analytic mindset and the belief in technological progress” combined to unleash a “powerful current of technical rationality and professionalism.” Metu *et al.* (2019) asserts that governments use the budget fiscal policy which deals with how to raise and use its resources, as a tool to develop and grow an economy. Sabir and Qamar (2019) aver that several studies advocated for institutional scrutiny to improve the effects of any

policy action taken by the government using statutes to mitigate corruption as explanatory variables in an economic model to identify their effects on budget.

However, it was not until the late 1940s that the concept of performance budgeting was more formally defined in the United States as contended by Ho, (2018). Similar efforts were quite widely launched in OECD countries from the second half of the nineties, with the United Kingdom, Australia, and New Zealand as leaders in piloting many key reform ideas, while, especially over the last decade, there has been an increase in the use of performance budgeting at the national as well as at subnational and local level (Bleyen *et al.*, 2017). Within the broader public sector reform process, budget reforms in the 1990s sought to control the growth of public expenditures and improve public sector performance. According to Mauro (2019) in the 2000s, these practices developed further, in conjunction with the reinforcement of performance systems, giving rise to modern performance budgeting systems.

2.5 Capital Expenditure

This study is premised on the relationship between capital expenditure and economic growth. However, that relationship is affected by the impacts arising out of the dual moderating effects of the intervening variables of corruption and sanctions. It is important to then understand what this capital expenditure is and its impacts on economic growth.

According to Paudel (2023) capital expenditure refers to the funds spent on fixed assets, infrastructure and commodities that have a long-term life and effect. Examples of government capital expenditure are roads, highways, bridges, ports, airports, railway lines, schools, universities, health institutions and dams. Government funds are sometimes used to increase the scope of a physical asset or prolong the useful life of an existing capital asset. In Zimbabwe, Government internally raises funds for capital projects through taxes and borrowing on the domestic market. Domestic borrowing is done from financial institutions within the country and issuance of Treasury Bills and from statutory reserves such as Pension Funds. Modebe *et al.* (2012) as cited by Srivats (2022) contend that these kinds of capital expenditures have long lasting impact on the economy and help provide a more efficient productive economy.

Azolibe *et al.* (2020) contend that government spending on infrastructure stimulates economic growth. The statistics from AfDB (2018) report on Africa Infrastructure Development Index show the transport infrastructure index for the 54 countries in Africa. On the AfDB 2016 infrastructure statistics, Zimbabwe ranked number 14 out of 54 with an index of 1.4%. In 2017 it ranked number 17 out of 54 with an index of 11.84%. In 2018 it ranked number 18 out of 54 with an index of 24.5%. These annual indices show that there has been considerable expenditure on roads infrastructure in Zimbabwe. Table 2.1 shows the abridged Africa transport infrastructure index from 2016 to 2018.

Table 2.1: Africa Transport Infrastructure Index 2016 to 2018

Rank	Country	2016 (%)	Rank	Country	2017 (%)	Rank	Country	2018 (%)
1	Egypt	55.38	1	Libya	58.71	1	Libya	58.49
2	Libya	52.84	2	Egypt	55.68	2	Egypt	56.75
3	Seychelles	50.51	3	Seychelles	50.52	3	Seychelles	50.33
4	Mauritius	36.10	4	Mauritius	37.44	4	Mauritius	38.40
5	Cabo Verde	26.59	5	Cabo Verde	26.68	5	Cabo Verde	26.56
6	Botswana	24.46	6	Botswana	22.52	6	Botswana	22.29
7	Algeria	18.21	7	South Africa	22.08	7	South Africa	21.92
8	Namibia	17.72	8	Algeria	17.35	8	Algeria	17.11
9	Comoros	15.58	9	Comoros	17.15	9	Comoros	15.65
10	Sao Tome and Principe	13.94	10	Ghana	16.26	10	Namibia	15.50
11	Lesotho	12.98	11	Namibia	15.84	11	Guinea-Bissau	14.26
12	Rwanda	12.93	12	Aao Tome and Principe	14.30	12	Sao Tome Principe	14.17
13	South Africa	12.73	13	Rwanda	12,93	13	Rwanda	12.94
14	Zimbabwe	12.40	14	Zambia	12.14	14	Ghana	12.41
15	Djibouti	12.24	15	Kenya	12.14	15	Kenya	12.09

16	Kenya	12.19	15	Djibouti	11.97	15	Djibouti	11.85
17	Ghana	12.16	17	Zimbabwe	11.84	17	Burkina Faso	11.83
18	Burkina Faso	10.66	18	Burkina Faso	11.69	18	Zimbabwe	11.69
19	Tunisia	10.57	19	Tunisia	10.30	19	Tunisia	10.22
20	Morocco	9.90	20	Gambia, The	9.93	20	Burundi	9.54
21	Zambia	9.27	21	Morocco	9.52	21	Morocco	9.43
22	Burundi	9.00	22	Burundi	9.44	22	Swaziland	8.37
23	Uganda	8.61	23	Swaziland	8.43	23	Gambia, The	8.23
24	Swaziland	8.50	24	Togo	7.87	24	Lesotho	7.41
25	Gambia, The	8.13	25	Lesotho	7.44	25	Guinea	7.29

Source: African Development Bank report on Africa Infrastructure Development Index (2018)

Azolibe *et al.* (2020) further contend that the governments in Africa should increase expenditure on various infrastructural projects and intensify efforts to ensure that expenditure on various infrastructural projects are felt in the economy. In developing countries, an essential requirement for economic growth and sustainable development is the provision of efficient, reliable, and affordable infrastructure services, such as water and sanitation, power, transport, and telecommunications (Azolibe, *et al.*, 2020). This type of capital expenditure becomes economic enabler that drives the development of an economy. However, it must be analysed on whether it has positive and negative effects on the economy. This is buttressed by Akpan, *et al.* (2005) and Romer, (1990) as cited by Waweru, *et al.*, (2021) who contend that some economic scholars conclude that the effect of capital expenditure on economic growth is positive through an increase in productivity, others indicate that the effect is negative through the crowding out effect. Furthermore, Mose, *et al.* (2014) opine that fiscal policy that supports this type of capital expenditure promotes economic growth in the sense that public investment contributes to capital accumulation. The beneficial side of government spending includes the use of fiscal policies like income taxes and transfer payments which can lead to more equitable redistribution of income. Through

the supply of pure public goods which may constitute a sizeable component of aggregate demand, government often acts as a facilitator in the markets with asymmetric and imperfect information (Romer 1996 & Husnain *et al.*, 2011 as cited by Waweru, *et al.*, 2021). However, the author also argues that increased government spending may also slow down economic growth because of competition between the less efficient public sector and the private sector in the credit market. This, the author explains may increase interest rate thereby misallocating private investment and eventually reducing economic growth. According to the Keynesian school of thought, government expenditure can contribute positively to economic growth. Hence, an increase in government consumption is likely to lead to an increase in employment, profitability, and investment through multiplier effects on aggregate demand. As a result, government spending augments the aggregate demand, which provokes an increased output depending on the expenditure multiplier. Mose *et al.* (2014) contend that the opponents of this approach stipulate that government consumption crowds out private investment, discourage economic growth in the short run, and diminish capital accumulation in the long run. There is also an argument by Korman *et al.* (2007) as cited by Waweru, *et al.* (2021) that the steady rise in government capital expenditure for many years, in most countries, demonstrates a growth link between fiscal policy tools and growth. However, most sub-Saharan countries face heavy debt burden, high rate of inflation, budget deficit, and balance of payment deficit. This may be attributed to poor domestic policies and external shocks. This research, therefore, is not looking at these other pertinent variables. It is restricted to whether capital expenditure contributes to economic growth amid corruption and sanctions.

Akujuobi *et al.* (2021) contend that the diverse nature of economic research on the relationship between capital expenditure and economic growth is not conclusive. Babatunde (2018) supports this position by indicating that there is no consensus on results of such studies on this capital expenditure and economic growth relationship in developing countries. Oyinlola, *et al.* (2013) as cited by Akujuobi *et al.* (2021) assert that studies on developed countries suggest that in such economies, through economic stabilization and stimulation of investment activity, public expenditure maintains a rate of growth which is smooth but in underdeveloped economies, public expenditure does not maintain a smooth pattern usually as a result of jerks in the economy. These studies show that capital expenditure has an active role to play in the creation of

infrastructure for economic growth. Public expenditure on capital projects has a great role to play in stimulating the economy. Akujuobi *et al.* (2021) opine that when public capital expenditure is incurred, it is directed at particular investments or to bring about re-allocation of the investible resources in the economy. The authors further argue that capital expenditure on economic infrastructures like education, health, transport; communication, electricity, water, and sanitation have the potential of contributing to the performance of the economy in terms of promotion of infant industries in the economy. Their argument is that this results in reduction in the unemployment rate, stabilization of the general prices in the economy, reduction in the poverty rate and increase in the standard of living of the people. Furthermore, it promotes economic growth by attracting foreign investment and promotes higher productivity. The general view is that capital expenditure, on infrastructure can be growth enhancing although the financing of such expenditure can be growth retarding, owing to the disincentive effects of taxation. This view has been supported by Kweka and Morrissey (2000) as cited in Akujuobi, *et al.* (2021) when they amplified that public expenditure can influence economic growth whether directly or indirectly through government activities that increase total output through its interaction with the private sector. Accordingly, Lin (1994) as cited by Akujuobi, *et al.* (2021) succinctly asserted that the positive effects of public expenditure can readily be felt when government spends to provide public goods, infrastructure and targeted intervention. Barro (1990) argues that such government spending on investment and productive activities should add positively to economic growth whereas government consumption spending is anticipated to be growth-retarding. In traditional Keynesian macroeconomics, many kinds of public expenditures, can contribute positively to economic growth, through multiplier effects on aggregate demand. On the other hand, government consumption may crowd out private investment, dampen economic stimulus in the short run and reduce capital accumulation in the long run. Economic discussion on public finance is full of arguments on the nature of relationship between capital expenditure and economic growth (Babatunde, 2018; Owui, *et al.*, 2020). Even other studies such as Kittisak, *et al.* (2019) still investigated the influence of capital investment on economic growth. It would be good to know the extent to which capital expenditure affects growth in an economy given that capital expenditure is expected to be the engine for economic growth.

Nyarko-Asomani *et al.* (2019) study focused on a further disaggregated level of public expenditure and their relationship with economic growth in Ghana for the period 1980-2017. It considered the major sub-components under recurrent expenditure and the entire capital expenditure.

Waweru (2021) studied the effects of capital expenditure on the real GDP growth rate in a set of East African countries for a period of 30 years from 1985 to 2015. The author asserts that to achieve accelerated output growth, government capital spending should be such that it creates a conducive environment for the private sector development and repair market failures. The results reveal that the spending on capital infrastructure should be a top priority for a government interested in promoting economic growth. In addition, empirical results and Neoclassical theories consider recurrent spending ineffective on the grounds of the crowding out effects, that is, when public goods are substituted for private goods, this causes lower private spending on education, health, infrastructure and other goods and services (Waweru, 2021). The governments should increase their own investment in areas that are beneficial to the private sector and move away from those that compete with or crowd it out (Waweru, 2021).

Government spending continues to be a crucial tool in the development process. At all stages of growth and development, it is crucial to the operation of any economy. Assi *et al.* (2019) and Vtyurina, (2020) aver that today, most industrialised and emerging nations employ public spending to alter the composition of the national income distribution and steer resource allocation in desirable direction. In various emerging nations, the variety in government spending patterns is anticipated to not ensure stabilisation but also to spur economic growth and increase employment possibilities (World Bank, 2023). According to Keynesian economics, spending is what increases output, which in turn produces income and employment. The concept of growing state activities is known as Wagner's Law (Wagner, 1835) who contended that maintained that rising industrialisation and economic growth are related to the growth of government spending. Gupta (2018) and Aluthga *et al.* (2021) who looked at government spending and economic growth contend that they have a significant positive link into how government spending affected Nigeria's economic growth. The study results which used ARDL showed that capital spending had a positive and

significant impact on economic growth both in the short term and long term. Ikubor *et al.* (2022) also used ARDL model in their study on government capital investment in the economic services sector and economic growth in Nigeria and their results showed a substantial positive association between government spending and economic growth.

Mazorodze (2018) contends that in Zimbabwe there is a growing percentage of government expenditure on GDP which has raised fiscal sustainability concerns. Statistics show that central government wage bill reportedly consumed 90% of public revenue in 2017 accounting for 66% of public spending (World Bank, 2017). This took place against a backdrop of a looming economic crisis typified by acute cash shortages and sluggish economic growth within a multicurrency system. Statistics from the World Development Indicators (WDI) show that Zimbabwe's annual GDP per capita growth averaged -0.87% between 2014 and 2016. The multilateral institutions, the World Bank and the IMF hold the view that "too big" governments can be a hindrance on long-run economic performance. A report by the AfDB states that "Zimbabwe's total expenditure amounted to US\$920.9 million in 2009, of which about 53 percent of it was spent on public sector wage bill, the highest in Sub-Saharan African countries". By 2016, the public sector wage bill had jumped to 97 percent of government expenditure. The IMF delegation that visited Zimbabwe for Article IV consultations between May 2 and May 13, 2017, warned that further non-priority expenditure would be the cause of a chronic economic crisis. The concern of the IMF would be partly answered by analysis of the relationship between capital expenditure and economic growth amid the mediating variables corruption and sanctions.

Additionally, an increase in government expenditure reduces capital stock that is available for private investors. The Keynesians advocate for expansionary fiscal policies in recessionary periods. Keynes (1936) argues that fiscal spending can be used as a way of injecting money into the economy which boosts the economy through aggregate demand and consequently raises economic growth. The increase in aggregate demand and output makes private investors more optimistic about the future course of the economy resulting in more investment through the multiplier effect. However, the Ricardian Equivalence hypothesis is an intergenerational theorem which proposes a neutral effect of government spending on economic

growth, whether financed by debt or taxes. An equally important mechanism is the Wagner's (1893) which counteracts the Keynesian view in explaining the interplay between government spending and economic growth. The Wagner's law suggests economic growth influences government spending. Thus, government share on GDP tends to increase as the country's GDP increases. An approach that disaggregates total government expenditure into consumption and investment components is less susceptible to an aggregation bias. Additionally, it provides a clearer picture of how particular components of spending impacts economic growth. The Zimbabwean government has been criticised by the IMF and World Bank for prioritising general consumption over public investment. An empirical analysis that investigates the effects of the dual moderating factors of corruption and economic sanctions impacts on economic growth is of great interest to policy makers on how to structure a budget for economic growth. Simultaneously, trade is predicted by open economy endogenous growth theories that promote growth through technology transfer that raise total factor productivity.

Hasselgren (2018) opines that transportation infrastructure development, including roads, airports, and board ports, is widely considered to be the core infrastructure required for economic growth, as it can directly support production and manufacturing activities in an economy. Many developing countries have tried to promote economic growth by increasing infrastructure development, including transportation infrastructure, for a long time (Zhang & Cheng, 2023). Furthermore, the existing studies on transportation infrastructure development and economic growth have mainly focused on developing countries. Scholars, who support more excellent infrastructure development, including transportation infrastructure, such as Liu and Zhou (2006) as cited in Zhang and Cheng (2023), argue that this can significantly improve a country's economic performance. There is a long-run equilibrium relationship between transportation infrastructure and economic development in the UK, which is measured by the first principal component of road length, electrified rail line length and air freight volume (Zhang & Cheng, 2023). They contend that the estimation of the long run cointegration relationship suggests that the stock of transportation infrastructure has a strong positive effect on economic growth (Zhang & Cheng, 2023). Many recent studies have also identified the contribution of transport infrastructure development to economic growth (Maparu &

Mazumder, 2017; Meersman & Nazemzadeh, 2017; Saidi *et al.*, 2018; and Wang *et al.*, 2020).

2.5.1 The Provision and Execution of Government Expenditure

It is the aim of governments to execute expenditure in line with the provisions made in the budget. When the expenditure is below the revenue results in a surplus and when more than revenue results in a deficit. However, in most cases especially in developing countries expenditure is always above the revenue set aside for the expenditure in the national budget resulting in a budget deficit. Most developing countries end up borrowing to supplement their budget within a fiscal year. A national budget is executed when the provision of estimates of expenditure are debated and approved in parliament having gone through the various stages including going to the senate. According to the Guidelines for Public Expenditure Management by the International Monetary Fund (1997), national budgets usually pass through six main stages of spending process after a budget has been passed by parliament and the senate. The various stages through which government expenditure is executed according to the International Monetary Fund are:

- a) The first stage is the authorisation stage whereby after an acceptance of a national budget by parliament, the various ministries are then authorised to spend the funds in accordance with the legal appropriations and allocations for each line item. Where parliament has not yet accepted the budget, government is then allowed to start spending on a “Vote on Account” basis (a temporal authorisation). Quiet often such spending is restricted to one-twelfth per month of the previous year’s expenditure. In some Commonwealth countries, such as Ghana, the period of authorisation is set on quarterly basis by warrant (IMF, 1997).
- b) The second stage in the spending process is the Commitment Stage. This is the stage whereby future obligations to pay is incurred. By definition, a commitment arises when a purchase order is made, or a contract is signed meaning the commodities will be delivered or services will be rendered and that a bill will be paid later. However, most commitments come with various complications. Thus, its existence does not ensure that the goods will be delivered, or service will be rendered since the ministry or spending agency

can disagree with the supplier. Moreover, the nature of commitment varies by economic categories of expenditure. An important dimension is the lag between entering the commitment and associated cash payment especially for the purchase of capital goods and non-wage goods or services. In addition, signing of a commitment does not mean that a payment will be done, within the same fiscal year. It can be made in the following year especially when it involves an investment expenditure. It must be said that a commitment is normally made after the process of procurement has taken place.

- c) The third stage is the Verification Stage in which the goods or services contracted will have to be verified or inspected to ensure that the goods or services have been delivered or executed fully or partially according to the contract. Physical delivery can be followed by verification by the line ministry or spending agency making the purchase who usually has the finance and administrative responsibility to check the bill to ensure that the goods or service is in accordance with the terms and conditions agreed upon. The bill at this stage is seen as a liability of the public sector in an accrual accounting sense.
- d) After the verification stage, the next stage is the payment order stage. In most systems, the issue of payment orders is typically the duty of the financial officer with delegated responsibility for this function. The issue of payment orders and checks with spending ministries executing the task, reports to a centralized Treasury department called Accountant General's Department within the Ministry of Finance. This department acts as both the paymaster and prepares the final accounts of the government. The Payment stage is the preceding stage where the bill is paid by cash, cheque, or electronic transfer. The system in Zimbabwe, payments are done in line with Public Finance and Management Act (Chapter 22:19), administered by the Ministry of Finance, Accountant General Department. In some economies, payment is done via a single ministry of finance account held at the central bank or in a designated bank.
- e) However, in some countries payment is made through a commercial banking system that has a bank account which is held in the name of the individual ministries.

- f) The last stage is the Accounting Stage where the cash transactions are recorded as complete in the books to allow for reconciliation from the cash based “above-the-line” fiscal accounts with the financing deficit below the line. Government expenditure at this stage is said to have been executed or implemented into the economy.

The above processes are applicable to the budgeting and execution of funds earmarked for capital expenditure such as road, bridges, rail, airports, universities, infrastructure in Zimbabwe.

2.6 Economic Growth

There are three important growth theories which include the classical theory, neo-classical theory, and modern theory of economic growth. Adam Smith was the most influential with the classical growth theory. Robert Solow and Trevor Swan were known for the neo-classical theory of growth. Economic growth in the context of economic theory is an increase in wealth over time as a transformation process (Cornwall, 2018). The author argues that whether the economy is already modern and industrialised or at an earlier stage of development, the growth process is found to be uneven and unbalanced. The classical growth theory, founded by Adam Smith, is an ideological school of political economy and a method of analysis of socio-economic processes that studies the role of the market in international economic and national economic policy (Pelsa & Balina, 2022). The classical theory was important to establish factors that have impact on economic growth in a country. While Adam Smith was formulating his theory, he sought to provide an overview of the broad forces that influence economic growth and the mechanisms of the growth process considered savings and productive investments in the form of profits to be the main drivers of economy (Pelsa & Balina, 2022). Adam Smith (1723-1790) a Scottish economist, one of the best-known founders of classical economics, also known as the "Father of Economics" or the "Father of Capitalism" opposed mercantilism and was an important defender of free market policy (Berry, 2018). In his book, Smith described the idea of an “invisible hand” - the tendency of free markets to regulate themselves through competition, supply and demand and self-interest (Weinstein, 2021). Smith also believed that the state should not interfere in economic development processes and that the role of government intervention and taxes in free

markets should be reduced. This school of thought would mean government should not provide capital expenditure for economic growth. Ricardo also puts forward the idea of comparative advantage, a theory that free trade between two or more countries can be mutually beneficial, even if one country has an absolute advantage over other countries in all areas of production (Ricardo, 1817). Ricardo, however, fully acknowledged that in short periods of time, price depended on supply and demand. This concept became central to the classical economy, as did Ricardo's distribution theory, which divided national product into three social classes of wages for workers, profits for capital owners and rents for landlords (Nolen, 2021). Although the classical growth theorists do not agree on the processes, they have laid important foundations for the concepts of land, labour and capital, as well as increasing, constant, declining resource returns or border points, as well as the stationary or steady state of the economy - the situation the economy will find itself in if it can no longer grow, in various interpretations and effective demand (Malthus, 1798). Economic development theory focuses on quality improvement, risk reduction, innovation, and entrepreneurship, which puts the economy on a higher growth trajectory (Pelsa & Balina, 2022).

Economic growth is the increase or improvement in the inflation-adjusted market value of the goods and services produced by an economy over a certain period. Statisticians conventionally measure such growth as the percent rate of increase in the real gross domestic product (GDP). It is the ability of an economy to improve its production of goods and services over a period using the factors of production within the economy (Popkova *et al.*, 2008). Economic Growth is usually calculated in real terms thus inflation-adjusted terms to eliminate the distorting effect of inflation on the price of goods produced. Several theories have been developed to explain the economic growth of a country. For example, Rostow (1960), developed the Rostow's Stages of Growth model in which it explains the idea about the transition of an economy from underdevelopment status to a developed status through various stages a country must precede. Thus, a country must precede from a traditional stage in which the foundations for growth are based on subsistence production to a "take off" stage in which development starts to accelerate, to a matured stage of development. Harrod (1939) and Domar (1947) developed the Harrod Domar Growth model from the Keynesian model. The model with specific assumptions such as a scarce capital

resource, constant capital and output with consumption and savings being a constant proportion of income, the main thrust of the model was that the rate of savings was the principal determinant of the growth of the economy under given levels of productivity of capital and a state of technology.

Semmanda (2020) contends that economic growth rate differs largely between different countries. He goes on to aver that there are many opinions on which factors really affect the rate of growth in different economies and this causes debates. The factors that affect economic growth include political systems, social settings, economic freedom, human capital, and institutional organization. These factors affect not only productivity, but also efficiency. The question on which factors are important for the achievement of economic growth causes debates amongst members of society. It is important to understand which factors affect economic growth. Issues also arise on which factors are more effective, whether they are through international trade of goods and services or through investment in the form of foreign direct investment. Ionel *et al.* (2023) contend that for all economies, the most influential factor of economic growth is foreign direct investment, because it directly stimulates economic development, but also indirectly, other aspects of the economic environment, through spill overs. This is applicable in case of developing economies that witnessed economic development on the back of the relationship between FDI, GDP and their growth rates Ghazali (2010) as cited by Ionel *et al.* (2023). According to Radulescu *et al.* (2019) the impact of domestic investment on economic growth is weaker in the Central and Eastern European (CEE) area than the impact of both private and public spending. Researchers further contend that in the area, the need for FDI is high because total savings are inferior to financial resources thus the need for foreign capital. Adam Smith, theory of growth failed to develop a robust theory of output and its growth because he failed to construct an analysis of how saving and investment are brought into equality necessary to explain the coordination of aggregate demand and aggregate output along any growth path (Smith, 2023). There are only two theoretically robust approaches able to explain economic growth and development, the neoclassical supply-driven approach, and the Keynesian demand-led approach (Smith, 2023). The classical growth theory, founded by Adam Smith, is an ideological school of political economy and a method of analysis of socio-economic processes that show the role of the market in international economic and national

economic policy (Pelsa & Balina, 2022). The classical theory was important to establish factors that have impact on economic growth in a country. While Adam Smith was formulating his theory, he sought to provide an overview of the broad forces that influence economic growth and the mechanisms of the growth process considered savings and productive investments in the form of profits to be the main drivers of economy (Pelsa & Balina, 2022).

Kanganzi (2018) investigated factors influencing Uganda's economic growth measured by real Gross Domestic Product. The author estimated a linear regression linking Real GDP to independent variables which included FDI, FDI volatility, government expenditure, Money supply and trade openness. Data was quarterly spanning from 1985-1993. The empirical model was estimated by ARDL modelling procedure. Results showed that Trade openness and money supply had a positive and significant effect on economic growth whereas foreign direct investment inflows, foreign direct investment volatility and government expenditure had a negative effect. The factors are however of low effect in some countries, compared to others. Sokang (2018) investigated the impact of FDI on the economic growth of Cambodia by utilizing the time series data throughout 2006-2016. The study conducted multiple regression analysis to determine the relationship between foreign direct investment and economic growth in Cambodia and found that FDI had a positive impact on the economic growth.

This makes it hard to conclude that they are indeed the reasons for economic growth; hence economists should develop more theories to explain this subject (Semmanda, 2020). Weil (2009) argues that often government policies, economic freedom and democracy are the major factors on economic growth in each country.

The Solow-Romer model developed by Solow (1956), relies on the capital-output ratio which is endogenous. In this model, the output per capita is related to the stock per capita by use of the production function. Capital and labour operate at the same time in the production of the aggregate output. In the event of an equal increase in output due to the inputs used, constant returns to scale, the production function may be used to correlate output per capita with input per capita. Capital and labour are the factors considered in this long-term economic growth model and these factors are assumed to have positive but decreasing marginal productivity, hence a given level of

GDP. Capital and labour operate with a positive but a decreasing marginal productivity. According to the Solow model a balance between aggregate savings and aggregate investment is assumed and the savings are determined exogenously. The savings rate has a level effect only in the Solow model (Ray, 1998). The production function can also be used in per capita terms through derivation to GDP per capita. This model gives the aggregate change in the capital stock and the factors, savings per capita, depreciation rate and population growth are assumed to affect the long-term change in capital stock. In the Solow model there is no change in GDP per capita because there will be no change in the capital-labour ratio. This is because the factors used as inputs increase at the same rate, hence the unobservable change. The Solow model makes the capital output ratio endogenous due to the relative use of capital. This means that if the capital stock was to increase at a higher rate than the labour, the productivity of labour would be impacted positively which would also lead to an increase in the GDP per capita. The GDP per capita increases when the capital labour ratio increases. Just like the Solow model, the Romer model assumes capital accumulation growth, however the Romer model adds knowledge and therefore output is boosted due to the skills that the individuals on the labour market have. According to Carroll (2019), in the Romer model, the firm's total output due to technical progress is achieved from endogenous accumulation of knowledge and the capital is accumulated with no depreciation and population growth. The model assumes that the effect of the stock of knowledge determines productivity, meaning there is an increase in economic growth in each economy. An introduction of continuous technological change in the Solow model will cause the steady state with no change in GDP per capita to become positive, hence a growth in GDP per capita.

The World Bank (2022) contends that economic growth in Sub-Saharan Africa (SSA) was estimated at four (4) percent in 2021, up from a contraction in economic activity of 2 percent in 2020. The World Bank (2022) states that the economy was set to expand by 3.6 percent in 2022, down from four (4) percent in 2021, as it struggled to pick up momentum amid a slowdown in global economic activity, continued supply constraints, outbreaks of new coronavirus variants, high inflation and rising financial risks due to high and increasingly vulnerable debt levels.

The World Bank (2022) contends that the invasion of Ukraine compounded the factors holding back recovery in the region. Although the direct trade and financial linkages with Russia and Ukraine are small, the war would likely impact Sub-Saharan African economies through higher commodity prices, higher food, fuel, and headline inflation, tightening of global financial conditions and reduced foreign financing flows into the region. The growth effects in the region are expected to be marginal, however, the largest impact is on the increasing likelihood of civil strife because of food and energy fuelled inflation amid an environment of heightened political instability. Prospects for the East and Southern African subregion show a sustained recovery of 4.1 percent, from the recession, down to 3.1 percent in 2022 and then settling around 3.8 percent in 2024. The Western and Central Africa subregion was projected to grow 4.2 percent in 2022 and 4.6 percent in 2023. The 2022 forecast was revised up by 0.6 percentage point compared to the October 2021 forecast, largely reflecting upgrades in Nigeria.

Economic activity in Sub-Saharan Africa is projected to grow at 3.9 percent and 4.2 percent in 2023 and 2024, respectively (World Bank, 2022). Many central banks in the region chose the second policy option and embarked on a tightening cycle, but others maintained a softer position. The looming threat of stagnation worldwide amid a landscape of multiple new and covariate shocks emphasizes the need for African policymakers to implement policies that accelerate structural transformation through productivity enhancing growth and creating more and better jobs. Boosting agricultural productivity is essential to drive a growth-enhancing structural transformation process. These effects in the Sub-Saharan region will not spare Zimbabwe especially the financial risks impact on its infrastructure development agenda.

2.7 Financial Leakages (Corruption)

This research focuses on the impact of corruption on capital expenditure in the public sector, the government. The word corruption is derived from the Latin word “corruptus” which means “corrupted” and in legal terms, the abuse of a trusted position in one of the branches of power, executive, legislative and judicial, or in political or other organisations with the intention of obtaining material benefit which is not legally justified for itself or for others (Šumah, 2018).

The capital expenditure from voted funds is made on the decision of politicians. Bonga, (2021) contends that there is susceptibility of large infrastructural projects to political corruption as a result of their characteristics. Furthermore, there is ability to conceal project quality with many small-scale subcontractors, opportunities for overheads and overruns, project uniqueness, unclear pricing systems. There are numerous approvals and permits, bureaucratic procurement and contract award processes and competition. Furthermore, typical examples of corruption include the payment of international bribes to gain contracts for the Lesotho Dam project and improper money diversion on the Bujagali dam project in Uganda. Hope Sr (2021) avers that in Africa, political corruption affects infrastructure service delivery, delays delivery timeframes, raises infrastructure prices, diminishes infrastructure potential economy, reduces infrastructure quality, and leads to poor project selection. Unravelling the impact of political corruption on the management of large infrastructure projects in Africa has become critical, not because it is a global issue, but because of its impact on project management success and the susceptibility of large infrastructure projects to political corruption (Hossain *et al.*, 2020).

The involvement of politicians results in political corruption which hurts the development of infrastructure in Africa by causing projects to fail, wastage of money, projects to be built in the wrong places, projects taking too long to design and finish and make infrastructure services less effective and unfair (Owusu *et al.*, 2021). Furthermore, political corruption poses significant risks to construction and engineering firms by acting as a barrier to entry for small and emerging firms (Kuoribo *et al.*, 2021). It undermines efficiency and competitiveness by favouring dishonest construction firms over the most efficient ones, as well as leading to squandered tender expenses, tendering uncertainty, increased project costs, economic loss, extortion, criminal prosecutions, fines, blacklisting and reputational danger (Kuoribo *et al.*, 2021). Komakech (2019) investigated the structural reasons why fraud in government procurement can thrive and keep happening. The findings of the study were that the systemic causes of corruption in public procurement are informal power networks, a lack of contracting knowledge, an old boys' network, and a regulatory and institutional framework. According to the findings, corruption drives infrastructure funding towards high-value investment projects rather than low-value investment projects (Komakech, 2019). The author further contends that political

corruption raises prices by 30 to 35 percent on average, with the greatest excesses in high-corruption areas. Hosseini *et al.* (2020) investigated procedural violations in awarding contracts, misuse of contractual arrangements, neglect of project management principles, irrational decision-making, and authoritarianism on project selection instead of criteria of economic or social benefit as the political risks affecting infrastructural development in an effort to assess the strength and extent to which political risks are manifest in infrastructural projects in Iran. Chen *et al.* (2020) opine that corruption on infrastructure has a detrimental impact on state road quality as judged by the International Roughness Index and overall road condition scores. The author further states that public corruption has a detrimental impact on state road quality as judged by the International Roughness Index and overall road condition scores (Chen *et al.*, 2020). In Zimbabwe there are many infrastructure projects in the transport sector, the Plumtree to Harare, Mutare to Harare, Beitbridge to Harare and the Chirundu to Harare highways. In the air transport the Robert Gabriel Mugabe International Airport, Joshua Mqabuko Nkomo International Airport and Victoria falls International Airport are being done by the government. Understanding the political corruption is important because it is one of the two main variables of concern in the ARDL model.

Corruption is diversion of funds from iterative process. It is the abuse of public power for private gain a violation of formed rules governing the allocation of resources by officials in response to offers of financial gain (Wickberg, 2021). Corruption is prevalent in both developed and emerging countries and has increased with financial globalisation (Gossel, 2018). Furthermore, Gossel (2018) asserts that internationally, corruption has been found to have a range of adverse effects on the economy and has in Africa reached cancerous proportions. It is rent seeking and dishonest behaviour by those in positions of power and leads to erosion of institutional capacity of governments as procedures are disregarded and resources siphoned off resulting in underfunding of critical processes and programmes (Wickberg, 2021). Corruption undermines the legitimacy of governments and democratic values as trust is abused by those in whom it has been entrusted as averred by Gossel (2018).

This study took the assumption that there is financial haemorrhage due to corruption as contended by Warf (2017) who argues that corruption is an entrenched part of African political culture. The author goes on to say that the degree and impacts of corruption vary widely across the continent, ranging from failed states such as Somalia to the region's bright spot Botswana. Corruption therefore erodes the value and intended full purpose of the capital expenditure with potential consequences on the economy.

Corruption remains a major challenge to sustainable economic growth, good governance, peace and stability in both developed and developing countries as contended by Henri *et al.* (2024). The effect of corruption on economic growth is especially pronounced in autocracies and transmits to growth by decreasing FDI and increasing inflation (Klaus & Potrafke, 2019). This study is only interested in financial leakages (corruption) effects on infrastructure on the relationship between capital expenditure and economic growth. Although there is a growing empirical literature on impact of corruption and economic growth this study is empirically examining impact on economic growth.

Various indexes measure corruption the most important of which is the Business International index, which is compiled by the Economist Intelligence Unit and includes an estimate of the level of corruption in various countries; the ICRG, which is published annually by Political Risk Services Inc.; WGI and especially its dimension on corruption CCI, which is published annually by the World Bank ; the Global Corruption Barometer, which is a public inquiry and the CPI, which measures the level of perceived corruption in the public sector and is published by Transparency International. There are also modern measurement trials such as the Corruption Reflection Index (CRI) and the Corruption Conviction Index, which are calculated by the Institute for Corruption Studies (Dincer, 2020) for the United States and the news flow indices of corruption (NIC) of the IMF (Hlatshwayo *et al.*, 2018).

In Sub-Saharan Africa, corruption has been identified as one of the main reasons why most of the countries in the region are unlikely to achieve their strategic development goals (SDGs). Choruma (2017) contends that corruption stalls Zimbabwe's economic agenda. Nyoni (2017) goes on to assert that in Zimbabwe bribery is often described as the most common and frequently occurring corrupt practice as it is a

payment, in money or in kind, which is taken in a corrupt relationship. It is demanded to speed up matters, make it progress more swiftly through the government bureaucratic machinery has a range of adverse effects on the economy with four channels through which it effects economic growth (Nyoni, 2017). The following are some of the channels through which corruption gains traction:-

2.5.1 Higher cost of infrastructure

The negative effects of corruption are the high transaction cost and that the cost of infrastructure balloons and its achievement remaining constant if not ineffective (Nyoni, 2017). Zimelis (2020) opines that corruption has wide ranging impacts that can be detrimental to institutions and economies. Bhandari (2023) on corruptions contends that funds for capital expenditure are misallocated and costs are increased. The capacity and delivery of the project is weakened. Funds for infrastructure development are used to pay bribes. The governance systems are weakened to facilitate corrupt acts. Another pathway is fraud of funds for capital expenditure through misrepresentation and manipulation of financial records.

Nest, Mullard, and Wathne (2020) note the three largest recipients of development finance for climate mitigation and adaptation are India, Bangladesh, and Indonesia which rank low on Transparency International's Corruption Perceptions Index. In India, Rathore *et al.*, (2018) found that more than one-quarter of solar power utility projects are forced to pay bribes at the contracting or construction stage. A 2020 report by Transparency International on Bangladesh stated that over half of the funds meant for seven climate mitigation measures were lost to irregularities and corruption in the country. In Nest, Mullard, and Wathne (2020), case studies reveal bribery in forest carbon capture projects and adaptation infrastructure in Indonesia. Because of bribery or embezzlement, even a well-designed project may be developed in a manner that fails to deliver the adaptation benefits. The package contains about \$550 billion of new federal investments in America's infrastructure over five years, from bridges and roads to broadband, water, and energy systems (Creon *et al.*, 2022). The Salerno Reggio-Calabria highway in southern Italy provides a powerful example of the extraordinary losses and delays that corruption can cause in infrastructure projects (Creon *et al.*, 2022). The authors contend that the project cost more than 10 billion euros to complete, started in the 1960s but was not finished until 2016 due to

pervasive corruption. The European Anti-Fraud Office (OLAF) has found that over 381 million euros have been lost due to fraud, irregular contracts, and “ghost” roadworks that is financing of work that never actually took place. To generate greater illicit profits, the project may be designed to be larger or more complex than is necessary and may have deliberate design gaps so that costs can be increased at a later stage (Creon *et al.*, 2022).

In a project implementation a contractor that received the project through the competitive bidding process may engage in a scheme that enables it to renegotiate the price during the implementation of the project, may also offer bribes and kickbacks to revise the contract’s terms in a manner that enables it to cut corners, including using lower quality materials. In a tendering process bidders can rig a competitive bidding process to undermine its integrity in that contractors can collude to increase the value of the winning bid by bribing a public official to give it confidential information, thereby obtaining a competitive advantage during the bidding process or one of the bidding contractors may be financially connected to relevant public officials (Creon *et al.*, 2022).

2.7.1 Lower government revenues

Corruption is the misuse of public office, roles or resources for private gain or benefit (OECD, 2017). In Zimbabwe, anti-corruption strategies have been undertaken as part of broad public sector reforms aimed at creating a leaner, more efficient, motivated, and productive civil service to facilitate service delivery. The results are however not impressive.

Bogetic and Naeher (2024) aver that empirical evidence overwhelmingly suggests that corruption is an obstacle to economic efficiency and development, and tends to divert government revenue. Revenue diversion through bribes depends on the level of a bureaucracy at which bribes are taken (Aidt *et al.*, 2020). Corruption can affect fiscal space by affecting its key components and the factors that support them. These factors include demands for special payments and bribes connected with government operations including tax assessments, excessive patronage, nepotism, job reservations, ‘favour-for- favour’, secret party funding, and suspiciously close ties between politics and business (The PRSP Group, 2018). Mauro *et al.* (2019) also contend that

corruption limits revenue as it can harm the ability of governments to collect taxes in a fair and efficient way as corrupt officials may introduce tax exemptions in exchange for bribes, reducing revenue potential. Bogetic and Naeher (2024) opine that the more complex and opaque the tax system, the easier it is for officials to exercise discretion in tax administration and demand bribes or kickbacks in return for a favourable outcome. Corruption therefore negatively affects collection of revenue by government as the money disappears through corruption. Lack of modern efficient and effective computer software at revenue collecting points facilitates public officials to engage in corrupt activities (Shah, 2007). Corruption takes place where the system is opaque with few checks and balances.

2.7.2 Institutional inefficiency

The vice has become so deep-rooted and institutionalised that some people now accept it as their sole means of survival due to a total collapse of systems that offer checks and balances (Mauro *et al.*, 2019). Profit-seeking has become routine among the elite, while the working poor extract bribes to supplement their salaries (Zelle, 2017). Corruption is most prevalent where there are other forms of institutional inefficiency, such as bureaucratic red tape and weak legislative and judicial systems. Most African countries face economic, political, and sometimes institutional crises (Zelle, 2017). This turns to be fertile ground for corruption as it forms a prominent feature of bureaucratic cycle and civil service. Civil servants keep their poorly salaried jobs in the public service to use public facilities such as communication and transport for private purposes (Moyo, 2011).

2.7.3 Procurement of goods and services

Corruption is found in the award of contracts, dispensation of justice, and misuse of public offices, positions, and privileges (Nyoni, 2017). Zimbabwe has scored negatively on governance and corruption indices such as the Transparency International Corruption Perceptions Index (CPI) which measures the extent of corruption in a country when contrasted to other countries. Transparency International (TI) indicated that Zimbabwe was amongst the world's top twenty-five (25) most corrupt countries in the world. TI investigation indicated that Zimbabwe was ranked 150th nation out of 167 countries, in terms of the CPI in 2015 with a CPI

of twenty one (21). The annual CPI for the years 2016 to 2018 were twenty two (22). The annual CPI for the years 2019 to 2022 were twenty four (24). The CPI ranges from zero (0) to one hundred (100) with zero (0) being highly corrupt and one hundred (100) being very clean. The 2015 to 2022 CPI indices for Zimbabwe were in the ranges that made Zimbabwe highly corrupt. The scores for Zimbabwe signify high perceived levels of corruption in the public sector. The CPI ranks 180 countries and territories by their perceived levels of public sector corruption, according to experts and businesspeople. Focusing on corruption, Chitambara (2015) revealed that the state of corruption in Zimbabwe has been described as systemic and endemic and is often cited as one of the biggest obstacles to economic growth and development.

In a tendering process bidders can rig a competitive bidding process to undermine its integrity in that contractors can collude to increase the value of the winning bid by bribing a public official to give it confidential information, thereby obtaining a competitive advantage during the bidding process or one of the bidding contractors may be financially connected to relevant public officials (Creon *et al.*, 2022). Public procurement, a crucial way to implement government budgets, can be highly vulnerable to corruption (IMF, 2019). Estimates of losses through procured spending amounts to about 10-20 percent, even in countries with relatively high integrity of their procurement systems in the European Union (Hafner *et al.*, 2016 as cited by Abdou *et al.*, 2022). Consequences for public finances can be dire, as public procurement constitutes about 12 percent of global GDP or 11 trillion US\$ per year (Bosio *et al.*, 2020). Corruption can lead to higher deficits and lower growth, due to inadequate quality and insufficient level of infrastructure (Schwartz *et al.*, 2020). Magakwe, (2022) contends that corruption is especially prevalent in public procurement. Almost all public sector operations from building to education, healthcare to innovation, need the procurement of commodities, services or works. However, the gap between who wins these bids during the procurement of goods and services and paying a bribe to obtain a specific bid opens a door to corruption (Magakwe, 2022).

In cases where corrupt officials request shares in the proceeds of investments, corruption acts as a tax, though one of a particularly pernicious nature, given the need

for secrecy and the uncertainty as to whether bribe takers will live up to their part of the bargain (Joslyn, 2019). Corruption could also be expected to reduce growth by lowering the quality of public infrastructure and services. Joslyn (2019) refers to Momoh (2013) who contends that corruption in Africa has internal and external dimension which are interrelated in some respect. There are corrupt practices perpetrated by Africans and those carried out by foreigners via collaboration with corrupt Africans (Joslyn, 2019). Arguably, corruption imposes distortionary effects on a country's economic growth through its detrimental effects on the private sector, the quality of institutions and the policy makers as averred by Pellegrini and Gerlagh (2004). While the effects of corruption have been widely studied, there is however, less literature on the effects of corruption on economic growth.

Machel and Coombes (2011) express that in a survey conducted in six countries from Southern Africa (Zimbabwe, South Africa, Malawi, Democratic Republic of Congo (DRC) and Mozambique) 62% of the respondents confirmed that corruption is getting worse and 56% of these respondents add that they had to pay a bribe when they met government service agencies. Gavin (2010) adds that Southern Africa's governments leading political parties are contorted in tangles as they effortlessly try to keep their privileged offices in various sectors of the economy while also seek to address corruption which inevitably has lessened their integrity along with popularity. Failure to deal with the issue of corruption from both internal and external dimension is responsible for increasing level of corruption in Africa (Gavin, 2010). Corruption affects all facets of a country's existence, the economy, society and polity, which leads to underdevelopment (Momoh, 2013).

Arguably, corruption imposes distortionary effects on a country's economic growth through its detrimental effects on the private sector, the quality of institutions, and the policy makers (Pellegrini & Gerlagh, 2004). While the effects of corruption have been widely studied, there is less literature on the effects of economic growth on corruption. One early study that attempted to find a causal link between growth and corruption and found that there was no such statistically significant relationship (however, it was also found that corruption decreased growth levels; Ali & Isse, 2003). Pellegrini and Gerlagh (2004) analyse the direct and indirect channels of the effect of corruption on economic growth. Their findings suggest that corruption slows

down growth through its effect on investments and trade policies. More recently, a study that used data from the World Bank during the period 1970–2000 found evidence to support that growth reduces corruption in the presence of strong institutions but has no effect when there are weak institutions (Aidt *et al.*, 2008). A later study that used data from 13,000 firms between 2006 and 2010 in Vietnam found that higher levels of growth rates reduced corruption levels when there were strong land rights and cross-province activities (Bai *et al.*, 2013).

Attempting to invest in a foreign country often requires some form of public permit and in corrupt countries it is more likely that obtaining such a permit may require a form of bribe, thus increasing the cost of engaging in such activities and reducing the overall levels of FDI (Joslyn, 2019). In addition, some individuals or firms simply choose not to engage in such corrupt practices and avoid economic relations with such countries, which reduce levels of foreign direct investment (Gavin, 2010).

2.7.4 Causes of Corruption

Corruption and construction Owusu, Chan *et al.* (2019) carried out a review on factors causing corruption in construction and found that forty-four (44) causes of corruption can be found in the construction cycle across several countries. Causes included too-close relationships, poor professional ethical standards, negative industrial and working conditions, negative role models and inadequate sanctions throughout the phases of construction.

Since the ultimate source of rent-seeking behaviour is the availability of rents, corruption is likely to occur where restrictions and government intervention lead to the presence of such excessive profits (Joslyn, 2019). Examples include trade restrictions, such as tariffs and import quotas, favouritism industrial policies, such as subsidies and tax deductions, price controls, multiple exchange rate practices and foreign exchange allocation schemes and government-controlled provision of credit (Wickberg, 2021). Some rents may arise in the absence of government intervention, as in the case of natural resources, such as oil, whose supply is limited by nature and whose extraction cost is far lower than its market price (Mauro, *et al.*, 2019). Since abnormal profits are available to those who extract oil, officials who allocate extraction rights are likely to be offered bribes (Mauro, *et al.*, 2019). Finally, one

would expect that corruption is more likely to take place when civil servants are paid very low wages and often must resort to collecting bribes to feed their families (Hlatshwayo *et al.*, 2018).

While all the hypotheses described above are empirically testable, in the sense that data are available for that purpose, only a few have been tested (Mauro, *et al.*, 2019). What empirical studies have been done support certain hypotheses: namely, that there is less corruption where there are fewer trade restrictions; where governments do not engage in favouritism industrial policies; and perhaps where natural resources are more abundant; and that there is somewhat less corruption where civil servants are paid better (Mauro, *et al.*, 2019).

2.7.5 Consequences of Corruption

Corruption undermines national institutions that are critical to administering states, thereby endangering national stability, and deepening international differences (Baldwin, 2022). It enables terrorist and criminal networks both by providing vehicles for these groups to finance their operations and by weakening the hand of the states that they oppose (Baldwin, 2022). Corruption forges links between political elites and organised criminal groups. It weakens societies by undermining economic potential and a misallocation of private and public resources (Baldwin, 2022). Corruption also renders state regulation of the market irrational and ponderous and undercuts state finances by making fair tax assessment and collection all but impossible (Baldwin, 2022). It insidiously rewards the well-connected and untalented while penalising society's more skilful, productive, and virtuous actors who are denied opportunities as channels of influence become distorted by venality (Baldwin, 2022). It erodes national financial systems when those systems are flooded with illegally generated revenues as the erosion of economic opportunity simply becomes deeply rooted and pervasive (Baldwin, 2022).

Kenton, (2022) contends that the average income in countries with a high level of corruption is about a third of that of countries with a low level of corruption. Corruption in the way deals is made, contracts are awarded, or economic operations are carried out, leads to monopolies or oligopolies in the economy. Those business owners who can use their connections or money to bribe government officials can

manipulate policies and market mechanisms to ensure they are the sole provider of goods or services in the market. Monopolists, because they do not have to compete against alternative providers, tend to keep their prices high and are not compelled to improve the quality of goods or services they provide by market forces that would have been in operation if they had significant competition. Embedded in those high prices are also the illegal costs of corruption transactions that were necessary to create such a monopoly. If, for example, a home construction company had to pay bribes to officials to be granted licenses for operations, these costs incurred will, of course, be reflected in artificially high cost of infrastructure (capital expenditure). In best practice, companies choose their suppliers via tender processes, which serve as mechanisms to enable the selection of suppliers offering the best combination of price and quality. This ensures the efficient allocation of resources. In corrupted economies, the companies that otherwise would not be qualified to win the tenders are often awarded projects because of unfair or illegal tenders. This results in excessive capital expenditure in the execution of projects and substandard or failed projects, leading to overall inefficiency in the use of resources. Because little confidence can be placed in the legal system of corrupted economies in which legal judgments can be rigged, potential innovators cannot be certain their invention will be protected by patents and not copied by those who know they can get away with it by bribing the authorities. There is thus a disincentive for innovation and as a result, emerging countries are usually the importers of technology because such technology is not created within their own societies. Small businesses in corrupt countries tend to avoid having their businesses officially registered with tax authorities to avoid taxation. As a result, the income generated by many businesses exists outside the official economy, and thus are not subject to state taxation or included in the calculation of the country's GDP. Corruption is one of the disincentives for foreign investments. Investors who seek a fair, competitive business environment will avoid investing in countries where there is a high level of corruption. While investing in emerging markets remains a popular investment area, investors are naturally hesitant to put their money at risk in countries known to have high corruption levels.

Corruption is generally not the weapon of the weak. In Nigeria, an infamous bribery case, involving the international oil company Shell, deprived Nigerian people of over \$1.1 billion as the money went to corrupt officials instead of to the national budget

(Global Witness, 2017). Meanwhile, according to the World Bank (2019), more than 50% of the population of the oil-rich country live in extreme poverty. This demonstrates that when economic systems are enlisted in the service of corrupt actors, wealth is redistributed to the least needy sources. Kenton, (2022) contends that the cumulative effect of individual corrupt acts is dysfunctionality. He goes on to aver that whether offered by the public or private sectors, the quality of goods and services decrease, and the process of obtaining them becomes more expensive, time consuming and unfair. Furthermore, he indicates that if bribes can successfully be offered to police, doctors, and civil servants, then those who are most successful at extracting these funds get ahead to the detriment of more honest colleagues and competitors who may perform better on merit. Moreover, corporations lose the incentive to offer better services and products if they can undermine competitors through obtaining political favours and that state owned enterprises and industries are structured to enrich government officials instead of pursuing innovation and efficiencies which can lead to the loss of intrinsic motivation within organisations (Lambsdorff, *et al.*, 2023).

Large amounts of public funding injected into infrastructure and construction projects are frequently syphoned off into private hands, which can be up to 40% in some countries KPMG (2012) as cited by Sanderson *et al.* (2022). According to the OECD, half of bribes paid are in industries with the largest spending on infrastructure, namely the extractive (19%), construction (15%) and transportation (15%) sectors (OECD, 2014).

Other corruption opportunities include the fragmented nature of the construction industry, the difficulties in monitoring complex procurement processes and supply chains, unethical taken-for-granted business practices and the large amounts of money changing hands makes corruption the norm in many countries and easy to cover-up (Chan & Owusu 2017). The effects of corruption in the location, design, construction and maintenance of buildings and infrastructure results in dangerous built environments which kill, maim, and make homeless large numbers of people every year. Those living in poor quality buildings and using poor-quality infrastructure are often those more at risk. After all, when disasters occur, it is the building and infrastructure collapses that kills people. For example, in 2017, 228 people were

killed during an earthquake in Mexico City due to poorly constructed buildings signed-off by private building inspectors hired and paid by developers, despite strict building codes (Linthicum, *et al.*, 2017).

Post-disaster recovery efforts also present considerable opportunities for corruption, which serve to build/rebuild vulnerability to future disasters. According to Imperiale and Vanclay (2021) several factors, including perpetuating ‘business-as-usual’, elite capture and organized crime create further environmental, social and human rights risks and impacts, exacerbate the social preconditions of disaster, create second disasters and a downward spiral of public debt, inequity, and vulnerability to future disasters. For example, the same authors closely studied recovery efforts after the 2009 earthquake that struck L’Aquila, Italy that led an enquiry by the European Parliament which was heavily critical of the misuse of funding. They concluded that ‘many legal actions have been taken relating to allegations of fraud, corruption, bribery, inadequate public administration, and Mafia infiltration, implicating national and local public officers and building firms’ (Imperiale & Vanclay, 2020). Levitt *et al.* (2019) explored the differences in attitudes toward code enforcement and safer construction practices and found that higher-income respondents placed a greater value on honest construction practices than lower-income respondents.

2.7.6 Forms of Corruption in the Public Service

Damijan, (2023) contends that to understand the concept of corruption it is important to also understand the various forms in which corruption manifests itself in the Public Service. Forms of corruption are centred in the organisational location and in most cases their occurrence depends on the occupational level of the public servant. The author further contends that most public officials who abuse power have the authority in and are entrusted with responsibility in the organisation. Corruption on infrastructure development pathways is in the form of Abuse of Power; Bribery; Embezzlement; Nepotism; Fraud; Conflict of Interest and Extortion.

2.7.6.1 Abuse of Power

Abbott and du Plessis (2022) avers that abuse of power means using a vested authority to improperly benefit another person or entity, for example, when during a tender process, the manager expresses a wish to see the contract awarded to a

specific entity or individual. Winter, (2017) further articulates that abuse of power also refers to bullying and can be regarded as continual, repeated aggression that is expressed in words and behaviour that have a negative impact on the organisational climate. Bhasin (2019) asserts that this form of abuse of power is a behavioural pattern that develops over time, and is very common in the organisation. The misuse of the power vested in an individual for personal benefits that results in adverse effects and breeds negativity is abuse of power.

2.7.6.2 Bribery

Bribery refers to offering or promising a benefit that improperly influences the actions or decisions of a public official. The Peninsula Group (2023) defines bribery as the offering of any gift, loan or reward for personal gain. This Group asserts that the benefit can be enjoyed by public servants, individuals or any entity. Furthermore, in some cases, bribery may occur when political parties are offered, given or promised a benefit to improperly influence their actions and decisions. A bribe may be concealed as an invoice submitted without any work having been done (Callister, 2023).

2.7.6.3 Embezzlement

Embezzlement, the highest form of corruption, refers to the misuse or intentional mispending for personal use of public funds or assets. Such public officials seem to have no fear of actions that can be taken against them by the rule of law (Motshegwa, Mutonono & Mikazhu, 2019). It is the misdirection of money or resources by individuals entrusted with authority over such money or resources. According to the Peninsula Group (2023), taking public money for personal gain is embezzlement.

2.7.6.4 Nepotism

Nepotism is the abuse of public office by offering relatives or family members employment (Vveinhardt & Sroka, 2020) and it includes conflict of interests and favouritism. Similarly, when a manager in an institution uses their influence to favour certain groups of individuals based on personal friendship or relationship (Andreev, 2023) or when a public servant who has authority ensures that family members receive contracts from state resources. Nepotism in the public service refers to a form of unfair discrimination in a case where a family member of a senior

manager is appointed as an employee even when they do not have the required skills, experience and qualification (Albertyn, 2021) by manipulating recruitment systems. Nepotism can lead to a dysfunctional organisation (Vveinhardt & Sroka, 2020).

2.7.6.5 Fraud

Ozili, (2020) asserts that fraud is an act of intentionally deceiving someone in order to gain an illegal advantage, financially or otherwise. It is the use of any official occupation in the office for personal enrichment through the deliberate misuse of the institution's resources. Furthermore, fraud can be regarded as a non-disclosure of relevant information to mislead the stakeholders for personal gain (Ozili, 2020). Fraud consists of illegal activities perpetrated by individual(s) in order to provide an advantageous financial outcome (Peninsula Group, 2023).

2.7.6.6 Conflict of Interest

According to the Royal Government of Bhutan Anti-Corruption Commission (2017), a conflict of interest occurs when a public servant has private interests that could illegally or improperly influence the performance of public responsibilities. Conflicts of interest, especially those resulting from the financial ties of a public official, have been found to undermine the fairness of decision-making in government institutions (World Health Organization, 2022). The problem with conflicts of interest is connected to corruption and bias in administrative processes (Kapas, 2023).

2.7.6.7 Extortion

Menocal *et al.* (2015) define extortion as the act of threatening to harm, directly or indirectly, someone to influence improper actions of another party. Extortion is regarded as an unlawful demand for property, money or sensitive information to influence cooperation by using force or threatening someone. Extortion occurs when a person purposefully threatens to physically injure, accuse, or expose someone to obtain for himself or another, anything, whether service or money, for personal interest.

2.8 Cost of Corruption on capital expenditure (infrastructure)

Some empirical analysis has been conducted on the causes and impacts of corruption (Belgibayeva & Plekhanov, 2019). Gründler and Potrafke (2019) revisited the relationship between corruption and economic growth using the inverted Transparency International Perception of Corruption Index (CPI) from 2012 to 2018 across 175 countries/regions. Their study indicated that the impact of corruption on economic growth is most pronounced in autocratic countries and is transmitted to economic growth via a decline in FDI and an increase in inflation. However, the principal-agent model, viewing corruption as an agent violating the interests or preferences of the principal to benefit a third party, provides a theoretical perspective that more effectively reveals the behavioural motivations and internal mechanisms underlying corruption (Zhang, *et al.*, 2023). Officials are motivated to engage in corruption to gain additional personal benefits when they have sufficient discretionary power, when economic rent exceeds salary levels and when corruption detection and punishment are minimal as contended by Yin and Nie (2020). Where governance systems are not working effectively and transparency and accountability mechanisms are weak or lacking, corruption in the use of public resources often increases. For the period 2004 to 2013, Zakharov (2019) studied the causal correlation between corruption and fixed capital investments in the Russian regions. The key finding was that corruption affects significantly and negatively aggregate investment in fixed capital. He found that, by disaggregating investment by ownership, corruption reduces private investment and not the investment that is made by state-owned firms. On businesses with international investment, the influence is greater. A strong negative association between regional imports of capital goods and corruption was observed.

GIACC (2020) contend that losses and damage caused by corruption manifest in different forms such as:

- i. Each corrupt activity that has occurred on or in connection with the capital expenditure project;
- ii. Each stakeholder that has suffered loss and damage as a result of the infrastructure project;
- iii. The types of loss and damage that have been suffered by each stakeholder; and

- iv. The amount of each type of loss and damage suffered by each stakeholder in respect of each corrupt activity.

The sum of that loss and damage, which is highly unlikely to be wholly identifiable or quantifiable, becomes the cost of the corruption in relation to the capital expenditure project being implemented.

2.8.1 Types of corrupt activities that cause loss or damage.

Loss and damage may arise from a wide variety of corrupt activities which may take place on or in connection with an infrastructure capital expenditure project. These activities may include bribery, extortion, fraud, cartels, abuse of power, embezzlement, and money laundering and the individuals who carry out these corrupt activities may include government officials, and officers and employees of the project owner, project funders, tenderers, contractors, consultants, sub-contractors, and suppliers (Matshela *et al.*, 2023). They may be acting either on their own behalf or on behalf of their organisations. Corrupt activities may take place at any time during the project, from the point where the project is being selected right through all phases of financing, design, tendering, execution, maintenance, operation, and dispute resolution. Each of these corrupt activities may cause significant loss and damage (Matshela *et al.*, 2023).

2.8.2 Types of loss and damage caused by corruption.

The types of loss and damage that may be caused include financial loss, damage to property and environmental damage. Financial loss may arise from, increased maintenance and repair costs, and legal fees. These types of loss and damage will vary according to the different organisations (Ozili, 2020).

2.8.3 The Loss and damage to capital expenditure for government infrastructure project.

The government is the owner of the infrastructure projects for whom the project is being constructed and who own the project outcome. The following are the categories of loss and damage that may be suffered by the project owner because of corruption in connection with the government infrastructure capital expenditure project:

(numbering needs rechecking and revision). The next is supposed to be 2.12.11.1.2.6.8

Theft of funds for capital expenditure project

The funds intended for spending on specific capital expenditure programmes may be misappropriated before reaching the intended programme. This can occur where there are inadequate controls to ensure that funding is used for the intended purpose. The management of large infrastructural projects in Africa has encountered challenges such as non-consideration of indigenous peoples' spatial visions and territorial plans (Enns & Bersaglio, 2020), ineffective stakeholder management (Zarewa, 2019) immature organizational project management (Pretorius *et al.*, 2022), managerial incapability of project managers (Welfolo, 2022), flawed project management decision-making process (An & Mikhaylov, 2020) and political corruption (Owusu, 2021). The impact of corruption on the management of large infrastructure projects in Africa has become critical, not because it is a global issue, but because of its impact on project management success and the susceptibility of large infrastructure projects to corruption (Hossain *et al.*, 2020). The susceptibility of large infrastructural projects to political corruption is a result of their characteristics, such as the ability to conceal project quality, many small-scale subcontractors, opportunities for overheads and overruns, project uniqueness, unclear pricing systems, numerous approvals and permits, bureaucratic procurement and contract award processes, and competition (Bonga, 2021). In Africa, political corruption affects infrastructure service delivery, delays delivery timeframes, raises infrastructure prices, diminishes infrastructure potential economy, reduces infrastructure quality, and leads to poor project selection (Hope Sir, 2021).

2.8.4 Waste of capital expenditure infrastructure project funds

Project funds may be wasted where there is corruption in project selection or project design resulting in non-viable projects or projects which are unsuitable for the intended purpose. An example of this is where a project is selected primarily because it is very large and capital intensive such that it would provide ample opportunity for large bribes or misappropriation of funds, or because its location would benefit corrupt individuals. The result may be that the project is of no or little use to the public. Alternatively, waste of project funds may occur where a project is over-designed so that it is too sophisticated for the intended purpose but with the corrupt

intention that the over-design would maximise profits for the relevant corrupt individuals. Alternatively, a project which was viable and appropriate at the outset may collapse or be rendered unviable because of corruption which takes place during the structuring or execution of the project. The cost of such corruption is the amount of funds wasted in paying for a project that was non-viable at the start or which subsequently became unviable because of corruption (Harouna & Omgba, 2021).

2.8.5 Increased price of infrastructure capital expenditure projects

Public procurement is a crucial way to implement government budgets, can be highly vulnerable to corruption (IMH, 2019). Estimates of losses through procured spending amounts to about 10–20 percent, even in countries with relatively high integrity of their procurement systems in the European Union, Hafner *et al.*, (2016), as cited by (Abdou *et al.*, 2022). Consequences for public finances can be dire, as public procurement constitutes about 12 percent of global GDP or 11 trillion USD per year (Bosio *et al.*, 2022). Corruption can lead to higher deficits and lower growth, due to (among others) inadequate quality and/or insufficient level of infrastructure (Schwartz *et al.*, 2020). Paguta and Pertold, (2017) and Coviello, Guglielmo, and Spagnolo, (2018) show that when public officials can exert discretionary powers for procurement contract, values below a certain threshold, there is a concentration of contracts awarded to specific bidders and untransparent bidders in terms of their owner structure. The corrupt behaviours lead to higher prices paid. Periods for selecting the winning bid can be a red flag for corruption risks (Fazekas & Kocsis, 2020). A short period is associated to unfair competition as bids may not all be adequately assessed. In some cases, long decision periods can also signal that a particular bidder was favoured because challenging the bid assessment, hence increasing the period for the final award decision, is a hallmark of irregularities. Corruption may result in an inflated project price being paid by the project owner. For example, corruption in the design phase may result in an overly expensive design being produced to give preference to a particular supplier. Corruption in the financing phase may result in onerous financing terms being paid by the project owner. Corruption in the tender stage for one or more project contracts may result in the corrupt winning contractor including the cost of the bribe in the contract price or additionally inflating the contract price because there

is no genuine competition. Corruption during project execution may result in an inflated final contract price due to the certifier being bribed by a consultant or contractor to approve fraudulent claims. All or some of these types of corruption may occur in projects owned by organisations such as the government.

2.8.6 Corruption in Infrastructure Projects

Construction projects are intricate and complex in nature and consist of diverse stakeholders with varying degrees of knowledge and experiences (Maqsoom, *et al.*, 2019). Corruption occurs almost in every construction project, both in developing and developed countries, which severely deteriorates the positive image of the industry (Mejía, *et al.*, 2020). Infrastructure projects are most vulnerable to corruption owing to a great amount of capital involved which triggers a surge in corruption risks in construction project management (Owusu & Chan, 2018). Calahorra-Jimenez, *et al* (2020) contend that infrastructure projects are the backbone of every economy and it is critical to the survival and livelihood of humanity, ranging from all kinds of structures such as, hospitals, roads. However, from the inception and conception phase of a project through the project closeout and defect liability period, various types of corrupt practices, such as solicitation, bribery, and clientelism exist (Khadim *et al.*, 2021). The construction sector defined it as the misuse of the authority at the cost of the construction project for personal gains or benefits (Ajwad, *et al.*, 2020). According to Transparency International, (2015) as cited by (Khadim, *et al.*, 2021) corruption falls into categories:-

- a) Petty Corruption: routine misuse of delegated power by mid and low-level executives with common citizens.
- b) Grand Corruption: Corrupt actions committed by pertinent authorities such as provincial governments and courts.
- c) Sporadic Corruption: related to random opportunity.
- d) Systemic Corruption: a vital aspect of the economic, political and social systems.

The above views are in sync with those of Global Infrastructure Anti-Corruption Centre who assert that corruption may result in the final product, such as, the completed road, hospital or dam, being dangerous or inadequate for the intended

purpose due to corrupt supply of defective works, services and materials which have either been concealed from the certifier or been corruptly approved, or it may be due to the incompetence of the contractor who won the contract through bribery (GIACC, 2020).

2.8.7 Cost of Defective Capital Expenditure on Infrastructure

Corruption in the infrastructure and construction industry has led to challenges that include poor quality, inappropriate project choice, excessive time high prices, excessive cost overruns excessive time, high prices, excessive cost overruns, low returns, and inadequate maintenance (Matorera, 2023). Kenny (2009) also states that financial losses through corruption will always have disproportionately high economic consequences on the nation to which Wells (2014) affirms that over 20% of construction costs could be going into bribery. Corruption in infrastructure occurs at project proposal, project selection, design, budgeting, tendering, implementation, and evaluation (Messick, 2022). Matorera (2023) contends that the contractor has nothing to lose as the government will pay the real amount plus an inflationary amount. It is this inflationary amount that will be shared by the corrupt handlers. The author further contends that corrupt individuals do not worry about economic return ratios that are supposed to help in financial decision making to proceed with the project or not. In some cases, corrupt individuals can deliberately declare a lower cost of the project so that it is approved (Messick, 2022). At implementation cheap materials, underpaid labour is used to reduce the overall cost. The result is that project will fail and become risk to users or confer huge recurrent maintenance costs (Matorera, 2023).

2.9 Corruption Pathways

Xie, *et al.* (2023) contend that corruption undermines the operating rules of the market economy and market order, seriously reduces the efficiency of resource allocation and increases transaction costs for enterprises and markets. Ren *et al.* (2021) aver that corruption increases the financing constraints of enterprises and reduces the credit funds for technology innovation. The resource allocation efficiency determines the factor input combination and technology selection in the production process of an enterprise, which indirectly affects the innovation activities and innovation efficiency (Wang *et al.*, 2019). Financial capital misallocation weakens the

impact of government intervention on enterprise innovation (Yang *et al.*, 2022b). Moreover, the misallocation of resources leads to the rent-seeking effect that crowds out innovation input (Chen *et al.*, 2018). Once enterprises are keen on rent-seeking activities, it causes the crowding out effect on production expenditures such as machine equipment renewal and employee skill training (Xie *et al.*, 2023). Resource misallocation hinders the flow of labour and capital factors, thereby diverting the optimal allocation of factors from the optimal ratio and reduces the technical efficiency of production (Zheng *et al.*, 2022). Tanzi and Davoodi, (1997) contend that corruption leads to moral degradation, bad education, and bad faith. The author advances that among the most mentioned factors that influence the development of corruption are environment, professional ethics and legislation and ethnological factors such as customs, habits and tradition. Corruption is also strongly influenced by the low salaries of public administration employees, who are therefore trying to improve their financial position by receiving bribes (Sumah, 2018).

Ogundiya, *et al.* (2023) contends that corruption stymies development efforts, retards bureaucratic progress, undermines political institutions by undermining the credibility of government. The authors state that corruption is widespread in the civil service, affecting the supply of public goods and services and socio-economic development of the affected state leading to the abuse of public power for private benefit. There have been arguments in the extant literature on the effects of low wages on corruption. Poor pay and salaries in the civil service, research has shown, play a big role in the trivialization of petty corruption. It is sometimes hypothetically stated that the higher the wages the less corrupt a civil servant becomes. Thus, insufficient pay for civil servants is said to encourage rent-seeking behaviour because good wages or high salary level allows the civil servant and its family to maintain a reasonable quality of life Tanzi, (1998) as cited by Ogundiya, *et al.* (2023). Kinship ties as well as loyalty and favouritisms to one ethnic group or religious affiliations is a culture where gift-giving or cares for extended family and friends is valued highly. In this circumstance, sharing or dispersing the rewards of power may not appear to be immoral at all but which however contradicts the established civil service rules (Ogundiya & Amzat, 2020) describing it as a clash of morality and legality. Dominik and Christina (2017) maintained that salaries of public officials may also be a factor to consider while analysing the reasons of corruption. The authors indicated that, one variation of the

efficiency-wage theory claims that higher public-sector wages deter corruption because of the high personal costs of arrest and expulsion from government employment or administration.

Sumah (2018) contends that lack of professional ethics and deficient laws regulating corruption as a criminal offence and the prosecution and sanctioning of it are also an important cause for the emergency and spread of corruption. He further asserts that a great influence comes from the ineffective sanctioning of corruption which only increases the possibility of continuing the corruptive actions of those involved creating at the same time a strong likelihood that others will join in the corruption due to this inefficient sanctioning (Sumah, 2018). Corruption also generates lack of transparency and lack of control by supervisory institutions. Corruption is also affected by the extensive non transparent or incompetent legislation where laws can be interpreted in different ways for the benefit of one who pays.

2.9.1 Corruption in Procurement in Public Sector

The moderating effects of corruption on capital expenditure involve procurement of infrastructure whose procurement is susceptible to corruption (IMF, 2019). Public procurement is the process by which the public sector purchases services, goods, and construction works from third-party organisations. OECD (2021) avers that procurement represents a substantial share of the government's public expenditure. This was further clarified by Bosio *et al.* (2020) who stated that consequences of corruption for public finances can be dire, as public procurement constitutes about 12 percent of global GDP or 11 trillion USD per year. Schwartz *et al.*, (2020) asserts that corruption can lead to higher deficits and lower growth, due to inadequate quality or insufficient level of infrastructure. This assertion becomes subject of the research on the moderating effects of capital expenditure impact on economic growth. Campos *et al.* (2019) contend that corruption is common particularly when procurement contracts are renegotiated. The procurement practice covers favouritism, collusion, lack of competition, a product index gauging cost overruns, time delays and low quality (Colonnelli & Prem, 2020). The low capacity of the implementing civil servants becomes an incentive to pursue corrupt practices which increases bribes. The governments would want the best cost benefit on the price and quality of procured capital goods, however, procurement in the public sector is also well known

to be permeable to irregularities (Costa *et al.*, 2020). This is buttressed by Transparency International who estimates that losses in procurement public contracts due to corruption accounts for a phenomenal 20% to 25% of the value of the contracts up to 50% in some cases Volosin, (2015) as cited by Lyra *et al.* (2022). Furthermore, Rustiarini *et al.* (2019) also contend that among public administration, public procurement is the process that contains the highest risks of illegality that can arise virtually at any stage of the process of acquiring goods, services, or construction works. This research is investigating the moderating effects of this corruption on capital expenditure impacts on economic growth. According to Transparency International corruption can cost up to 50% of the value of procurement this would have significant impact on capital expenditure whose effect this research is to establish. The government of Zimbabwe recently introduced e-procurement; there has not been adequate time to assess its impact on mitigating corruption in procurement in the public sector as contended by Kartika (2020). The analysis of the impact of corruption contributes to whether it has reduced corruption. In the world e-procurement has seen more research done and more advanced techniques explored to detect and mitigate corruption in procurement as contended by Wu Chebili (2022).

As defined, public corruption remains an administrative and endogenous practice in the system of governance. Corrupt agents pursue their selfish interests by distorting the interpretation of laws, monopolizing information about the functioning of the administrative system, or creating delays or hassles in administrative procedures Myrdal (1968) as cited by Sombie (2023). Bribery is still a wicked problem that does not seem to go away so easily, or at all, in many countries across the world. Bribery comes with very high social costs, undermining the sense of fairness (Adelopo & Rufai, 2020). In public institutions, such as government, corruption manifests itself on individuals who are office holders and deliberately use entrusted power of the office that runs counter to mandate to misappropriate or embezzle funds (Miller, 2018). The corrupt conduct of some office bearers may give rise to some unofficial recurrent institutional practices parallel to the official ones such as clientelism or state capture (Ceva *et al.*, 2023). This form of corruption within public institutions is systemic corruption which is characterized by a network of distorted relations, mutual incentives and interconnections that is often so intricate.

They aim to make administrative information opaque, to attract the beneficiaries of public services to the payment of bribes. The effects of corruption on economic activity are well established (Uberti 2021). Corruption reduces growth through its effects on the allocation of public resources because of allocating more resources to a given expenditure because it allows it to collect more bribes that generate negative effects on economic growth (Ghosh & Kyriakos 2017). Decisions on the allocation of public resources play a crucial role in the growth process, which is why much research focuses on the effects of corruption on the allocation of public resources (IMF, 2019). Sedgo and Omgba (2022) argue that the high prevalence of corruption has a distorting effect on the composition of expenditure in African economies.

This research study assesses through the model the variables of concern, corruption, and sanctions, on the moderating impact on capital expenditure impacts on economic growth. This is important in informing on anti-corruption policies as the findings can redirect policy makers in coming up with more appropriate policies.

2.10. Economic Sanctions

Economic sanctions are restrictions over economic activity imposed by one international actor on another with a specific purpose. Purposes of sanctions may include “signalling” one's message to targeted states, enforcing a behavioural change (“coercion”), “constraining” one's behaviour (Giumelli, 2011), meeting other goals, or achieving combinations of different purposes. The actors involved may include not only the sanctioning and targeted states, but also the international organizations among senders, nonstate actors and third-party states. Economic restrictions can result in multiple consequences with varying intensities depending on factors such as the type of sanction sender and the target, the scope and type of sanctions and the relations between sanction senders, targets, and third-party states. Such variations show the need to review different types of sanction consequences and to understand the conditions under which they occur. The intensity and probability of facing the economic impacts of sanctions vary across different actors. Targets may face consequences ranging from economic downfall to limited or no costs, while some sanctions may “strengthen” targets (Park, 2014). In contrast, sanction senders and third-party states tend not to experience economic effects above minor or medium levels, while only minor impacts were witnessed on the system level. Evaluations of

the overall economic effects of sanctions on targets focus on detecting changes, after sanction imposition, in the gross domestic product (GDP) or GDP growth rates (Neuenkirch & Neumeier, 2015). The 2011 – 2014 sanctions against Iran decreased Iran's GDP by 17 percent (Gharehgozli, 2017). Similarly, multilateral UN sanctions tend to have stronger effects on the target's GDP growth than unilateral US sanctions (Neuenkirch & Neumeier 2015). However, as EU sanctions are found to be less effective than those imposed by the UN (Besedes *et al.*, 2017), there is a need to differentiate between different multilateral sanctions. Multilateral and comprehensive sanctions are likely to be costlier for targets; these costlier sanctions are also likely to be more damaging for economically close third-party states. However, while there exist some agreement on the economic effects of sanctions on targets, evidence of such costs for senders and third-party states is mostly limited (Besedes *et al.*, 2017).

International sanctions are one of the most widely used instruments of coercion in international politics. Since the end of World War II, Aidt *et al.* (2021) count more than 1400 incidents of states being threatened with or targeted by sanctions. Sanctions are political or economic coercive measures imposed by countries whose decisions are adopted against states to prompt change in behaviour, to protect national security interests, or to defend against alleged breaches in international law (UNICEF, 2022). While the effectiveness of sanctions in achieving their intended goals is debated, the emergence of sanctions as a preferred tool in coercive diplomacy follows a specific logic. In Zimbabwe sanctions were imposed by the USA and EU following land reform of 2002. It becomes essential to understand the economic effects of these sanctions on the target country. Moreover, economic sanctions undermine the democracy of the targeted nations and promote civil strife and political instability, deteriorates their respect for human rights and in most cases failed to achieve the desired objective of the imposition of the sanctions (Abdulkareem, *et al.*, 2023). Thus, sanctions have a potentially adverse effect on the economic growth of the target state. The few empirical research on the economic consequences of sanctions argued that the imposition of sanctions adversely affects trade flows (Afesorgbor, 2019) prompts currency crises, widens income inequality, poverty gap and hinders economic growth (Kwon, *et al* 2022). Economic sanctions are unilaterally initiated by individual state or international organization and implemented using instruments such

as asset freeze, embargoes, export and import restrictions, travel bans, economic agreement suspension, blockage and termination of foreign aid (Farzanegan, 2022).

Furthermore, sender states applied sanctions to countries at various levels of political and economic development over the years. The author asserts that sanctions are unique, diverse, and heterogeneous accounting for the heterogeneity in the sanction-economic growth nexus. In Zimbabwe the ZIDERA sanctions were being renewed annually through Executive Powers by the sender country the United States of America. However, the effective of the sanctions largely depends on the income classification of the countries. Sanctions are likely to damage the economies of the poor nations more than the rich countries due to the heavy dependence of the former on the later. Thus, the impact of sanctions on economic growth could vary largely by the income classification of the targeted states.

Besides, the quality of economic and political institutions are fundamental determinants of economic growth (Daron and Robinson, (2012) as cited by Abdulkareem, *et al.*, 2023) Another factor considering the effectiveness of sanctions is the structure of the economy of the target state. Although the implications are ambiguous, it is observed that trade openness and the level of integration of the target state to the world economy substantially determine the success of sanctions (Nguyen & Ahmed, 2023). The international trade is a variable of interest in measuring the effects of sanctions on Zimbabwe. Le and Bach (2022) use the global sanction database to examine the impact of sanctions on FDI flows and find that sanctions exert an adverse influence on FDI flows. They further show that global value chains and bank linkages moderate the relationship between sanctions and FDI. It is, therefore, reasonable to expect that sanctions will have a detrimental impact on economic growth. Meanwhile, empirical studies have identified a decline in trade flows, fall in FDI and withdrawal of foreign aid and financial grants as the most obvious channels through which maximum welfare damage is inflicted on the target economy due to sanctions (Le & Bach, 2022). Besides, sanction episodes create political instability which in turn negatively affects savings, investment, and economic growth (Peksen, 2021). Sanctions could also increase corruption by undermining the authority of the target state and weakening its capacity to enforce the rule of law (Liou *et al.*, 2021). Consequently, economic growth will be adversely

affected due to more unproductive use of resources and an increase in transaction costs (Abdulkareem, *et al.*, 2023). The political elites of the target state may even deliberately aggravate the damage on the target economy and the sufferings of the people to minimize public revolt and compel the citizens to support the government against the sender's demands (Peksen, 2021). UNICEF, (2022) state that prior to the 2000s, sanctions typically took the form of comprehensive trade embargoes with the purpose of crippling a target state's economy.

The institutions and sectors on which sanctions are imposed may have strategic roles in the economies of sanctioned territories, amplifying the effects of even targeted measures. Some of these sectoral sanctions and trade bans are so broad that they can be considered *de facto* comprehensive measures, associated in the past with negative humanitarian consequences, especially when they led to a sharp economic decline and capital flight (Alhassan, *et al.*, 2023). Through 'secondary' sanctions, organisations, irrespective of their jurisdiction, are required to comply with the US's restrictive measures through their interactions with the sanctioned country (Peterson, 2021). As sanction regimes grow ever more complex, businesses may voluntarily refuse to do business with sanctioned states, to avoid fines, to reduce bureaucracy or to counter reputational risks (Peterson, 2021).

In principle, they should impose costs on key entities such as companies, directly linked to the actions that sanctioning powers deem unacceptable. Targeted sanctions include trade restrictions on services or goods. Therefore, this empirical study evaluates the impact of sanctions on economic growth through inflows of international trade and inflows of quality foreign direct investments.

Sanctions are one of the dual moderating variables with potential effects on capital expenditure impacts on economic growth. Allen *et al.* (2020) evaluated advances and policy implications of sanctions and their effects and the diverse types of sanctions and their consequences and confirmed that they have negative effects on the targeted countries. Economic sanctions can result in multiple consequences with varying intensities depending on factors such as who has imposed them and the targeted areas. Sanctions are most common in Sub-Saharan Africa imposed on trade, multilateral sanctions and sanctions aiming at the business sector which cause sudden negative growth accelerations. Zalle, (2017) contends that sanctions, incurred by a country,

influence the country's economic growth. Zalle, (2017) asserts that there are four main methods of applying sanctions on the target country and these are:

- a) Freezing financial assets.
- b) Suspension of technical and aid assistance.
- c) Trade controls.
- d) Blacklisting the target country.

2.10.1 Freezing Financial Assets includes the following.

- a) Freezing the offshore assets of individual members of the target nation's ruling elite.
- b) Confiscation of different forms of assets.
- c) Stopping transfer payment and interest.
- d) Not paying the debt or rescheduling debt payment and interest.
- e) Refusal to do joint projects with a target country in a target country.

Besedeš (2022) in a discussion paper indicate that sanctions often vary in their mechanics and specific targets, their goal is usually similar: to inflict economic pain to force a change in policy. As documented by Felbermayr *et al.* (2020b) sanctions are either complete, trying to fully cut-off the target, or partial, aiming at a subset of activities or specific actors and their access to the global economy. The more recent cases of sanctions tend to be smart in that they target only specific activities and individuals, firms, and organisations. They minimise their collateral damage. Felbermayr *et al.* (2020b) distinguish between six types of sanctions being trade, financial, travel restrictions, arms, military assistance, and other which entail diplomatic measures. These sanctions are designed to reduce trade between the country imposing sanctions and the country being sanctioned. Felbermayr *et al.* (2020b) contend that trade sanctions do indeed reduce trade between the sender and target. Besedes *et al.* (2017) also contend that financial sanctions reduce cross-border financial flows. Travel restrictions limit travel between the countries for sanction imposers and the target country by prohibiting specific individuals from entering the senders' countries. Financial sanctions reduce trade flows between the target and sender country. After all, to conduct trade, money or finance must flow between countries. If the flow of money is frozen, there will be an accompanying reduction in

trade. Trade between sender and target countries is reduced not only by trade sanctions, but also by financial sanctions.

Efing *et al.* (2018) reveal that banks located in Germany decrease external positions in sanctioned countries while branches and subsidiaries abroad do not respond. For affiliated banks located in countries with low financial standards, they even observe a relative increase in credit supply. This raises the question whether financial sanctions affect international trade. Crozet and Hinz (2020), Miromanova (2019) and Gullstrand (2020) examine the effects of various sanctions on Russia, while Haidar (2017), Draca *et al.* (2017) and Felbermayr *et al.* (2020a) examine the consequences of recent sanctions on Iran. In a much broader effort Felbermayr *et al.* (2020b) build a database of 729 sanctions episodes between 1950 and 2016 and demonstrate the extent to which sanctions reduce trade between countries. Dai *et al.* (2021) use the same data source to examine the timing of the effect of sanctions showing there are significant negative anticipatory effects preceding sanctions as well as negative lagging effects which take eight years to dissipate. Ahn and Ludema (2019, 2020) provide an analysis of the other side of sanctions imposed on Russia in 2014. Using data on Russian firms they show that firms targeted by sanctions experience losses in operating revenue, asset value, and employees. They conclude that sanctions on Russia were smart as they had a smaller effect on Russia's macroeconomy than oil prices, indicating that sanctions were affecting intended targets without causing widespread collateral damage. Besedes, (2022) contends that sanctions reduce the number of asset classes by more than 60% and reduce the number of imported service categories by 42%, while having no significant impact on exports of service categories, or industries in the case of trade in goods. On the intensive margin sanctions only influence exports of goods reducing average exports by about 27 percent (Besedes, 2022). There has been a recent increase in the use of sanctions as a foreign policy tool which has increased researchers' attention to their effects. While much effort has gone into uncovering the direct effects of sanctions on the activity primarily targeted by them, less attention has been paid to the extent the effects of sanctions spill over into other activities (Besedes, 2022). The aim of financial sanctions is to restrict the cross-border flow of financial activities. Such sanctions create collateral damage by reducing trade in goods and services. The presence of financial sanctions increases the risk of doing business, with the sanctioned country

resulting in a broad reduction in economic interaction between the sender of sanctions and its target. Collateral damage is due to sanctions episodes where financial sanctions are accompanied by export restrictions.

2.10.2 Suspension of Technical Assistance includes the following.

Economic sanctions and foreign aid have become increasingly important foreign policy tools. Aid is of money, goods, and services from one nation to another (Morgenthau, 1962). Aid suspensions restrict previously agreed resource transfers. Suspension of aid involves:-

- a) Cancellation or reduction of credit facilities at market rate.
- b) Cancellation or suspension of assistance in military, development, and training.
- c) Inability to get grants, subsidies, and loans in international organizations.

Sanctions decrease financial flows between countries imposing them and the targeted country as contended by Besedes, *et al.* (2017). The implementation of financial sanctions by the European Union leads to embargoes on exports of specific types of goods, such as technical assistance, training and financing and embargoes on exports often pertain to military goods and technology (Besedes *et al.*, 2021). Sanctions also lead to lower availability of international financing and they decrease access to financing and possible overall economic shocks, increase the likelihood of banking crises, especially under financial and costlier sanctions as contended by (Hatipoglu & Peksen, 2018). Costlier and multilateral sanctions have bigger effects on financial instability and currency crises due to the possibility of speculative attacks based on sanction related political risks, while the type of sanctioned sector can determine the gravity of such outcomes as averred by Peksen and Son (2015). They may also lead to lower availability of international financing, as was experienced by Russia witnessing institutional illiquidity, limited capital market access and increased state funding (Pak & Kretzschmar, 2016). Most African countries have faced economic and sometimes institutional crises (Zalle, 2017). The economic sanctions risk is also associated with frequent changes in economic policy and volatility in economic growth rates as opined by Halla, and Ahmad, (2012). Sanctions engender hesitation

among potential investors, penalise capital accumulation and hamper economic growth (Hatipoglu & Peksen, 2018).

Ha *et al.* (2022) contends that nations around the world tend to employ economic sanctions as an alternative measure when participating in international politics. They go on to aver that the impact of sanctions is often severe citing (Neuenkirch & Neumeier, 2015) who assert that countries sanctioned by the United States experienced a 13% reduction in their gross domestic product. Furthermore, the impact is even more significant, up to 25%, when the sanctions are imposed by the United Nations. Sanctions have a direct economic impact on the targeted countries. Hatipoglu and Peksen (2018) argue that sanctions influence the economic elites more severely, even triggering a financial crisis.

Carmichael *et al.* (2022) contend that lenders will want to ensure that any transaction they enter complies with all relevant sanctions regimes, because a breach of sanctions legislation may result in them being liable for civil and or criminal penalties. Furthermore, a breach of any sanction's regime can lead to serious damage to their reputation. Carmichael *et al.* (2022) further assert that these risks can lead to sanctions clauses that are more restrictive and broader than the sanction laws application to the borrower or even the lender itself. Sanctions legislation is especially difficult to navigate intra-financial institutions, without clear policy guidelines regarding which regimes apply and when. This is partly due to the complex and ever-changing nature of sanctions regimes (Carmichael *et al.*, 2022). To ensure that lenders are compliant with applicable regimes it is vital for lender to initially carry out a thorough due diligence process on the borrower, any relevant group company and the jurisdictions in which they operate (Mertens, 2024). The details will be transaction specific but should generally address whether a transaction involves a sanctions target which can be a country or any organisation, either directly or indirectly (Carmichael *et al.*, 2022). The lender should also ensure details of any other business the borrower or any member of the borrower's group, may have with any sanctions target and a description of the activities any financial sums involved and the proportion of the business activities that relate to the sanctions target (Carmichael *et al.*, 2022). Broad sanction clauses that are too restrictive may hinder the borrower and prevent it from carrying out its ordinary course of business, which could lead to an increased risk of

the default. However, the borrower should also be mindful of the rigorous compliance requirements that lenders must comply with and where a borrower is not a politically exposed organisation associated with outside influences, there is no reason to impose especially stringent international measures that the borrower may or may not be able to comply with. Mertens (2024) opines that whether sanctions provisions need to be included in a facilities agreement will depend on the nature of the transaction and the outcome of the lenders' due diligence on the borrower. The authors further opine that in each transaction where sanctions provisions are included the parties will need to agree on what the consequences of a breach by the borrower will be. A breach of these provisions may trigger the stopping of drawings, mandatory prepayment of the loan to any affected lender, unrestricted right for any affected lender to transfer its interest and call on default clause (Carmichael *et al.*, 2022). Whether a breach triggers an event of default is a key issue for a borrower. A key benefit for the lender in making a breach of these contractual provisions an event of default is that if the borrower fails to comply the lender can accelerate the loan and take enforcement action (Carmichael *et al.*, 2022). This has traditionally been the position taken by lenders, although borrowers have increasingly argued that this goes too far because of the extensive consequences that arise such as triggering cross-defaults (Mertens, 2024). A more suitable approach would be for any breach of a sanctions clause to be considered a mandatory prepayment event particularly so in syndicated transactions, where each lender will want to determine for themselves whether to exit the loan agreement in the event of such a breach occurring (Carmichael *et al.*, 2022). However, even bilateral transactions will benefit from a breach being a mandatory prepayment even since such events will still enable the lender to be prepaid and to cancel any outstanding commitments if it would be unlawful to continue to participate in the loan. Ultimately both the borrower and lender will benefit for a borrower the risk of cross default is limited and for lenders there will be no requirement for a majority lender instruction as is often the case when enforcing events of default (Mertens, 2024). Although sanctions clause has become a standard component of the LMA loan documentation, the content thereof has not yet been agreed on. Often lenders include broad and restrictive provision because there is no standard market practice especially intra-financial institution where each has its policy guidelines regarding which regimes apply.

The economic relations between Europe and Iran, by contrast, which were shaped mainly by their political relations, have deteriorated for several reasons, such as allegations of violations of human rights in Iran and the country's nuclear programme (Ghodsi, 2019). After the Islamic Revolution in 1979 and the hostage crisis Iran's relations with the United States turned into long-term animosity, leading to the imposition of the first US economic sanctions against Iran. Following the first UN Security Council Resolution, the EU Council also imposed sanctions against Iran with the adoption of EC Regulation 423/2007 of 19 April 2007.

Nonlinear autoregressive distributed lag (NARDL) following Shin *et al.* (2014) was applied to estimate the impact of sanctions on bilateral trade flows, taking the asymmetric impact of real exchange rates on bilateral trade flows into consideration. However, very few econometric studies have been showing the economic impact of sanctions (Felbermayr *et al.*, 2019). Since World War I and especially in the past two decades, economic sanctions have become popular instruments for foreign policy. Wars and military confrontations have been replaced by liberal alternatives to war that take the form of economic sanctions and trade protection measures. In recent years sanctions have been focused on the sources of income most valued by those responsible for the key undesired policy decisions, rather than the whole economy of the sanctioned country. Portela (2016) argues that in the 1990s the humanitarian impact of general sanctions against the whole economy of the sanctioned country led to the creation of targeted sanctions against those whose actions should be condemned. The consequences of the general sanctions indicate that they are typically found to be ineffective in changing the policies of the sanctioned country. In other words, general sanctions have rarely achieved their ultimate objectives. Moreover, sanctions imply costs for the imposing country as well, which limits their effectiveness in achieving their main objectives. The reduction of bilateral trade because of sanctions is not only an obstacle for the sanctioned entities and the sanctioned country to survive and evolve, but it also affects the revenues of the companies in the sanctioning country that were engaged in trade and business relations with the sanctioned country. Crozet and Hinz (2016) find large negative impacts on trade between Russia and many EU members due to sanctions imposed against Russia. Therefore, these sanctions have contributed to losses for both the sanctioned and the sanctioning countries. Torbat, (2005) as cited by Ghodsi, *et al.*

(2022) found that the financial sanctions imposed by the US against Iran had a more powerful impact than trade sanctions. This was mainly because of the inability of Iran to finance its imports, leading to larger foreign debt, currency depreciations, exchange rate volatilities, long run instability and welfare loss. Felbermayr *et al.* (2019) apply the gravity framework to estimate the impact of sanctions on bilateral aggregate trade values during the period 1950-2016 in Iran. They used the Global Sanctions Data Base and found a significant negative impact of sanctions against Iran on its bilateral trade flows. Using a general equilibrium framework of the gravity model, their counterfactual scenario suggests that Iran's real per capita income would have been larger by only 4.2% if there had been no sanctions against Iran. Using Iranian customs data, Haidar (2017) finds evidence of export deflection and re-exporting through third-party countries after the imposition of UN non-oil export sanctions in 2008. Exports became more expensive in the destination country it produced lower revenues for Iranian exporters. Iran's imports of goods became more expensive, causing prices to soar and inflation to rise during the sanction years. Ghodsi, *et al.*, (2022) cites (Shin *et al.*, 2014), on the asymmetric impact of the real exchange rate on traded values considered to provide robust and unbiased estimations of the impact of sanctions on trade. The results indicate that general sanctions have strongly hampered trade flows between the two trading partners. The impact of general sanctions on total imports from Iran is more than four times stronger than on its total exports to Iran. Moreover, the EU's general sanctions have hampered trade in almost all sectors, except for the primary sectors.

2.10.3 Trade Control Sanctions include the following.

- a) Import and export quota.
- b) Limiting exports, embargoes, on the target country.
- c) Limiting imports of the target country through boycott.
- d) Tariff policy against the target country.
- e) Cancellation and suspension of trade agreements.

If export restrictions are imposed or if sanctions prohibit companies in the imposing country from trading with the target country, the imposing country may lose markets and investment opportunities to competing countries. Hatipoglu and Peksen (2018) contends that countries generate greater economic benefits from engaging in free

trade than from pursuing economic independence. Various forms of government intervention in trade, such as tariffs, quotas, and taxes, discourage economic interaction between states and reduce the gains from free trade. Economic sanctions are a form of government action by senders of sanctions that are designed to block specified categories of trade or investment in the target country. A consequence of sanctions is that the more successful sanctions are at restricting the supply of goods to the target, the higher the price of those goods becomes in the targeted country. As the price of goods in the target rise above world prices, the incentive for third party countries to step in and replace the supply of the goods also rises. In the country imposing sanctions, the goods that are restricted will become cheaper as supply increases due to a reduction in available markets due to sanctions. This will result in an increased use of domestic transportation in the sender as goods previously destined for international markets are now consumed at home. In the second year of sanctions there is little effect of sanctions on targets, as targeted states are able to make adjustments to compensate for restrictions to their trade. It is well established that countries generate greater economic benefits from engaging in free trade than from pursuing economic independence.

Various forms of government intervention in trade, such as tariffs, quotas, and taxes, discourage economic interaction between states, and reduce the gains from free trade. States frequently choose economic sanctions as a foreign policy tool. By blocking the targeted country's access to the benefits of foreign trade, sender states seek to coerce the targeted state into changing some type of policy to have the sanctions removed. In addition to imposing restrictions on specific goods that the targeted country would prefer to acquire through trade, sanctions may also seek to constrain its access to capital (Biersteker *et al.*, 2016). Restrictions on trade and finance that are associated with sanctions are generally designed to impose an economic cost on the targeted state's economy, with a comparably smaller cost to the sending state. Sanctions have been imposed by international organizations, such as the United Nations, which receives its sanctions authority from article 41, Chapter VII, of the U.N. Charter. Sanctions have also been imposed by regional groups such as the European Union and Organization of American States and by individual states. The clearest justification for sanctions derives from the UN Charter, but international law also provides for the use of unilateral sanctions under certain conditions.

Specific countermeasures include developing alternative suppliers of sanctioned goods and capital and increasing levels of domestic production of the sanctioned goods. Both measures will entail short term costs as the target adjusts its economy to accommodate for sanctions. Long term effects of sanctions may be less significant if the target is able to make the necessary changes required to survive without the sanctioned goods. In addition to the direct impact, the reduction in export volumes is expected to generate spillover effects in various sectors of the targeted state's economy in the short run. However, in the long run these negative impacts may dissipate and undermine the intended sanction effects in the targeted foreign economy due to adjustment to sanctions.

Mirkina (2018) contends that governments have placed embargoes and travel bans on other governments and their officials in the hope that falling volumes of foreign trade and investment will force the target states to succumb to harsh economic consequences and to change their policies. Early findings from the studies on economic coercion showed that its use had significant negative effects on target states, particularly in combination with military intervention. However, in the late 1990s there was a change based on the overwhelming evidence that only a moderate share of the coercion cases could be called successful. This was on the basis that there was no great toll on the targeted country that it would force a change in its policies or a government replacement (Jones, 2015).

The mediocre success of coercion episodes comes primarily from the fact that the restrictions and barriers established by one state could be seen as business opportunities by others. Several types of sanctions are aimed at restricting trade flows in the most sensitive sectors, imposing travel bans on government officials or limiting access of national banks to the global financial market. That as it may, FDI could in some instances help to substitute for a large share of import flows and loaned financial resources (Peksen & Peterson, 2016; Hatipoglu & Peksen, 2018). Moreover, the rise of FDI in the past 50 years led to a greater mobility of both production and capital across countries. In a globalised world, sanctions intended to harm the host economy could lead, in fact, to a salient growth in the auxiliary flows from other sources (Hatipoglu & Peksen, 2018). Such growth could not only secure the target's independence from the relations with the imposer of sanctions, but also have a

consolidating effect on its economy, change the structure of its trade networks and diminish the sanctions success. On the other hand, if multinational companies at once decide to move their investment elsewhere due to increased risks in the sanctioned country, such a move could have a devastating economic impact on the target even when trade sanctions are not as harmful per se (Hatipoglu & Peksen, 2018). Therefore, ignoring the capital expenditure and sanctions nexus could misguide the interpretation of coercion research findings and mislead policy decisions. This research study fills this gap in the literature by examining data of coercion for a country under sanctions such as Zimbabwe. Studies still in existence provide mixed evidence for the effects of economic sanctions imposition on target economies, particularly on their inflow of capital expenditure. Three factors may explain why there is still no consensus regarding the economic effects of sanctions.

Ghods, *et al.* (2022) aver that the European Union (EU) has been using economic sanctions both as a foreign policy tool and as a liberal alternative to military action. They assert that since 2006, it has been implementing general sanctions against the whole economy of Iran, affecting their trade relations and from 2007, following the imposition of sanctions by the UN Security Council, it has also been using smart sanctions targeting Iranian entities and natural persons associated with the country's military activities. Ghods, *et al.* (2022) in a nonlinear autoregressive distributed lag (NARDL) model, investigated the impact of general and targeted EU sanctions against Iran on quarterly bilateral trade values between the 19 members of the euro area (EA19) and Iran between the first quarter of 1999 and the fourth quarter of 2018. In a robustness NARDL specification, trade between Iran and the 28 members of the EU is analysed. In addition, a gravity model of bilateral trade between Iran and the EU member states was run in a robustness check (Ghods, *et al.*, 2022). The results indicate that the EU's general sanctions have strongly hampered trade flows between the two trading partners in almost all sectors, except for the primary sectors. Furthermore, their study found that the impact of smart sanctions targeting Iranian entities and natural persons is much smaller than the impact of general sanctions on total trade values and the trade values of many sectors. Smart sanctions affect the exports of most sectors from the EA19 and the EU28 to Iran, while they are statistically insignificant for the imports of many sectors from Iran.

2.10.4 Blacklisting the Target Country which includes the following.

The blacklisting of target countries and organisations includes the following actions:

- i. Blacklisting target companies so that they are unable to do business with other countries;
- ii. Blacklisting of the countries that are doing business with the targeted country;
- iii. Enforce behavioural change; and
- iv. Ban on export of technology.

The purposes of sanctions are to enforce behavioural change. Splinter and Klomp (2021) have found weak but significant, positive effect of economic sanctions on the likelihood of a growth deceleration. Ghomi, (2021) avers that sanctions are a popular political instrument that is used to force countries to comply with international agreements and laws. Sanctions, along with poor domestic policies, resulted in a significant and huge negative impact on the Iranian economy.

Investors are afraid of high-country risk and blacklisting by the powerful countries imposing the sanctions. Access to markets becomes elusive and expensive. Ozdamar *et al.* (2021), state that economic sanctions are restrictions over economic activity imposed by international actors on a targeted country for a specific purpose to enforce behavioural change.

Ghomi, (2021) on effects of economic sanctions against Iran confirmed that economic sanctions are associated with considerable costs in terms of real GDP losses that are long-lived and can be considered as a credible punishment for countries under the sanction. Gharehgozli (2017) indicates that for the first 3 years after the imposition of the sanctions in Iran were costly to the country. He goes on to state that vulnerable groups might significantly suffer from any political and economic volatility caused by international sanctions due to their disadvantaged position in society and minimised access to the resources and rents. Frank (2018) finds a significant negative effect of sanctions on trade, while Kohl and Reesink (2019) cast doubts on the robustness of economic sanctions. Hinz (2017) studied the global effect of recent sanctions on Russia, Iran, and Myanmar and found that the overall cost of these sanctions in 2014

was about US\$50 billion, which is equivalent to 0.4% of global trade. In another study, Crozet and Hinz (2018) find that the costs of the sanctions and counter sanctions on Russia in 2014 were around 7.4% of its total exports. Rasoulinezhad (2017) and Haidar (2017) show that the international sanctions imposed on Iran after 2006 enormously changed its trade patterns, shifting trade flows from European toward Asian countries.

Berlin (2022) contends that sanctions imposed on Russia after its invasion of Ukraine are argued to be the strongest and farthest-reaching imposed on a major power after World War II, more numerous and more comprehensive than all other measures currently in force against all other sanctioned countries. The study goes on to indicate that sanctions certainly have significant effects. The study asserts that sanctions are restrictions imposed on a country by one or more other countries with the intent to pressure some desirable outcome, condemn and punish some undesired action already taken by the target country. When evaluating sanctions, the focus is on whether they succeed to discourage the course of action being pursued by the target country. The study indicates that implemented sanctions fail at the threat stage. The study goes on to state that if the threat of a well specified and credible retribution did not deter the receiving part from pursuing the sanctioned course of action, it is because they reckoned that the target country can afford to ignore the sanctions. Furthermore, unless this punishment goes beyond what was expected, in scope or in time, its implementation will also fall flat. Berlin (2022) contends that sanctions are a rather blunt instrument that often cannot be targeted with precision. She goes on to aver that once sanctions imposers take a course of action, it is usually not easy to remove the sanctions because they rarely work in isolation. Crozet *et al.* (2020) contends that sanctions affect trade between countries. But as what often happens, the most studied outcome is GDP, as this is a measure that efficiently summarizes the whole economy and correlates very nicely with many other outcomes. To investigate the effect of sanctions on a target country's GDP the problem is identifying an appropriate counterfactual to observe what would have happened in the target country in the absence of sanctions (Crozet *et al.*, 2020). It is also an issue that the incidence of international sanctions is often a product of a series of events in the target or sender country.

Özdamar and Shahin (2021) assert that there is a relatively sizeable negative impact on GDP, in a large group of countries over a long period of time. They aver that the target country's GDP per capita decreases on average by 4 percent over the two first years after sanctions imposition and shows no signs of recovery in the three years after sanctions are removed. Furthermore, they indicate that a reduction in GDP growth that starts at between 2, 3 percent and 3,5 percent after the imposition of UN sanctions and, although it decreases over time, only becomes insignificant after ten years. Gutmann *et al.* (2021) contends that a lower growth rate compounds over time experiencing a slower growth by 1 percent over ten years which implies a total loss of almost 15 percent. Countries under threat of sanctions probably make efforts to avoid punishment, which may imply that these countries are precisely the ones who would be most negatively affected by the sanctions. Kwon *et al.* (2020) adopt a different technique and come to a different conclusion when they used an instrumental variable approach and found that standard OLS overestimates the negative effect of sanctions. They find an instantaneous effect on per capita GDP that becomes insignificant in the long run, just as if sanctions never happened. Berlin (2022) contends that The World Bank has forecasted that Russia's 2022 GDP output will fall by 11.2% due to sanctions by western countries. These numbers do not yet factor in the announcement of the sixth EU sanction package, which famously includes an oil embargo. She goes on the question whether these estimates are realistic and what would have been the counterfactual development without sanctions. The debate about economic sanctions as a tool of foreign policy is often restricted to a binary question on whether they work or not. There is ample support in the literature studying sanctions to say that this question is too simplistic. Even when there is no immediate success in reaching the main aim of the sanction policy, they do cause damage, in many dimensions and such damage is non-negligible.

Madanizadeh *et al.* (2019), using Business Cycle Accounting methods and introducing five different wedges of efficiency, labour, investment, government, and trade, in a small open economy, try to explain the severe economic recession in Iran after the sanctions imposed in 2012. They find that a big part of the deviation of the Iranian economy can be explained by the efficiency and the investment wedges, while trade barriers had a relatively smaller explanatory power. Gharehgozli (2017), applying synthetic control method, on the effect of the sanctions on Iran's economy

after 2012 found that sanctions resulted in around 17% decrease in GDP during the first 3 years with the highest negative effect of 12% drop happening in the first year. Traditionally, sanctions were used as a political tool to weaken the government of a specific country in times of conflict to induce a change in the policies of the targeted government (Klaus *et al.*, 2023). Sanctions are a common instrument of government policy and yet in recent years, the scale, scope, and frequency with which sanctions are imposed have increased, and this trend is predicted to continue (Economist, 2021; van Bergeijk, 2021a). Rising geopolitical tensions suggest a possible further increase in government interventions that constrain international trade (Meyer & Li, 2022; Witt *et al.*, 2023). Sanctions are used by a sanctioning government (the sender) to induce, persuade, intimidate, or force a sanctioned government (the target) to stop activities opposed by the sender (Felbermayr *et al.*, 2021). International sanctions often result in reversals in the development of market-supporting institutions and create barriers for cross-border economic activities such as international trade and inflows of FDI. Sanctions have economic consequences that are very broad, hard to predict, and often include many unintended side effects (Klaus *et al.*, 2023). Literature on sanctions provides some indications of the magnitude and contingencies of such effects whose direct effects usually pertain to international trade in goods and services which resultantly decline (Demena, *et al.*, 2021).

Since the end of World War II, Aidt *et al.* (2020) count more than 1,400 incidences of states being threatened with or targeted by sanctions. Sanctions inflict economic harm to force the target country to change its policies or to comply with the sender state's interests. Detailed knowledge of the economic effects of sanctions is essential to understanding if and how sanctions can achieve their goals. However, research on the economic effects of international sanctions is far scarcer than research on their political and humanitarian consequences. The limited empirical evidence suggests that sanctions trigger financial crises (Hatipoglu & Peksen 2018). Reductions in trade (Afesorgbor 2019; Crozet & Hinz 2020; Felbermayr *et al.*, 2020b) and foreign direct investment (Mirкина 2018) are likely transmission channels, but both can be undermined by sanctions busters. Since the Islamic revolution of 1979, Iran has been the target of countless sanctions aimed both at the oil industry and its financial infrastructure due to the nation's military and political orientations (Nakhali *et al.*,

2021). The authors further assert that in general there are two types of primary sanctions:-

- a) Trade Sanctions that are applied with the purpose of limiting or prohibiting import of necessary goods or export of produced goods; and
- b) Financial Sanctions that are applied with the purpose of restricting international financial transactions and thus excluding the country from financial markets, such as being excluded by swift. However, imposition of financial sanctions in general achieves a more widespread and costly effect on the target country than trade transactions. Financial sanctions cause trade transaction costs to increase, whilst simultaneously increasing the exchange rate.

Gustafsson and Magnebrink (2022) contend that on the effects of sanctions on Iran, exports excluding oil initially decreased about 79% in the case of hard sanctions. On the import side based on 2011-2013, exclusion from SWIFT increased transaction costs and raised exchange rates that resulted in inflation in consumer imported goods prices of 33%, investment imported goods 43%, intermediate input imported goods 17% respectively all in the case of hard sanctions (Gustafsson & Magnebrink, 2022). Furthermore, Nakhali *et al.* (2021) finds a linear relationship between the severity of sanctions imposed and decline in export, technology, and foreign investment in the oil industry. The authors assert that the import transaction costs, and imported goods inflation increased causing a decrease in consumption of imported goods. The decline in domestic production of both oil and non-oil caused the GDP and GDP growth to decrease. For example, in Iran, GDP decreased by USD75.5 billion during the first year of the sanctions, while the export of goods fell by USD21.5 billion (Felbermayr, *et al.*, 2020).

Gutmann, *et al.* (2021) documents a significant negative effect of international sanctions on GDP growth as well as on trade and foreign direct investment. The findings have a causal interpretation, as they do not find a significant deterioration of the state of the economy in the years before the imposition of sanctions. International sanctions have been shown to worsen the target government's respect for human rights (Adam & Tsarsitalidou 2019). Sanctions can also be costly to the sender

country, as illustrated by the sanctions against Russia after its illegal annexation of Crimea in 2014 (Belín & Hanousek 2021; Crozet & Hinz 2020; Gullstrand 2020) or against China after the Tiananmen Square Incident in 1989 (Webb 2020). And even the conformity of international sanctions with the standards prescribed by international law has become contested (Early & Schulzke, 2019). The humanitarian consequences of international sanctions have side effects of a blunt policy instrument that damage the target country's economy (Webb, 2020). Furthermore, Madani (2021) contends that there is a significant negative effect of international sanctions on GDP growth as well as on trade and foreign direct investment. The effects of sanctions are of economic relevance, such as a drop of 4 percent in the target country's GDP per capita during the first two years of a sanction episode. Aluoch (2015) on economic sanctions on Sudan states that it contracted the economy of Sudan at a rate of -11.2% per annum.

The measures range from comprehensive economic and trade sanctions to more targeted measures such as arms embargoes, travel bans and financial or commodity restrictions. Zimbabwe embarked on a land reform program that saw land transfer from White minority farmers to the Black majority. Subsequently, Zimbabwe was placed under sanctions by several countries which include Australia, Canada, Britain, USA, and the European Union among others. These sanctions ranged from embargoes on the defence industry, which meant Zimbabwe was completely barred from importing military equipment from the imposing country, targeted travel bans and freezing of assets. USA sanctions particularly outlined in the Zimbabwe Democracy and Economic Recovery Act (ZIDERA) limit Zimbabwe from accessing external lines of credit from key global financial institutions without its approval. A question then arises on whether these sanctions are hurting the Zimbabwean economy. Understanding their effects requires separation of transitory effects from long term effects.

In the case of US sanctions, these companies were essentially banned from trading with American companies. Their closure owing to a drop in financial viability meant a loss of jobs for thousands of Zimbabweans. When people lose jobs, demand drops due to the loss of incomes, which consequently causes a negative effect on economic performance. In addition, the closure of companies linked to politicians on the

sanctions list meant a drop in tax revenue base which, as a result, squeezed the country's fiscal space and limited the country's treasury from financing the much-needed infrastructural projects. Given the increased interdependence and the close network of economic, trade and investment relations among Western countries, economic sanctions are increasingly less likely to work (Smeets, 2018). However, Nyoni (2019) contends that economic sanctions on Zimbabwe's infrastructure, especially roads, hospitals and sanitation systems are being neglected and thus fall into disrepair due to economic sanctions. The author further argues that in Zimbabwe, economic sanctions have significantly reduced the quality and quantity of clean water and that Zimbabwe's health sector is genocidal due to economic sanctions which have reduced the capacity of the public health system.

Furthermore, Mazorodze, (2021) argues that another transitory effect of sanctions that hurt Zimbabwe was the capital flight that naturally comes with negative news and the imposition of sanctions was a negative development which attracted global attention. Nyoni (2019) study on Zimbabwe's economic avers that if nothing is done now, Zimbabwe will continue to sink deep down into the sanctions-induced economic doldrums. Empirical evidence indicates that economic sanctions are not only predatory but also cancerous for any economy as the study shows that economic sanctions imposed on Zimbabwe are detrimental to the economy. This is buttressed by Mazorodze (2021) who asserts that the long-term effects of sanctions include but are not limited to the brain drain which compromised Zimbabwe's human capital base the isolation and marginalization of Zimbabwe from the global financial hub which hurts investment.

Mutanda (2023) contends that a corpus of literature has emerged on how economic sanctions have harmed the economy because when the interests of the centre are threatened, the backlash is severe as was the case with Zimbabwe. But critics say the government is using the sanctions as a scapegoat for an economic collapse caused by its own mismanagement and corruption (Magaisa, 2019; Mutongwizo, 2019; ZimEye, 2021). Prominent voices pointing beyond sanctions to the "real causes" of Zimbabwe's economic troubles have included journalist Nqaba Matshazi (2019) Hopewell Chin'ono, and then United States of America Ambassador to Zimbabwe Brian Andrew Nichols.

It is true that, apart from embargoes on the defence industry, the existing sanctions do not limit Zimbabwe's access to global markets for its exports of goods, but they significantly affect the volumes of Zimbabwe's exports in so far as they undermine the country's productive capacity (Mazorodze, 2021). There is a direct positive relationship between a country's productive capacity and the volume of its exports with the resultant effects on GDP.

There might be a genuine concern that sanctions coincided with the land reform program in Zimbabwe and therefore the simulations could simply be confusing or picking the effect of the land reform program. These countries include China, the Democratic Republic of Congo (DRC) and Iran whose volume of exports could have been higher without sanctions even in these countries where the imposition of sanctions did not coincide with a land reform exercise.

Mararike (2019) contends that sanctions negatively affect the economy of Zimbabwe. He goes on to state that the cost of economic sanctions imposed against Zimbabwe destroy the infrastructure especially roads, hospitals and sanitation systems which are being neglected as they fall into disrepair due to economic sanctions (Mararike 2019). According to an article by the Ministry of Foreign Affairs and International Trade (2019), published in *The Herald* it states that sanctions led to the drying up of traditional sources of external finance from the International Financial Institutions (IFIs), with the country receiving no support from the African Development Bank since 1998, the International Monetary Fund (IMF) since 1999 and the World Bank since 2001. The IFIs stopped their support to Zimbabwe by instituting several suspensions on Balance of Payment support, technical assistance, voting and related rights by the IMF and declaration of illegibility to access fund resources. The article goes on to aver that due to Zimbabwe's failure to honour its financial obligations to the IMF and World Bank since 1999, the Bretton Woods Institutions suspended Balance of Payment support and technical assistance. Consequently, the country's external payment arrears continually increased from US\$109 million in 1999 to US\$5.4 billion in 2017. The arrears have been rising, at more than 70 percent of total public and publicly guaranteed external debt. Regrettably, the lending program from the World Bank is inactive due to accumulated arrears and sanctions. With effect from October 2000, the World Bank placed all its International Bank of Reconstruction and

Development loans and International Development Association credits to, or guaranteed by, Zimbabwe in non-accrual status, resulting in the country being unable to access any loan. The combined effect of the arrears situation and sanctions has resulted in Zimbabwean companies finding it extremely difficult to access offshore lending, thus, crippling their operations (Foreign Affairs and International Trade, 2019).

Due to the absence of Balance of Payment support, Zimbabwe's Balance of Payment position has been deteriorating significantly since the imposition of sanctions. The sanctions have branded Zimbabwe and its entire financial linkages with the rest of the world as substantial risk, thereby making the country a compelling target for de-risking interventions by lending correspondent banks in the USA and Europe (Foreign Affairs and International Trade, 2019).

Sanctions can result in multiple consequences with varying intensities depending on factors such as who has imposed them and the targeted areas. Targeted economies may face consequences ranging from economic downfall, while some sanctions may strengthen targeted economies as averred by Park (2014): 202–3). Evaluations of the overall economic effects of sanctions on targeted economies focus on detecting changes, after sanction imposition, in the GDP or GDP growth rates as contended by Neuenkirch and Nuemeier (2015). Sanction-related country risks and targeted restrictions could lead to higher volatility in stock indices as in Russia as asserted by Ankudinov, Ibragimov, and Lebedev (2017), while unanticipated sanctions contributed to higher currency volatility as asserted by Dreger *et al.* (2016). Economies targeted on sanctions may experience multiple political consequences, such as weakening some regimes. Some economic sanctions are explicitly aimed to inflict political costs on targeted regimes. Sanctions are important for the domestic politics of targeted economies and threats especially of multilateral sanctions increase political activity in targeted states due to their signalling effect of outside support to opposition as contended by Grauvogel, *et al.* (2017). How targeted regimes respond to sanctions regimes targeted by sanctions rarely try to counteract the impact of sanctions but pursue policies and strategies that magnify the sanctions' negative effect on the economy. The targeted regime looks for ways out of the sanctions, to continue with its strategy until the sanctions end (Oechslin, 2014).

2.11 Country-Specific Studies

Some empirical literature was undertaken by Adu and Ackah (2015) who investigated government expenditure in Ghana. The study investigated the relationship between economic growth and government spending at the disaggregated level with an Autoregressive Distributed Lag (ARDL) model with annual data spanning from 1970 to 2010 to advice policy makers on the dynamics of growth. The study concluded that in both the long-run and short-run, government capital expenditure has a significant negative impact on economic growth. It further suggested for a fiscal discipline and efficiency in disbursement of capital expenditure to trigger positive benefits in the future. In the light of that, this study delves deeper into capital expenditure by taking into consideration total capital budgetary expenditure and its relationship with economic growth.

Infrastructure plays a vital role in global economic progress and its improvement is a key ingredient of economic growth, in general, and for Africa, in particular (Calderón *et al.*, 2018). Infrastructure development impacts economic growth in different ways, such as decreasing transaction costs and raising production in the economy as averred by AfDB (2018a) who identify infrastructure development in Africa as vital for fostering economic growth. Owusu *et al.* (2019) studied the impact of infrastructure development on economic growth in sub-Saharan Africa with special focus on Ghana using autoregressive distribution lag for the period 1980 to 2016. The ARDL was used to determine the long run and short run impact of infrastructure on Ghana's economic growth using data obtained from the World Bank's World Development. Their findings indicated a significant relationship between infrastructure development and economic growth. This finding was buttressed by Etensa *et al.*, (2023) on their study on infrastructure development and economic growth in East Africa using panel ARDL Approach. The result shows that the relationship between infrastructure development and economic growth depends on the level of capital formation in East African countries (AfDB, 2018a). Furthermore, infrastructure development quantity has a positive and significant effect on economic growth and recommends that East African countries should adopt strategies and policies that will increase the quantity and quality of infrastructure development, as well as a capital formation strategy accompanied by human capital development and high institutional quality (Ghouse

et al., 2018). The descriptive analysis shows that there is a deficiency in infrastructure quantity and quality development in East Africa, in general, and in the selected countries, in particular, even if some countries like Kenya and Zimbabwe show better infrastructure development in all sectors. The co-integration test implied a long-run relationship between infrastructure development and economic growth in Eastern Africa. The findings of this study reveal that there is a positive long-run relationship between infrastructure development quantity and economic growth (Kripfganz, 2019). Mudassar and Rehman (2019) contend that the negative relationship between economic growth and human capital is heightened when corruption diverts human talents to rent seekers and increases transaction costs. This result strongly agreed with the results of Olatunji and Charles (2017) for Nigeria, who found the same results for South Africa. The study by Mbulawa, (2021) aimed to empirically examine the impact of trade and investment on growth within the Southern African Development Community (SADC) using annual data for the period from 1994 to 2019. The study used Autoregressive Distributed Lag (ARDL) which explains relationships in both the short and long run (Goh *et al.*, 2017; Kalai & Zghidi, 2019). The analysis was on the interplay among variables in both the short and long run based on past studies that suggests that trade and investment explain growth in developing nations (Zahonogo, 2016; Rodrik, 2018). However, other studies suggest negative growth (Melitz & Trefler, 2012, Dix-Carneiro & Kovak, 2017) as confirmed in studies by Muhammad *et al.* (2020). The findings of the study on SADC confirmed the existence of growth led by trade and investment and that there is cointegration between economic growth, trade, and investment.

It is evident from the literature reviewed that there is consensus on the relationship between government capital expenditure and economic growth. In some cases, the findings were a positive relationship and in some a negative relationship. On corruption it results in increased cost of infrastructure. On sanctions it results in restrictions on and scares investors.

More discussion should have been centred on the relationship between intervening variables and capital expenditure as well as capital expenditure and economic growth. This is the main trust of the study.

2.12 Research Gaps

The government is responsible for driving the economic agenda of a country through creation of business-friendly environment. Government also stimulates economic development through deployment of financial capital expenditure with downstream development. The Zimbabwe economy has of late not been growing significantly as per the African Development Bank, the World Bank and IMF published statistics. However, huge financial capital expenditure has been deployed with no noticeable economic growth. It is important to research whether the financial capital expenditures had any effect on GDP. Studies have examined the relationship between total government expenditure and economic growth and their findings were that it has negative effect on economic growth (Shkodra *et al.*, 2022 and Kirikkaleli & Ozbeser 2022). Other studies found that total government expenditure has negative effects on economic growth (Phiri 2019, Onifade *et al.*, 2020).

However, there has been no exhaustive research to establish the effect of capital expenditure on economic growth amid corruption and sanctions in Zimbabwe. This study empirically examines this relationship. This study, therefore, tests the dual moderating effects of corruption and sanctions in the relationship between government financial capital expenditure and economic growth. The Independent Variables are Capital Expenditure and the Dependent Variable is Economic Growth. Moderating variables are Corruption and Sanctions. The study tested the effect of government financial capital expenditure on the dependent variable that is, the GDP growth. The study also tested the effects of corruption and economic sanctions as moderating variables on capital expenditure impacts on economic growth.

2.12.1 Research study objectives findings knowledge gaps and how the current study filled them.

2.12.1.1 Capital Expenditure and Economic Growth

The recent studies by Karnane and Quinn (2019), Murad and Alshyab (2019) Pushak (2017), and Acemoglu *et al.* (2019) have investigated the effects of democratisation and corruption on the country economy. The study of Karnane and Quinn (2019) utilized a panel data set of 157 countries covering 1996 to 2014 to investigate the

influence of ethnic fractionalization and corruption on economic growth. The evidence shows that ethnic fractionalisation and corruption inversely influence economic growth. This finding by Murad and Alshyab (2019) reported that political risk always slows down economic growth in many countries. However, the recent study of Asteriou and Spanos (2019) offers a different perspective, such as the relationship between financial development and economic growth may change over time, especially at the pre and during the global crisis period. As is evident from the literature, there is no consensus about the possible causal relationship between economic growth and financial development; therefore, this study tests corruption and economic sanctions in Zimbabwe as moderating variables and used aggregate GDP as opposed to sectoral GDP.

2.12.2 How the current study filled the gaps

2.12.2.1 The GDP Growth Rate

There is a short term and long run significant effect on GDP growth on the moderating effects of corruption and economic sanctions impacts on capital expenditure on economic growth. The study investigated the moderating effects of each variable corruption and economic sanctions on government capital expenditure. There are however other factors of economic growth, such as high inflation and political risk on the country which have not been captured as part of the moderating variables. The study used aggregate GDP as opposed to sectoral GDP as contended by Abdinasir (2013) to understand the nature of the association between economic growth and total financial capital expenditure in Zimbabwe.

2.12.3 Study objectives findings knowledge gaps how the current study filled them.

2.12.3.1 Corruption

Research in eight European Union countries by Dudzevičiūtė, *et al.* (2017) indicated that eight European Union countries have significant relationship between government spending and economic growth, other sectors were excluded – this was conducted over a decade ago. Dreher and Herzfeld (2005) reviewed the empirical literature on the economic costs of corruption. Corruption increases infrastructure

capital expenditures with some effects on GDP growth in a country. Investigated the impact of corruption on capital expenditure in Zimbabwe and identified corruption as a direct moderating variable. The study focused on effect of corruption on government capital expenditure which is seen as an enabler for economic growth. The level of economic growth is a function of the level of corruption impact. Corruption is regarded as cancerous in Sub-Saharan Africa.

2.12.4 Study context objectives findings knowledge gaps and how the current study filled them

2.12.4.1 Economic Sanctions

Sanctions were identified as a direct variable with a moderating effect of capital expenditure impacts on economic growth. O'Driscoll, (2017) asserts that it has negative impact on economic growth. This was tested in the Zimbabwe context. Ozdamar *et al.* (2021) state that sanctions imposed by international actors restrict economic activity. This was tested to validate whether this is the case in Zimbabwe. Park (2014): 202–3) averred evaluations of the overall economic effects of sanctions on targeted economies focus on detecting changes, after sanction imposition, in the GDP or GDP growth rates Neuenkirch and Neumeier (2015). They were tested on their effects on GDP or GDP growth rates.

Sanctions decrease financial flows between countries imposing them and the targeted country as contended by Besedes, *et al.* (2017). Economic sanctions affect the economy through failure to attract quality investment and technology due to high-country risk and blacklisting by the imposing countries. This was not tested as it is not a direct variable on capital expenditure impacts on economic growth.

2.13 Conceptual Framework

A conceptual framework brings together the relationship between capital expenditure and economic growth. It shows how the intervening variables of concern relate to the study. It is as an invaluable organising tool, focal point, mental map, and blueprint for the entire study as contended by Van der Waladt, Gerrit (2020). The authors further assert that it explains the path of a research and grounds it firmly in constructs. Adom, *et al.* (2018) contend that the conceptual framework gives life to research.

Research without the conceptual framework is difficult in ascertaining the academic position and the underlying factors on the hypotheses. It is based on existing theories in the literature which has been tested and validated by other scholars. The conceptual framework was the model that grounded the study, clearly showing the hypothesis. Ravitch and Carl (2016) aver that a conceptual framework reflects the thinking of the entire research process. Latham (2017) further argues that the entire methodology must agree with the variables, as well as their relationships and context.

The overall aim of the framework was to make research findings more meaningful and acceptable to the constructs in this research and ensured generalizability. It assisted in stimulating the research while ensuring the extension of knowledge by providing both direction and impetus to the research inquiry. Ravitch and Riggan (2017) view a conceptual framework as a visual representation of a study's main concepts depicting the key concepts and their relationships. Gerrit (2020) contends that conceptual framework shows the key variables to be studied and the presumed relationships between them. It guided the research does not deviate from the confines of the accepted theories making academical final contributions. It provided the structure which showed how to define the study philosophy, epistemology, and methodology (Ravitch & Carl, 2017). These authors concur that conceptual framework situates and contextualise formal theories as a guide.

The researcher designed the Conceptual Framework. The study used it to explain the relationship that existed between the variables of concern, the depended and independent variables. It logically showed how the research inquiry was undertaken. The framework consisted of concepts that were interconnected to explain the relationships between them. It was used to answer the research problem, test theories and control the context of a research inquiry. The conceptual framework is as shown below.

CONCEPTUAL FRAMEWORK

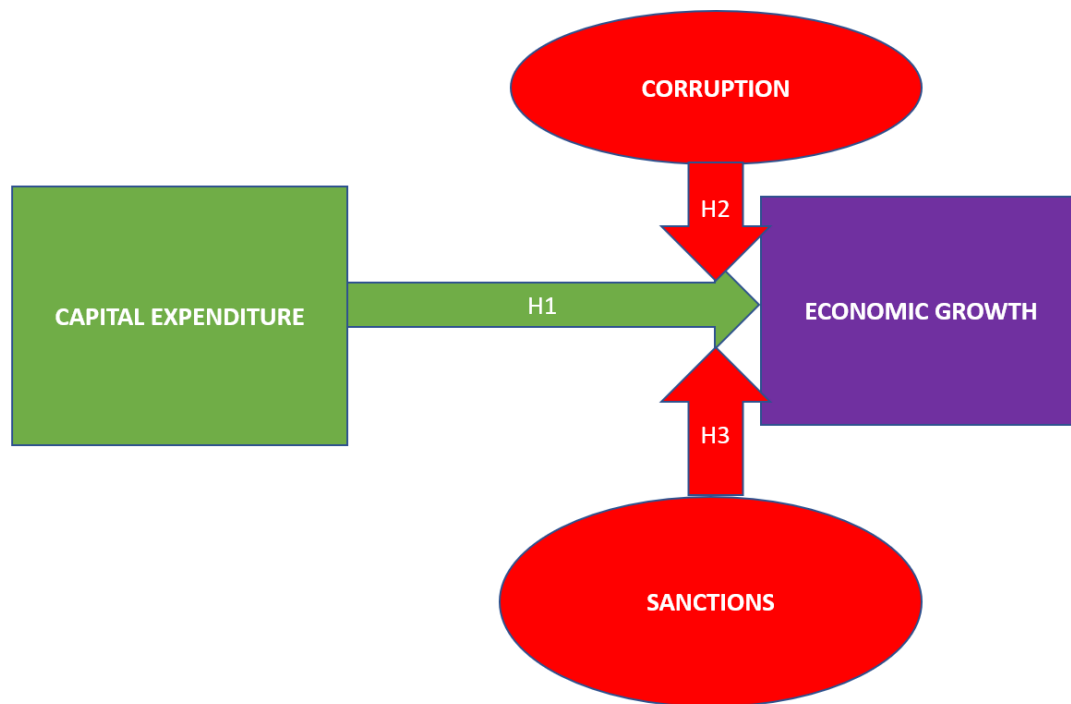


Figure 2.1: Conceptual Framework

Source: Author's design (2023)

The Conceptual Framework postulated that financial leakages H1 and economic sanctions H2 are exogenous factors with moderating effects on capital expenditure and ultimately on economic growth. It showed how they moderated on the relationships between capital expenditure and economic growth through H1 and H2. The conceptual framework posited that government capital expenditure has positive effects on economic growth H3.

The deployment of the capital expenditure was targeted to become the engine for economic growth. However, the economic growth rates were declining. In 2010, the growth rate was 19.67%. In 2013 it declined to 2.0%. In 2016 it had declined further to 0.7%. In 2019 and 2020 it was negative (-7.4%) and -7.8% respectively. During the period 2009 to 2019 the country was using a stable currency the United States Dollars as the currency of trade due to dollarisation. The period 2020 to 2022 the country was using multi-currency inclusive of the local currency and United States

Dollar. The economic growth rates figures were from The World Bank as per their 2022 report. It was assumed that The World Bank figures are credible.

The Financial Leakages moderate the efficacy on capital expenditure in line with hypothesis H₂ which states that public sector capital expenditure financial leakages have negative effect on economic growth. They result in financial haemorrhage making resources allotted for capital expenditure not fully utilised for the intended purposes. Corruption undermines the full impact of allocated public resources. The following four pathways of financial leakages have negative effects on economic growth:

1. higher public investments
2. lower government revenues
3. lower expenditures on other categories of public spending, such as health and education
4. lower quality of public infrastructure.

The cost on infrastructure therefore balloons while the achievement of the infrastructure remains constant if not ineffective.

The conceptual framework shows economic sanctions as a significant moderating variable on economic growth. They are restrictions over economic activity imposed by international actors. Splinter and Klomp (2021) have found weak but significant, positive effect of economic sanctions on the likelihood of a growth deceleration. In Sub-Saharan Africa trade sanctions, multilateral sanctions and sanctions aiming at the business sector which cause sudden negative growth accelerations is common. The infraction shown in the framework relates to economic sanctions by USA through the Zimbabwe Democracy and Economic Recovery Act of 2001 and European Union Common Position 2002/145/CFSP. The sanctions increase the cost of doing business for both local and foreign investors by raising the country risk factor high. The country becomes an unattractive investment destination. This is need to fully expand the framework in line with literature as this is the major contribution of the study.

2.14 Chapter summary

This Chapter looked at the relevant theoretical and empirical studies on the moderating effects of corruption and economic sanctions on capital expenditure

impacts on economic growth. The theoretical literature review helped in the identification of gaps in the explanation of new and emerging research gaps. It concluded by identifying the gaps to be filled by this study. Empirical research on the economic impact of capital expenditure on economic growth has been carried out extensively in developed and developing countries both in the past and in recent years. However, circumstances differ from country to country due to peculiar inhibitory factors which affect them differently. The link between public capital expenditure and economic growth has continued to generate a series of debates with some scholars concluding that the effect of capital expenditure on economic growth is positive through an increase in productivity. The increase in government expenditure could be because of the desire to grow the economy through fiscal policy intervention. However, this also led to a policy dilemma of whether more public budgetary central government capital expenditure always resulted in economic growth. Corruption is diversion of funds from iterative process. It is prevalent in both developed and emerging countries and has increased with financial globalisation. Furthermore, internationally, corruption has been found to have a range of adverse effects on the economy and has in Africa reached cancerous proportions. Economic sanctions are restrictions over economic activity imposed by one international actor on another with a specific purpose. The intensity and probability of facing the economic impacts of sanctions vary across different actors. Targets may face consequences ranging from economic downfall to limited or no costs. Evaluations of the overall economic effects of sanctions on targets focus on detecting changes, after sanction imposition, in the gross domestic product (GDP) or GDP growth rates.

A conceptual framework was used to explain the path of the research and to ground it firmly in constructs. The framework made the research findings more meaningful and acceptable to the constructs in the research and ensured generalizability. It assisted in stimulating the research while ensuring the extension of knowledge by providing both direction and impetus to the research inquiry. It also enhanced the empiricism of the research. The framework consisted of concepts that were interconnected to explain the relationships between them and how to answer the research problem. On research gaps the government is responsible for driving the economic agenda of a country through creation of a development friendly environment. Government also stimulates economic development through deployment of financial capital

expenditure with downstream development. It is important to research whether the financial capital expenditures had any effect on GDP. There has been no exhaustive research study to establish the effect of capital expenditure on economic growth in Zimbabwe. The research thesis focused on moderating effects of corruption and sanctions on capital expenditure impacts on economic growth. There are no previous studies done on this relationship between capital expenditure and economic growth in the midst of corruption and sanctions.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

Research is a well-structured inquiry about phenomenon for purpose of ascertaining knowledge of logical conclusions. Social science research is dependent on organised procedure to ascertain facts and known as research methods (Blckstone, 2018). Quantitative research explains phenomena according to numerical data which are analysed by means of mathematically based methods, especially statistics (Adedoyin, 2020). The quantitative research methodology is the collection of methods and rules applied to the research as well as the principles, theories and values that support the research approach (Somekh & Lewin, 2005) as cited by SHU Library (2020). Quantitative research using secondary data was analysed to resolve the research problem as contended by Sileyew (2020). The sources of the secondary data were outlined to ensure relevant secondary data was used for analysis. The philosophy of this quantitative research is positivism. It enables use and analysis of strategies such as inferential statistics (Adedoyin, 2020).

Pandey *et al.*, (2023) contends that quantitative research involves a systematic investigation of a phenomenon. The authors aver that quantitative research measures various characteristics and applies to phenomena that can be described using quantitative values. Quantitative methods mainly identify patterns and averages, predict outcomes, test causal relationships, and generalise results. A quantitative research study meticulously records and verifies information which is almost always in numerical form Neuman (2006) as cited by Pandey *et al.*, (2023).

3.2 Research Philosophy

The philosophy of this research study is positivism. Positivism is an approach that views the world as ‘out there’ waiting be observed and analysed by the researcher (Žukauskas, *et al.*, 2018). Theories that are built on positivism see the world ‘as it is’ and base their assumptions upon analysing physical elements such as states and international organisations, which they can account for and ascribe values to (Maretha, 2023). Positivism is therefore based on the study of facts and the gathering of physical evidence (Ryan, 2018). It is related to the scientific view of the natural

world as being one that operates via laws (such as gravity) that can be revealed by careful study and observation (Ryan, 2018). Positivists assert that equivalent laws can be revealed about the social world. Žukauskas, *et al.* (2018) contends that scientific research philosophy is a system of the researcher's thought, following which new, reliable knowledge about the research object is obtained (Ryan, 2018). It is the basis of the research, which involves the choice of research strategy, formulation of the problem, data collection and processing or analysis of the data (Maretha, 2023). Methodological choice, according to Holden and Lynch (2004) as cited by Žukauskas, *et al.* (2018) should be related to the philosophical position of the researcher and the analysed social science phenomenon. Only intermediary philosophical approach allows the researcher to reconcile philosophy, methodology and the problem of the research.

As a philosophy, positivism adheres to the view that only “factual” knowledge gained through observation, including measurement, is trustworthy (Ryan, 2018). Furthermore, the author contends that in positivism studies, the role of the researcher is limited to data collection and interpretation in an objective way. In other words, the researcher is an objective analyst and distances oneself from personal values in conducting the study (Ryan, 2018). In these types of studies research findings are usually observable and quantifiable. Positivism depends on quantifiable observations that lead to statistical analyses. It has been a dominant form of research for decades. It has been noted that as a philosophy, positivism is in accordance with the empiricist view that knowledge stems from human experience (Collins, 2010).

Positivism philosophy involves the use of existing theory to develop hypotheses to be tested during the research process (Park, *et al.*, 2020). Positivist researchers tend to use highly structured research methodology to allow the replication of the same study in the future (Park, *et al.*, 2020). Science can be specified as a cornerstone in positivism research philosophy. Specifically, positivism relies on scientific approach which assumes that X causes Y under certain circumstances (Park, *et al.*, 2020). The role of researcher when following the scientific approach is to discover specific nature of cause-and-effect relationships. It is mechanical, in nature of scientific approach that can be explained in a way that researchers develop hypotheses to be proved or disproved via application of specific research methods (Park, *et al.*, 2020). This leads

to the fact that science uses methods that are applied mechanically to operationalize theory or hypothesis. Application of methodology involves selection of measurements, analysis and reaching conclusions about hypotheses (Park, *et al.*, 2020).

The term positivism is derived from philosophy that appears in the works of Francis Bacon in the 16th century (Maksimovic & Evtimov, 2023). Positivism is based on a rationalist, empiricist philosophy that originated with Aristotle, Francis Bacon, John Locke, Auguste Comte, and Immanuel Kant (Maksimovic, & Evtimov, 2023). Positivism is a scientific paradigm rooted in empirical philosophy with very broad influence in various fields of science (Maretha, 2023). August Comte was an 18th century French philosopher known as the founder of positivism. In positivism, everything or phenomenon must be able to be measurable (Maretha, 2023). The role of positivist philosophy in the aspect of learning methods can be seen from two things, namely positivist philosophy plays a role in developing learning methods and positivist philosophical thinking plays a role as a learning method (Maretha, 2023). It is based on universal laws and emphasises the existence of a common reality. One of the basic assumptions of positivism is the unity of science. There is no difference between natural and social sciences as both are governed by laws and the essence of every science is their discovery. Positivism follows Hume's radical conception that knowledge does not exist outside of what can be observed (Loughlin, 2012). From the empirical standpoint, quantitative research aims to test theory. This can be achieved by questioning previous research and established theories, then postulating a hypothesis and collecting and analysing data to see if the findings confirm or disprove those theories (Maksimović & Osmanović, 2020).

The positivism philosophy is the framework that guides how research is conducted based on ideas about reality and the nature of knowledge as averred by Collis and Hussey (2014). In positivism, reality is independent, and the researcher can observe reality objectively. Positivism philosophy is an objective approach since it requires the researcher to be free from bias and be an objective analyst.

3.2.1 Ontological Aspect

The ontology of this study is that there is only one truth as contented by Slevitch, (2011). The ontology of this research made meaning of the numerical data used in the analysis. This ontology contributed to the development of the research question, its significance and the approach to data analysis (Moroi, 2021). Understanding the philosophical basis of science is critical in ensuring that research outcomes are appropriately and meaningfully interpreted (Moon, *et al* 2019). With an increase in interdisciplinary research, an examination of the points of difference and intersection between the philosophical approaches can generate critical reflection and debate about what can be known, what can be learnt and how this knowledge can affect the conduct of science and the consequent decisions and actions as asserted by Moon and Blackman (2014). The quantitative research design, as averred by Nitish *et al.*, (2023) was chosen for the following strengths, ontology, epistemology, and philosophical perspectives.

Moon and Blackman, (2014) as cited by Moon, *et al.* (2019) aver that ontology is the study of what exists in the world about which knowledge can be acquired. It helps researchers recognise how certain they can be about the nature and existence of objects they are researching. It is on how researchers deal with different and conflicting ideas of reality. Realist ontology relates to the existence of one single reality which can be studied, understood, and experienced as a truth. Meanwhile, relativist ontology is based on the philosophy that reality is constructed within the human mind, such that no one true reality exists. Instead, reality is relative, according to how individuals experience it at any given time and place.

3.2.2 Epistemological Aspect

Epistemology is the philosophical study of the nature, origin, and limits of human knowledge. The term is derived from the Greek *epistēmē* (“knowledge”) and *logos* (“reason”), and accordingly the field is sometimes referred to as the theory of knowledge (Martinich & Stroll, 2023). Epistemology has a long history within Western philosophy, beginning with the ancient Greeks and continuing to the present. Along with metaphysics, logic, and ethics, it is one of the four main branches of

philosophy and nearly every great philosopher has contributed to it (Martinich & Stroll, 2023).

Epistemology is concerned with all aspects of the validity, scope, and methods of acquiring knowledge, such as what constitutes a knowledge claim and how can knowledge be acquired or produced. The extent of its transferability should be assessable. Epistemology is important because it influences how researchers frame their research in their attempts to discover knowledge Moon and Blackman, (2014) as cited by (Moon, *et al.*, 2019). By looking at the relationship between a subject and an object we can explore the idea of epistemology and how it influences research design. Objectivist epistemology assumes that reality exists outside or independently, of the individual mind. Objectivist research is useful in providing reliability, consistency of results obtained and external validity being the applicability of the results to other contexts (Moon, *et al.*, 2019).

3.2.3 Philosophical Perspectives

Philosophical perspectives are the starting point from which assumptions about the research are based (Creswell & Poth, 2018). They influence how the study is conducted, the researcher's role and the type of knowledge that is produced. Each perspective will also have a particular set of criteria to be used in evaluating a piece of research. According to Creswell and Poth (2018: p128), “whether we are aware of it or not, we always bring certain beliefs and philosophical assumptions to our research”. They influence how a researcher seeks information to answer the questions and serve as basis of evaluation of a study. Creswell and Poth (2018) assertion underscore the importance of becoming aware of these assumptions as they shape the direction of research. Researchers formulate research questions, plan how the issue can be investigated, design research, and identify data collection and analysis methods. Understanding philosophy is important because social science research can only be meaningfully interpreted when there is clarity about the decisions that were taken that affect the research outcomes (Creswell & Poth, 2018). Philosophy provides the general principles of theoretical thinking, a method of cognition, perspective, and self-awareness, all of which are used to obtain knowledge of reality and to design, conduct, analyse and interpret research and its outcomes (Creswell & Poth, 2018).

Moon and Blackman (2014) as cited by Moon, *et al.* (2019) contend that stemming from ontology, what exists for people to know about and epistemology, how knowledge is created and what is possible to know are philosophical perspectives, a system of generalised views of the world, which form beliefs that guide action. Philosophical perspectives are important because, when made explicit, they reveal the assumptions that researchers are making about their research, leading to choices that are applied to the purpose, design, methodology and methods of the research, as well as to data analysis and interpretation (Moon, *et al.*, 2019). Basically, the mere choice of what to study in the sciences imposes values on one's subject.

3.3 Quantitative Research

The aim of this study is to explicate the quantitative methodology. The study established that quantitative research deals with quantifying and analysing variables in order to get results. It involves the utilisation and analysis of numerical data using specific statistical techniques to answer questions like how much, what, where, when, how many and how (Apuke, 2017). It also describes the methods of explaining an issue or phenomenon through gathering data in numerical form. The study further reveals that quantitative methods can be categorised into experimental research and causal-comparative research. In understanding the quantitative methodology, it is pertinent to give an overview of what research is all about (Apuke, 2017). Thus, this research deals with the search for knowledge. Since research deals with academic activity, it is pertinent to define it in a more technical way. Therefore, Kothari, (2004) as cited by Apuke (2017) describes research as a scientific and systematic search for pertinent information on a specific topic. Research also involves creativity that is carried in a systematic way to improve knowledge which consists of human knowledge (OECD 2002) as cited by Apuke (2017). This implies that research is utilised to investigate facts, reconfirm the results of previous experiments, provide solutions for existing or new issues, support theories, as well as propound new theories. Furthermore, research involves knowledge building, carrying out experiments to find out the cause and effect of something as well as to provide the basis for further studies.

However, replicability is another benefit derivable from the use of this research approach. Since the research approach basically relies on hypotheses testing, the

researcher need not to do intelligent guesswork, rather would follow clear guidelines and objectives (Lichtman, 2013). The research study using this type of research tool is conducted in a general or public fashion because of its clear objective and guidelines and can therefore be repeated at any other time or place and still get the same results (Shank & Brown, 2007) as cited by McCombes (2019). Noordin and Mohamad (2016) contend that quantitative research is primarily deductive process used to test pre-specified concepts, constructs, and hypotheses that make up a theory. The research is objective, uses statistical data.

3.4 Research Approach

Quantitative research objectives are measurable and cannot be separated from variables and hypothesis hence the use of deductive approach. Variables are concepts that have variations that can take numerous values while hypothesis are untested assumptions of relationship between variables.

This quantitative research used deductive logic, starting with hypotheses and then data collection which was used to determine whether empirical evidence to support that hypothesis exists. The quantitative methodology used Autoregressive Distribution Lag (ARDL) to analyse the data through exploration of numeric patterns. I gathered a range of numeric data on GDP, capital expenditure, economic growth, corruption, sanctions relationships with foreign direct investments and international trade of goods and services. The collection of the numeric data allowed statistical analyses that aggregated the data such as averages and percentages (Coghlan & Brydon-Miller, 2014). The purpose of this quantitative research is to generate knowledge and create understanding on the relationship between capital expenditure and economic growth amid corruption and sanctions as averred by Allen, (2017). This research study used quantitative data in a single research study (Saunders & Bristow, 2023). The quantitative research was used to investigate specific research questions arising from the data (Saunders & Bristow, 2023). The research approach was conducted as articulated below:-

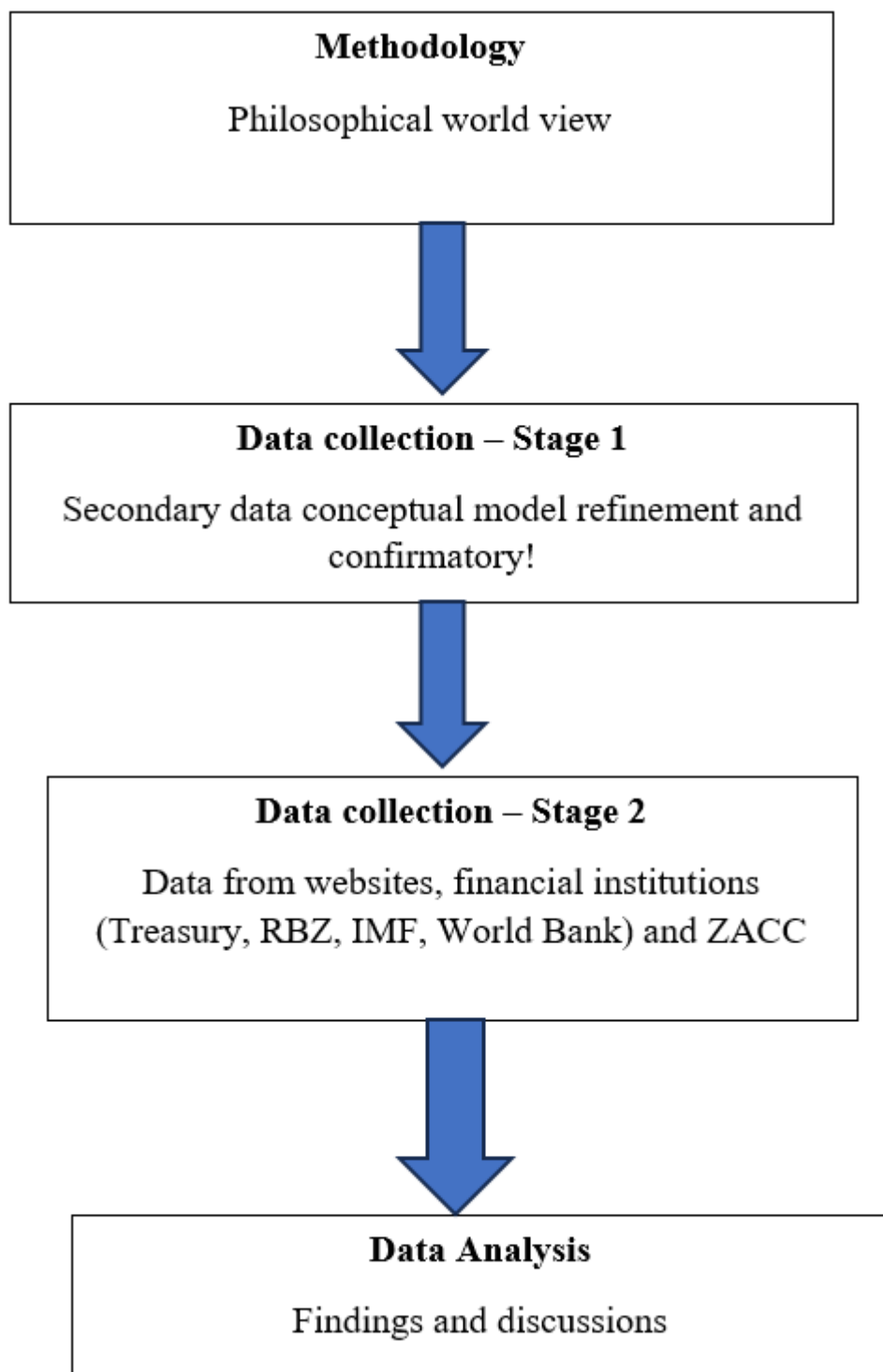


Figure 3.1. Research design outline

Source: Adapted from Zikmund *et al* (2013)

3.5 Research Design

Experimental design is the process of carrying out research in an objective and controlled manner so that precision is maximised and specific conclusions can be drawn regarding a hypothesis statement Bell (2009) as cited in Zubair (2023). It is a scientific method of conducting research in which one or more independent variables are altered and applied to one or more dependent variables in order to determine their influence on the latter (Zubair, 2023). The author further asserts that it is the design of an information gathering experiment in which a variation is present or not, and it should be executed under the researcher's complete control. Sirisilla (2023) asserts that it utilises established procedures that allowed to test the hypothesis and to systematically and scientifically study causal relationships among the variables of concern corruption and sanctions. A set of variables act as a constant, used to measure the differences of the other set (Sirisilla, 2023). This research gathered enough quantitative secondary data necessary to help make better decisions. The Experimental research was conducted as time was a vital factor in establishing a relationship between cause and effect (Cash *et al.*, 2016). The success of experimental studies hinged on confirming the change of a variable was based solely on the manipulation of the constant variable (Zubair, 2023).

It was used to investigate relationships between variables, the independent (capital expenditure) and dependent (economic growth). Furthermore, it was used to collect, analyse, interpret and report on the research data (Creswell & Clark, 2007). The design was the plan for connecting the research problem with the relevant empirical research (Grey, 2014). It was also used to interrogate the effects of the moderating factors, the corruption, and economic sanctions. The choice of experimental Research Design was to prevent control, nor making of any changes to the variables and the moderating factors. The experimental research design allows to test the ideas in a controlled environment and could after analysing the results, apply the findings to similar ideas or situations (Sirisilla, 2023).

It indicated the strength and direction of the relationship between the variables whether positive or negative. To conduct this experimental Research the

Autoregressive Distribution Lag (ARDL) model by Pesaran *et al.* (2001) which is based on Ordinary Least Square (OLS) was used. Complementary Dynamic Error Correction Model (ECM) was derived from ARDL through a Simple Linear Transformation for data analysis. It addressed both Stationary and Non-Stationary Time Series Data. The main objective of the study was to explore the relationship between capital expenditure and economic growth during corruption and sanctions. To achieve this, it drew statistical, quantitative results.

This study adopted the descriptive research design using already existing data to provide empirical answers to the research problem. Descriptive research design helped provide answers to the questions about who, what, when, where and how connected with a research problem. A descriptive research design was used to generate information on the current state of the phenomenon and to explain what exists with respect to the variables (Joy & Panda, 2020).

3.6 Model Specification

Theoretically, economic analysis suggests that there is a long run relationship between variables under consideration (Nkoro, & Uko, 2016). There are inherent dynamic features in time series in the process of analysing the time series regression models. Cointegration is being used to overcome the problem of non-stationarity and prior restrictions on the lag structure of a model (Nkoro, & Uko, 2016). Cointegration is a powerful way of detecting the presence of steady state equilibrium between variables. It has become an over-riding requirement for any economic model using non-stationary time series data (Nkoro, & Uko, 2016). Autoregressive Distributed Lag (ARDL) cointegration technique and bound test of cointegration by Pesaran and Shin (1999) and Pesaran *et al.* (2001) cointegration techniques was used in determining the long run relationship between series that are non-stationary, as well as reparametrizing them to the Error Correction Model (ECM). The reparametrized result gives the short-run dynamics and long run relationship of the underlying variables (Nkoro, & Uko, 2016). This study adopted conditions that necessitate the application of the Pesaran *et al.* (2001) Autoregressive Distributed Lag (ARDL) cointegration or bound test of cointegration technique and its interpretation. The study shows that the adoption of the ARDL cointegration technique does not require pre-tests for unit roots unlike other techniques (Nkoro, & Uko, 2016). Consequently,

ARDL cointegration technique is preferable when dealing with variables that are integrated of different order, I (0), I(1) or combination of both and robust when there is a single long run relationship between the underlying variables (Nkoro, & Uko, 2016). The long run relationship of the underlying variables is detected through the F-statistic (Wald test). In this approach, long run relationship of the series is said to be established when the F-statistic exceeds the critical value band. The major advantage of this approach lies in its identification of the cointegrating vectors where there are multiple cointegrating vectors.

3.6.1 Autoregressive Distribution Lag (ARDL)

Real-world phenomena are often characterized by complex relationships. Some observed variables might exhibit erratic behaviour in the short run but tend to comove in a stable and predictable way over longer time horizons (Kripfganz & Schneider, 2023). Attempting to empirically uncover such long-run equilibrium relationships is tantamount to separating them from the overlaid short-run dynamics (Kripfganz & Schneider, 2023). This separation allows one to find evidence for or against an equilibrium relationship, which is at the centre of the research question of this study. It also allows analysis of the short-term fluctuations around the equilibrium, which is valuable.

The data for this study were extracted from Ministry of Finance, Economic Planning, and Investment Promotion Zimbabwe for the period 2009 to 2022. The data consists of annual time series data for Zimbabwe. This study employs the Autoregressive Distributed Lag (ARDL) model and the Error Correction Model (ECM) for cointegration to investigate the long-run and short-run relationship between economic growth and capital expenditure and its determinants as contended by Rasool, *et al.* (2022). To implement the bounds testing procedure, the conditional ARDL Error Correction Model (ECM) is modelled using Equation. The bounds test is meant to prove or disprove the nexus between the two key variables.

3.6.2 Variables of concern:

Economic Growth (EG)

Capital Expenditure (CE)

Corruption (CP)

Economic Sanctions (ES)

3.6.3 Empirical Model “Examining the Moderating Effects of Financial Leakages and Sanctions on Capital Expenditure and Economic Growth for Zimbabwe”

Economic Growth (EG) =f(Capital Expenditure (CE), Corruption (CP), Economic Sanctions (ES))

3.6.4 Econometric Model:

$$EG = \beta_0 + \beta_1 CE + \beta_2 CP + \beta_3 ES + \varepsilon$$

3.6.5 ARDL Bound cointegration test model.

$$\begin{aligned} \Delta EG_t = & \tau + \beta_0 EG_{t-1} + \beta_1 CE_{t-1} + \beta_2 CP_{t-1} + \beta_3 ES_{t-1} + \sum_{i=1}^p \alpha_{1i} \Delta EG_{t-i} \\ & + \sum_{i=0}^p \alpha_{2i} \Delta CE_{t-i} + \sum_{i=0}^p \alpha_{3i} \Delta CP_{t-i} + \sum_{i=0}^p \alpha_{4i} \Delta ES_{t-i} + \varepsilon_t \end{aligned}$$

3.6.6 ARDL Model

$$EG_t = \alpha + \sum_{i=1}^p \beta_1 EG_{t-i} + \sum_{i=0}^q \beta_2 CE_{t-i} + \sum_{i=0}^r \beta_3 CP_{t-i} + \sum_{i=0}^s \beta_4 ES_{t-i} + \varepsilon_t$$

Where?

P=optimum lag length

EG= Economic Growth

CE=Capital Expenditure

CP=Corruption

ES=Economic Sanctions

β_i = coefficients

ε_t = error term

The model is interrogating the relationship between capital expenditure, the independent variable and economic growths, the dependent variable amid moderating

variables. Qamruzzaman and Jianguo (2018) contend that the Autoregressive Distribution Lag (ARDL) is one of the best econometric methods compared to others in a case when the variables are stationary at $I(0)$ or integrated of order $I(1)$. Based on the study objectives, it is a better model than others to catch the short-run and long-run impact of independent variables on economic growth. This method was made popular by Pesaran (2001) due to its numerous advantages (Pesaran, 2001). The primary advantage of the ARDL model is the fact that it can be applied irrespective of $I(0)$ or $I(1)$ variables (Oskooee & Oyolola, 2007). Though the ARDL is only based on the assumption of serially uncorrelated residuals, however, this study tests for other assumptions such as no heteroscedasticity, normal distribution, misspecification, and stability of the model to confirm how close is it to the true model for reliable and valid inferences.

3.6.7 Capital Expenditure

The study of the relationship between capital expenditure and economic growth has continued to generate a series of debates. While some economic scholar concludes that the effect of capital expenditure on economic growth is positive (Akpan, 2005) as cited by Waweru and Mose (2021) through an increase in productivity, others indicate that the effect is negative (Gregorious & Ghosh, 2007) as cited by Waweru and Mose (2021) through the crowding out effect. This source of fiscal policy promotes economic growth in the sense that public investment contributes to capital accumulation (Mose et al 2014) as cited by Waweru & Mose, (2021). The beneficial side of government spending includes the use of fiscal policies like income taxes and transfer payments which can lead to more equitable redistribution of income; The supply of pure public goods which may constitute a sizeable component of aggregate demand; Government often acts as a facilitator in the markets with asymmetric and imperfect information (Husnain et al 2011) as cited by Waweru and Mose (2021). According to the Keynesian school of thought, government expenditure can contribute positively to economic growth. The opponents of this approach stipulate that government consumption crowds out private investment, discourage economic growth in the short run, and diminish capital accumulation in the long run (Mose *et al.*, 2014) as cited by Waweru & Mose (2021). A Keynesian hypothesis leads to the conclusion that aggregate demand management

policies can and should be used to improve economic performance. For Keynesians demand is a prerequisite for growth. According to the Harrod-Domar model, to determine an equilibrium growth rate in the economy, the balance between supply and demand for a nation's output should be maintained (Romer, 1996) as cited by Waweru & Mose (2021). Solow (1956) identified the size of physical capital as the source of growth differentials between nations. The model assumes that technology will always grow at a constant rate. The modern-day theory of economic growth by Solo-Swan as cited by Shakirat Adepeju Babatunde (2018) contends that expenditure on infrastructure has positive effects on economic growth. In Zimbabwe the GDP was constant to decreasing for the period 2009 to 2022. However, the capital expenditure is the opposite it has been consistently increasing annually. The performance of the annual GDP Growth Rate shows the years in which it has been declining.

In 2009 the Zimbabwe economy was fully dollarized and the effects were expected to be witnessed in the increase in capital inflow in the form of FDI and international trade. This would have resulted in increase in GDP. However, negative growth was witnessed instead. The severity of stagnation of economic growth rate despite the increase in capital expenditure was further demonstrated by the negative trade balance indicators shown in the UNCTAD trade (UNCTAD Statistics 2019). In Zimbabwe there has been significant deployment of capital expenditure. However, little economic growth has been realized. Questions continue to emerge on the impact of government capital expenditure on economic growth. There are contradicting views on whether the government should continue to prioritise capital expenditure.

According to the Keynesian school of thought, government capital expenditure is expected to contribute positively to economic growth. On the contrary, Zimbabwe has been witnessing negative growth. This asymmetrical relationship between growth in capital expenditure and decline in economic growth is the subject of this research study. This study is therefore interrogating dual moderating effects of corruption and sanctions on the relationship between capital expenditure and economic growth. The effects of these moderators on the independent variables of capital expenditure and the dependent variable of economic growth remain an area of empirical contestation.

The ARDL time series model is being used to analyse the relationship between capital expenditure and economic growth amid corruption and sanctions.

The ARDL toolkit was used to analyse adjustment processes on the effects on macroeconomic activity (Varona & Gonzales, 2021). The ARDL model can be conveniently re-parameterised in error-correction (EC) form, which disentangles the long-run relationship from the short-run dynamics (Kripfganz & Schneider, 2023). When the variables are non-stationary, integrated of order 1 the long-run relationship embedded in an EC model corresponds to a cointegrating relationship (Hassler & Wolters, 2006). Testing for cointegration in such a setup therefore equals testing for the existence of a long-run relationship (Kripfganz & Schneider, 2023). However, the latter concept retains its relevance when some of or all the variables are stationary.

Nan (2022) contends that in order to support economic growth, nations should effectively allocate funds and work to reduce corruption. However, empirical research has not comprehensively examined the role of corruption in the impact of government spending on economic growth. Additionally, corruption is one factor that can affect the relationship between government spending and economic growth. Corruption may weaken or undermine the positive effects of government spending on economic growth, acting as a negative moderator in this context (Nguyen and Bui, 2022).

On the other hand, the impact of government expenditure on economic growth may not be automatic, as several factors can influence government expenditure and its translation into economic growth. One of the factors that has been identified as moderating the role of government expenditure on economic growth is corruption. It should be noted that many countries in Africa have been characterized by excessive corruption, and resulted in poor economic performance. Corruption has been shown in numerous empirical studies to affect government expenditure (Al Qudah et al., 2020; Banerjee *et al.*, 2022; Oyadeyi, 2023a; Malanski and Póvoa, 2021). It has been demonstrated to influence the efficiency of resource allocation in the economy, impacting new investment and stimulating real growth. Research in the literature has shown that corruption typically hinders growth by impeding government and private sector investment spending, as well as reducing the effectiveness of public services (Afonso and Rodrigues, 2022; Malyniak *et al.*, 2019). Although there is a general consensus that corruption harms growth, the literature is still divided on how

corruption specifically influences growth and the extent of its direct and indirect effects on growth rate (Akrouf, 2020; Yusof *et al.*, 2023).

This research is examining the moderating effects of corruption (financial leakages on the relationship between capital expenditure and economic growth using time series autoregressive distribution lag.

3.6.8 Variables

A fundamental component in statistical investigations is the methodology employed in selecting the research variables. The careful selection of appropriate variable types can significantly enhance the robustness of your experimental design. Understanding the different types of variables in research can greatly aid in shaping the experimental hypotheses and outcomes. The study is examining the moderating effects of corruption and sanctions on capital expenditure impacts on economic growth in Zimbabwe. The variables of this research study are therefore economic growth (dependent) and capital expenditure (independent). A variable is an attribute of an item of analysis in research. The types of variables in research can be categorised into independent variables and dependent variables.

A variable is an essential component of any statistical data as cited by Seltman (2012) in Kaliyadan and Kulkarni (2019). It is unique and can differ in quantity. Variables either are the primary quantities of interest or act as practical substitutes for the same. The importance of variables is that they help in operationalisation of concepts for data collection (Kaliyadan & Kulkarni, 2019). For a variable to be good, it needs to have some properties such as good reliability and validity, low bias, feasibility and practicality, low cost, objectivity, clarity, and acceptance (Kaliyadan & Kulkarni, 2019).

In the context of an experimental study, the dependent variable (also called outcome variable) is directly linked to the primary outcome of the study. In this research study GDP would be the dependent variable. Kaliyadan and Kulkarni (2019) contend that the independent variable (sometimes also called explanatory variable) is something which is not affected by the experiment itself but which can be manipulated to affect the dependent variable. Other terms sometimes used synonymously include blocking

variable, covariate, or predictor variable. Other terms sometimes used synonymously include blocking variable, covariate, or predictor variable. In this research study capital expenditure would be the independent variable (Kaliyadan & Kulkarni, 2019). Confounding variables are extra variables, which can influence the experiment. They are linked with dependent and independent variables and can cause spurious association (Kaliyadan & Kulkarni, 2019). However, a control variable is a variable that must be kept constant during an experiment.

3.6.9 Economic Growth

Cornwall (2024) contends that economic growth is the process by which a nation's wealth increases over time. The author further clarifies that although the term is often used in discussions of short-term economic performance, in the context of economic theory it generally refers to an increase in wealth over an extended period. The three definitions are close as they all speak to economic goods and services. It can be measured in nominal or real (adjusted to remove inflation) terms. Increases in capital goods, labour force, technology, and human capital can all contribute to economic growth.

The World Bank (2020) states that GDP can be defined as the sum of gross value added by all resident producers in the economy, plus any product taxes, minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Annual percentage growth rate of GDP at market prices is based on constant local currency. The Zimbabwe aggregates are based on constant 2015 prices, expressed in U.S. dollars. The GDP growth rates for the period 2009 to 2022 show very little growth with negative growth in some years.

The World Bank (2020) contends that that economic growth is the increase or improvement in the inflation-adjusted market value of the goods and services produced by an economy over a certain period. Statisticians conventionally measure such growth as the percent rate of increase in the real gross domestic product (GDP). Economic Growth is usually calculated in real terms thus inflation-adjusted terms to eliminate the distorting effect of inflation on the price of goods produced. Several theories have been developed to explain the economic growth of a country. For

example, Rostow (1960), developed the Rostow's Stages of Growth model in which it explains the idea about the transition of an economy from underdevelopment status to a developed status through various stages a country must precede.

The Solow-Romer model developed by Solow (1956), relies on the capital-output ratio which is endogenous. The World Bank (2022) contends that economic growth in Sub-Saharan Africa (SSA) is estimated at 4 percent in 2021, up from a contraction in economic activity of 2 percent in 2020. However, growth in the region was expected to decelerate in 2022 amid a global environment with multiple new shocks, high volatility, and uncertainty. The World Bank (2022) states that the economy was set to expand by 3.6 percent in 2022, down from 4 percent in 2021, as it struggled to pick up momentum amid a slowdown in global economic activity, continued supply constraints and outbreak of the new coronavirus variants.

In Zimbabwe the GDP for the period 2009 to 2022 witnessed constrained growth. In some years the growth rate was negative. This research sought to investigate the reasons for the increase of capital expenditure while the GDP growth rates are in some years negative or marginally positive. The study is looking into the moderating effects of corruption and sanctions on the relationship between capital expenditure and economic growth. The ARDL model interrogates this relationship.

3.6.10 Moderators

A moderator variable in research methodology is a variable that influences the strength or direction of the relationship between two other variables (Bhandari, 2023). It modifies the relationship between the independent and dependent variables in the study (Bhandari, 2023). Moderator variables help explain why and how different variables are related and to identify conditions or contexts under which the relationships are stronger or weaker (Magnus, 2023). Moderators can produce a more complete understanding of theoretical phenomena and can provide practitioners with higher levels of precision (Magnus, 2023). Moderators also provide a way to reconcile conflicting theoretical positions and conflicting results from different authors (Chaplin, 1991) as cited by (Magnus, 2023). Moderators (if correctly conceptualized and analysed) can produce more detailed theories and can provide higher levels of precision in the search for influential activities (Magnus, 2023).

A moderator is a third variable that influences the causal relationship between an independent variable and a dependent variable, typically in terms of the strength and or the direction of the relationship (Goldsby *et al.*, 2013) as cited by Magnus (2023). With respect to strength, independent variable can neutralize, weaken, or strengthen the dependent variable relationship. As for the direction, independent variable can make the relationship negative or positive. However, there is also a second aspect of a moderator variable that is to count as a moderator, the independent variable is not correlated with the dependent variable, Helm and Mark (2012), as cited by Magnus (2023). Moderators usually help in judging the external validity of the study by identifying the limitations of when the relationship between variables holds. Moderators can be categorised to be quantitative variables such as GDP, capital expenditure (Bhandari, 2023).

The variables of this research study are the GDP (dependent) and the capital expenditure (independent). The moderators of these two variables are corruption and sanctions. Sanctions moderate through inflow of quality FDI inflows and international trade of goods and services.

3.6.11 Data Sources for the Moderators

Corruption was extracted from World Bank Database. Foreign Direct Investment and International Trade, to analyse the impact of sanctions, were also extracted from the World Bank Databases (World Development Indicators WDI).

Its not clear how the sanctions are being measured here. Decline in trade may not be used exclusively as a proxy for measuring impact of sanctions. Review literature in terms of how sanctions can be measured and what can be sued effectively as proxies for that. What are the challenges of using such proxies for measuring sanctions?

3.7 Robustness Checks

Robustness testing is the extent to which a significance test leads to correct statistical decisions, even when assumptions made in the mathematical derivation of the test are not strictly fulfilled. It is process in empirical studies examining how the core regression coefficient estimates behave when the regression specification is modified in some way, typically by adding or removing regressors. Neumayer and Plümper

(2017) aver that robustness testing offers the answer to model uncertainty. The uncertainty faced on the ARDL model specifications provides the optimal trade-off between simplicity and generality. Robustness testing allows the exploration of the stability of estimates to plausible model specifications as contended by Neumayer and Plümper, (2017). Robustness test was used to analyse the variation in the estimates resulting from ARDL model uncertainty. The uncertainty has the potential to invalidate inferences. This made robustness testing an important way in which the empirical research improves the validity of the inferences (Neumayer & Plümper, 2017). However, Robustness testing does not meticulously transform uncertainty and potentially invalid inferences into valid inferences with certainty. Rather it reveals the true uncertainty of point estimates, the dependence of estimates, on model specifications. Robustness testing, instead of trying to achieve the unachievable to perfectly fit the ARDL model onto the data generating process, the logic of testing accepts the uncertainty of the model specification (Neumayer & Plümper, 2017). Robustness testing asks to what degree estimated estimates and ultimately inferences depend on model specifications (Neumayer & Plümper, 2017). Analysing the influence of model specification on estimates and ultimately inferences depended on ARDL model specifications. In the regression analyses of observational data, the “true model” remains unknown and faces a choice between plausible alternative specifications (Neumayer & Plümper, 2017). Robustness testing allows the exploration of the stability of the main estimates to plausible variations in the model specifications. The explanatory variables and their functional form, causal or temporal heterogeneity, effects dynamics or spatial dependence (Neumayer & Plümper, 2017).

3.7.1 Stationarity

Stationarity is a process with a property of which the mean, variance, covariance, standard deviation, and autocorrelation structure do not change over time (Maaß, 2022). It can be defined in precise mathematical terms, but for academic purpose it has a flat looking series, without trend, constant variance over time, a constant autocorrelation structure over time and no periodic fluctuations or seasonality (Vijay, 2023). Another reason for trying to have stationary time series is to be able to obtain meaningful statistics such as means, variances, and correlations with other variables.

Such statistics are useful as descriptors of future behaviour only if the series is stationary (Vijay, 2023). If the series is consistently increasing over time, the mean and variance will grow and will always underestimate the mean and variance in future periods (Castro *et al*, 2015). Furthermore, if the mean and variance of a series are not well-defined, then neither are its correlations with other variables (Maaß, 2022). It is for this reason to be cautious about trying to extrapolate regression models fitted to nonstationary data.

The study used stationary data whose statistical properties do not depend on time at which the series were observed as contended by Vijay (2023). Nonstationary data would affect the value of the time series at different times (Maaß, 2022). In general, a stationary time series will have no predictable patterns in the long-term. Time plots will show the series to be roughly horizontal, although some cyclic behaviour is possible, with constant variance (Vijay, 2023). In data science, it is important to know about statistical tests to help understand the data better and select forecasting models, like the ARDL (Autoregressive Distribution Lag) model. There are various statistical tests to check stationarity, including the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron test. The ADF test is a widely used test for checking the stationarity of a time series and it checks for the presence of a unit root in the data (Vijay, 2023). The Phillips-Perron test checks for the trend stationarity of the data, and it is often used in conjunction with the ADF test (Castro *et al*, 2015). They are used to inform the degree to which a null hypothesis can be rejected or fail to be rejected. The result must be interpreted for a given problem to be meaningful (Maaß, 2022). Furthermore, they provide a quick check and confirmatory evidence that the time series is stationary or non-stationary (Castro *et al*, 2015). The Augmented Dickey-Fuller (ADF) test used is a statistical test called unit root test. In probability theory and statistics, a unit root is a feature of some stochastic processes that can cause problems in statistical inference involving time series models (Maaß, 2022). The unit root test is non-stationary but does not always have a trend component. ADF test is conducted with the following assumptions:

Null Hypothesis (H_0): Series is non-stationary, or series has a unit root.

Alternate Hypothesis (H_A): Series is stationary, or series has no unit root.

If the null hypothesis is not rejected, this test may provide evidence that the series is non-stationary. The Phillips-Perron test is a type of Unit root test that tests for the stationarity of a given series around a deterministic trend (Castro *et al*, 2015). The test is somewhat like the ADF test. A key difference from the ADF test is the null hypothesis of the Phillips-Perron test is that the series is stationary. The Phillips-Perron test is conducted with the following assumptions:

Null Hypothesis (H_0): Series is trend stationary or series has no unit root.

Alternate Hypothesis (H_A): Series is non-stationary, or series has a unit root.

If the null hypothesis is not rejected, this test may provide evidence that the series is trend stationary (Vijay, 2023).

Both tests are useful in determining the stationarity of a time series, and it is a good idea to use them together to get a more complete picture of the properties of the time series.

The residuals in the ADF and Phillips-Perron tests represent the differences between the observed and predicted values of the model used in the test (Castro *et al*, 2015). In the case of the ADF test, the residuals are stationary if the time series is stationary, while in the case of the Phillips-Perron test, the residuals are non-stationary if the time series is non-stationary (Castro *et al.*, 2015).

3.7.2 ARDL Bound cointegration test model.

Cointegration was conducted to find out if there was long-run relationship among the variables. When all the variables are stationary at same level, we conducted the Johansen cointegration Test. When some of the variables were stationary at level and some at first difference we conducted the Bound Test from Autoregressive Distribution Lag (ARDL). ARDL model uses a combination of endogenous and exogenous variables and could be specified:

If the variables are integrated of different orders i.e., a model having a combination of variables with I (0) and I (1) order of integration.

If all variables are integrated of order one i.e., stationary after first difference.

3.7.3. Vector Error Correction Model (VECM) Bound Test Model

From the Bound Test results when the variables were cointegrated specified both short-run (ARDL) and long-run Vector Error Correction Model (VECM) model. When the variables were not cointegrated, specified only the short-run (ARDL) model.

3.7.4 Heteroskedasticity

It was not until the mid-20th century that heteroskedasticity became recognized as an issue in regression analysis. The term "heteroskedasticity" was first coined by the economist Ragnar Frisch to describe situations where the variance of the dependent variable varied across observations (Frisch & Waugh, 1933 as cited by Raza, *et al.*, 2023). Heteroskedasticity is more common in cross-sectional data because cross-sectional data usually includes observations from different groups, regions, or categories that may have different levels of variability in the dependent variable (Wooldridge, 2002 as cited by Raza, *et al.*, 2023). This can result in varying levels of variance of the error term in the regression model, leading to heteroskedasticity. Heteroskedasticity refers to the situation where the variance of the dependent variable (or the error term) in a regression model varies across different groups or observations within a dataset (Greene, 2003 as cited by Raza, *et al.*, 2023). Measurement error can also contribute to heteroskedasticity in cross-sectional data. If there is more measurement error in some observations compared to others, this can result in varying levels of variability in the dependent variable. Extreme values can also contribute to heteroskedasticity in cross-sectional data. If some observations have much larger or smaller values than others, this can result in varying levels of variability in the dependent variable. When the relationship between the independent and dependent variables is nonlinear, this can also result in heteroskedasticity in cross-sectional data (Wooldridge, 2002 as cited by Raza, *et al.*, 2023). Heteroskedasticity can lead to incorrect statistical tests in regression analysis. It can lead to biased variance estimates in a regression analysis. This is because the ordinary least squares (OLS) method assumes that the variance of the dependent variable is constant across all observations. When this assumption is violated, OLS estimator may produce biased covariance estimates (Gujarati, 2022; Ramsey, 1969). This means that the standard errors of the coefficient estimates may be larger than they should be, making it harder

to detect statistically significant relationships. This can reduce the power of statistical tests and increase the probability of type II errors. This is because the OLS estimator places more weight on observations with higher variance, leading to a larger standard error and a smaller coefficient estimate. Therefore, it is important to test for heteroskedasticity and if present, to use appropriate methods to correct it (Wooldridge, 2002 as cited by Raza, *et al.*, 2023).

Hayes *et al.* (2022) contend that heteroskedasticity (or heteroscedasticity) happens when the standard deviations of a predicted variable, monitored over different values of an independent variable or as related to prior time periods, are non-constant. With heteroskedasticity, the tell-tale sign upon visual inspection of the residual errors is that they will tend to fan out over time (Hayes *et al.* 2022). Heteroskedasticity often arises in two forms: conditional and unconditional. Conditional heteroskedasticity identifies nonconstant volatility related to prior period's (e.g., monthly, or quarterly) volatility. Unconditional heteroskedasticity refers to general structural changes in volatility that are not related to prior period volatility (Hayes *et al.*, 2022). Unconditional heteroskedasticity is used when future periods of high and low volatility can be identified.

Heteroskedasticity is a violation of the assumptions for linear regression modelling and so it can impact the validity of economic analysis. While heteroskedasticity does not cause bias in the coefficient estimates, it does make them less precise; lower precision increases the likelihood that the coefficient estimates are further from the correct value (Hayes *et al.*, 2022). As it relates to statistics, heteroskedasticity (also spelled heteroscedasticity) refers to the error variance, or dependence of scattering, within a minimum of one independent variable. These variations can be used to calculate the margin of error between data sets, such as expected results and actual results, as it provides a measure of the deviation of data points from the mean value. For a dataset to be considered relevant, most of the data points must be within a particular number of standard deviations from the mean as described by Chebyshev's theorem, also known as Chebyshev's inequality. This provides guidelines regarding the probability of a random variable differing from the mean.

Based on the number of standard deviations specified, a random variable has a particular probability of existing within those points. For example, it may be required

that a range of two standard deviations contain at least seventy five percent of the data points to be considered valid. A common cause of variances outside the minimum requirement is often attributed to issues of data quality. The opposite of heteroskedastic is homoscedastic a condition in which the variance of the residual term is constant or nearly so. Homoskedasticity is one assumption of linear regression modelling. It is needed to ensure that the estimates are accurate, that the prediction limits for the dependent variable are valid and that confidence intervals and p-values for the parameters are valid (Hayes *et al.*, 2022).

Unconditional heteroskedasticity is predictable and can relate to variables that are cyclical by nature. This can include higher corruption reported during a certain month or quarter. Changes within the variance can be tied directly to the occurrence of events or predictive markers. Heteroskedasticity can also relate to cases where the data approach a boundary, where the variance must necessarily be smaller because of the boundary's restricting the range of the data. However, conditional heteroskedasticity is not predictable by nature. There is no tell-tale sign that leads analysts to believe data will become scattered at any point in time. Often, financial products are considered subject to conditional heteroskedasticity as not all changes can be attributed to specific events or seasonal change.

Onifade and Olanrewaju, (2020) contend that one of the crucial assumptions in the multiple linear regression models is that the variance of the errors should be constant. The Ordinary Least Squares (OLS) method is very popular with statistics practitioners as it provides efficient and unbiased estimates of the parameters when the assumptions, especially the assumption of homoscedastic error variances, are met (Bartlett & Kendall 1946) as cited by Onifade and Olanrewaju (2020). But in many real-life applications, variances of the errors vary across observations. Since homoscedasticity is often unrealistic assumption, researchers should consider how the results are affected by heteroscedasticity (Onifade, & Olanrewaju, 2020). Even though the OLS estimates retain unbiasedness in the presence of heteroscedasticity, its estimates become inefficient. However, heteroscedasticity yields hypothesis tests that fail to keep false rejections at the nominal level, or estimated standard errors as well as confidence intervals that are either too narrow or too large (Lim & Loh, 1996) as cited by Onifade and Olanrewaju (2020). Every statistical procedure carries with it

certain assumptions that must be at least approximately true before the procedure can produce reliable and accurate results (Ogunleye, *et al.*, 2014). Researchers often apply a statistical procedure to their data without checking on the validity of the assumptions of the procedure. If one or more of the assumptions of a given statistical procedure are violated, most especially in multiple linear regression analysis, then misleading results will be produced by the procedure (White, 1980) as cited by Onifade and Olanrewaju (2020).

3.7.5 Granger Casualty Tests

Granger causality test is a statistical hypothesis test used to determine if the past values of one time series can predict the future values of another time series (Alain *et al.*, 2023). It helps in assessing the causal relationship between two variables by estimating the ability of one variable to forecast the other (Tank *et al.*, 2019). Traditional approaches to Granger causality testing rely on linear models, but in real-world applications, non-linear dynamics are often present (Alain *et al.*, 2023). Recent work has proposed using machine learning techniques, such as deep learning, to capture the non-linear relationships. For example, Tank *et al.* (2019) introduced a method that to overcome the limitations of linear models. Other approaches include the use of multilevel modelling and generalized least squares. Introduced more than a half-century ago, Granger causality has become a popular tool for analysing time series data in many application domains, from economics and finance (Tank *et al.*, 2019). The notion of Granger causality captures predictability given particular information set (Granger, 1980). If the addition of variable X to the given information set Ω alters the conditional distribution of another variable Y , and both X and Ω are observed prior to Y , then X improves predictability of Y , and then the Granger Cause Y with respect to Ω (Alain *et al.*, 2023). Spurious Granger causality from X to Y may be found when both X and Y are Granger caused by Z , but Z is omitted from Ω . This study focuses on testing Granger causality in mean using linear models ARDL, in which setup the VAR model is the natural tool to investigate the research problem (Alain *et al.*, 2023). The Granger casualty test was used in conjunction with the heteroscedasticity test.

3.8 Data Sources

The quantitative data for capital expenditure was taken from Ministry of Finance Economic Planning and Investment Promotion. The GDP was taken from African Development Bank, IMF, and World Bank. Corruption, FDI and International Trade indices were taken from the World Bank Databases.

The data used in this study were gathered from secondary sources. The major macroeconomic data was the Gross Domestic Product in United States Dollars. The GDP Growth Rates were in percentages. Considering the limitations of data availability, the data for the fourteen years was quarterised using the Lisman and Sandee (1964) technique. Secondary data was selected as this data had already been checked and validated either by external auditors or other regulatory bodies prior to their publication. This process made the data reliable. However, the possibility of random errors was not overlooked.

3.8.1 Quarterised Data

The quantitative data for the period 2009 to 2022 were annual GDP and capital expenditure figures. The Ministry of Finance, Economic Development and Investment Promotion, IMF, African Development Bank and World Bank published annual statistics for the two variables the independent capital expenditure and the dependent GDP. The government of Zimbabwe does not keep monthly, quarterly or half yearly quantitative statistical data. The annual quantitative data for the period 2009 to 2022 comes to only fourteen observations. The fourteen observations are inadequate for the intended ARDL purpose which requires thirty or more observations. It therefore became necessary to convert the annual statistics to quarterly data. This has been found to be the trend in those countries whose statistics are only annual data. Some countries who store only annual economic statistics are the ICG partner countries Pakistan, Bangladesh, Ethiopia, Ghana, Liberia, Mozambique, Rwanda, Sierra Leone, Uganda, Zambia, and India. In these countries they ended up converting the annual data into quarterly data. They used synthetic mechanical method to robustly interpolate annual data into quarterly data estimates for their countries.

This research had to convert the annual data into quarterly data using the synthetic mechanical method by Lisman and Sandee (1964). Their method comes up with a purely numerical disaggregation technique called the Lisman and Sandee Quarterly Distribution Formula for constructing synthetic quarterly data based on past trends in annual data. It makes a forecast of the annual data for the current year ($A_{\beta+1}$) and for the next year ($A_{\beta+2}$). The Lisman and Sandee (1964) technique interpolates quarterly data obtained from yearly aggregates while at the same time, ensuring that variability is present. This method is used if no assumption is made about the pattern of the quarterly figures such that a smooth trend is obtained when conducting a Time Series analysis. The variability in both the regressor and the regressand is essential to use regression analysis as a tool according to Gujarati (2005) as the variables must vary. The procedure obtains a good adaptation of the quarterly figures to the annual totals. To a certain extent, the solution contains some arbitrary aspects, but it has the advantage of simplicity, plausibility, and practical usefulness. There is scarcity of quarterly data on some important variables. However, the method by Lisman and Sandee (1964) is one of the best to ensure a smooth trend in the quarterly estimates. Boot, Feibes and Lisman (1967) proposed a least-squares-based technique for constructing synthetic quarterly data based on past trends in annual data.

It works as follows:

- (i) Make a forecast of the annual data for the current year ($A_{\beta+1}$).
- (ii) Derive a smooth continuous quarterly time series from the annual data using a least squares minimisation technique, as follows: under the restriction that (that is, the sum of the quarterised data should be equal to the observed annual data) where t is used as a generic symbol for time ($t = q, y$) (e.g., $t = 4y - 3$ is equal to the first quarter of year y , and $4y$ the fourth quarter of year y); X_t is the derived quarterly estimate for quarter t ; A_y is the annual estimate for year y ; and β is the last year for which any annual observations are available.

Some of the alternatives to the above methods include the autoregressive integrated moving average (ARIMA) model-based procedure proposed in Stram and Wei (1986) and Wei and Stram (1990); and the state space modelling procedure proposed in Al-Osh (1989). While generally producing similar results to the above methods, these

alternative methods are substantially more complicated, hence the use of the Lisman and Sandee mechanical method. The annual GDP and capital expenditure for the period 2009 to 2022 were therefore interpolated into quarterly figures using the Lisman and Sandee Quarterly Distribution Formula.

3.9 Data Collection Procedure

Secondary data is every dataset not obtained by the author. Its collection involves retrieving already available data from sources other than target audience. When working with secondary data, the researcher does not “collect” data; instead they consult secondary data sources (Silva *et al.*, 2018). Secondary data sources are broadly categorized into published and unpublished data. Published data has been published and released for public or private use, while unpublished data comprises unreleased private information that researchers or individuals have documented (Silva *et al.*, 2018). On collection of secondary data issues of validity, reliability, objectivity, and authenticity of data are very important (Taherdoost, 2021). The data must therefore be collected accurately to eliminate unnecessary data and not using fake and cooked-up data. The collected quantitative data was numerical in nature and can be mathematically computed (Hamed, 2021).

Thus, secondary data is an essential part of research that can help to get information from past studies as basis conduction for implementing research or as the required background information (Taherdoost, 2021). It can also help to design a study and provide a baseline to compare primary results.

3.9.1 Source of Secondary Data

High-quality research can also be conducted using secondary data, collected by someone other than the user (Silva *et al.*, 2018). The secondary data are from a wide range of sources: censuses, information collected by government departments, organizational records, databases maintained by universities and other research institutions, surveys conducted by universities and research institutions, and so forth (Kumara & Ajantha 2022). There are advantages of using secondary data for researching. Use of much information that has been collected in the past and relevant variables can easily be generated by using secondary sources (Silva *et al.* 2018). There is no need to wait for a longer time for collecting data. The research can be

conducted in a timely manner. Accordingly, the researcher may proceed directly to the stage of data analysis. Generally, the secondary data is available for a larger number of observations (Silva *et al.*, 2018). Periodically, government institutions collect data on finance and economic developments in a country. This information can be found in government libraries and use it for research purposes.

3.9.2 How the data was collected.

In quantitative research process, data collection is a very important step (Lawton, 2019). Quality data collection methods improve the accuracy or validity of study outcomes or findings (Lawton, 2019). Researchers have emphasised on the use of valid and reliable instruments to measure a variety of phenomena of interest. An ideal data collection procedure captures a construct that is accurate, truthful, and sensitive (Polit & Beck, 2017). The collection of the data was based on four important dimensions of structure, quantifiability, obtrusiveness and objectivity. The quantitative secondary data collected was based on a structured plan which guided on how to collect the data. The information gathered was quantified by doing statistical analysis. The collection of data was an important component in creating relevant research evidence and was rigorously carried out.

Secondary data is categorised into internal and external data obtained from various sources such as websites, internet, journals, books, directories, non-governmental statistical data, and Census data. Based on the suggestions of Bryman (1989); Dale *et al.* (1988); Hakim (1982) as cited by QuestionPro (2023), secondary data is also classified into documentary data, survey-based data and multiple source secondary data.

Although all data is intended to provide information for analysis and decision making, secondary quantitative data can be used in several ways in the context and conduct of a research study. Accordance to McDaniel and Gates (2004) as cited by Lawton (2019) secondary data can be useful to identify the research problem. Secondary data can also be used to test the hypothesis.

3.10 Descriptive Statistics and their nature

Descriptive statistics as the name implies is the process of categorising and describing the information. Descriptive statistics are used to summarize data in an organized manner by describing the relationship between variables of the collected secondary data (Yellapu & Vikas, 2018). Descriptive statistics provide summarizing information of the characteristics and distribution of values in one or more datasets. The classical descriptive statistics allow analysts to have a quick glance of the central tendency and the degree of dispersion of values in datasets (Sharma, 2019). They are useful in understanding a data distribution and in comparing data distributions. Calculating descriptive statistics represents a vital first step when conducting research and should always occur before making inferential statistical comparisons (Yellapu & Vikas, 2018). Descriptive statistics include types of variables (nominal, ordinal, interval, and ratio) as well as measures of frequency, central tendency, dispersion/variation, and position (Laerd, 2018). Since descriptive statistics condense data into a simpler summary, they enable economic growth analysis decision making. Statistics can be broadly divided into descriptive statistics and inferential statistics (Ali & Bhaskar, 2016). Descriptive statistics give a summary about what is being studied without drawing any inferences based on probability theory (Kaliyadan & Kulkarni, 2019). Even if the primary aim of a study involves inferential statistics, descriptive statistics are still used to give a general summary (Kaliyadan & Kulkarni, 2019). Descriptive statistics help in summarizing data in the form of simple quantitative measures such as percentages or mean (Sharma, 2019). Descriptive statistics can be used to describe a single variable (univariate analysis) or more than one variable (bivariate/multivariate analysis). In the case of more than one variable, descriptive statistics can help summarize relationships between variables using tools such as scatter plots.

Descriptive statistics is one of the approaches for collection of tools that quantitatively describe the data in summary and graphical forms (Laerd, 2018). Such tools compute measures of central tendency and dispersion. Mean, median, and mode are commonly used measures of central tendency (Sharma, 2019). Each measure indicates a different type of typical value in the data. Measures of variability include minimum and maximum values, range, quantiles, standard deviation/variance, and distribution

skewness (Laerd, 2018). The distribution of a variable in a dataset plays an important role in data analytics. It shows all the possible values of the variable and the frequency of occurrence of each value (Peace & Hsu, 2018). Measures of central tendency, that is, mean, median, mode, measures of spread, the standard deviation and parameter estimation measures of confidence intervals were calculated (Stang & Rothman, 2023). Descriptive research aims to describe the data accurately and systematically, or phenomenon (Sharma, 2019). It is useful when not much is known about the problem.

3.11 Inferential Statistics

Inferential statistics help to suggest explanations for a situation or phenomenon and allows drawing conclusions based on extrapolations (Grigorios *et al.*, 2023). However, inferential statistics usually suggest but cannot absolutely prove an explanation or cause-and-effect relationship (Guetterman, 2019). Inferential statistics is the practice of using sampled data to draw conclusions or make predictions about the sample data (Plaue, 2023). Inferential statistics help to draw conclusions about an entire observation (Guetterman, 2019). Inferential statistics frequently involves estimation and hypothesis testing (i.e., finding evidence for or against an explanation or theory) (Grigorios *et al.*, 2023). Statistics describe and analyse variables which are then measured characteristically or attributes that may assume different values. Variables may be independent, meaning the value is not affected by any other variables, or dependent, where the value is pre-determined by other variables (Stang & Rothman, 2023). An independent variable in a statistical model may be dependent on another. An analysis of one variable at a time in a statistical method is called univariate analysis. When two or more variables are analysed at the same time becomes bivariate analysis. An example of bivariate analysis is analysis of GDP and Capital Expenditure at the same time looking at their effects on economic growth.

This quantitative research assumes that the constructs under study are measurable. It follows that this quantitative research aims to process numerical data to identify trends and relationships and to verify the measurements made to answer questions like how much, what, where, when, how many, and how (Grigorios *et al.*, 2023). In this context, the processing of numerical data is a series of steps taken for the research to make meaning from the data. An amount of numerical data was collected for

purposes of analysis. The data was carefully checked for any possible errors and missing values. The inferential statistics aid in testing hypotheses about whether a hypothesised effect, relationship, or difference is likely true (Stang & Rothman, 2023). The inferential statistics therefore allows making assumptions based on collected secondary data.

3.12 Chapter Summary

The chapter set detail framework for the methodological decision of the research. It pointed to a positivism philosophical stance that gave birth to experimental research design. The study found that an experimental quantitative research approach was pertinent to meet the objective of the research. In addition, the approach ensured the validity of the overall research. It also set the procedures to collect, analyse and report on secondary data. It used procedures for the quantitative approach on the purpose of the study. The quantitative study relied on secondary data sources which were publicly available and were less prone to the risk of data aggregation. The data analysis for the quantitative study was based on statistical analysis and hypothesis testing on selected variables from the conceptual framework and the literature review findings.

This study used quantitative secondary data. Using secondary data has proved itself a valuable approach to finding solution to the research question. Care was exercised in selecting secondary data by verifying its suitability, checking whether the data may be safely used to accept or refuse of the hypotheses. A rigorous analysis that meant using appropriate and reliable statistical techniques and tools to process, summarise, visualize, and interpret the data, and was able to check and validate the assumptions, results, and conclusions (Tran *et al* 2020). In conducting a rigorous analysis, the researcher considered the following questions: What are the best statistical techniques and tools for the secondary quantitative data. The researcher also looked at how to handle missing, incomplete, or erroneous data. The study took into consideration how to assess the significance, effect size and confidence of the results. The study also addressed the potential errors, outliers, or anomalies in the secondary quantitative data.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

The preceding chapter described the data that was collected and the tools which were employed to achieve the primary objective of this study, as outlined in Chapter one. The study's intention was to empirically assess the moderating effect of corruption on the capital expenditure-economic growth nexus in Zimbabwe between 1992 and 2022. This chapter displays the results of the tests and interprets the findings in the discourse of theory and other empirical studies. Data descriptive will be presented first followed by unit root test results. Thereafter, the results from the bounds test for cointegration, the long-run coefficients and the ECM of the ARDL are reviewed. Finally, the chapter examines the diagnostic tests which evaluate the reliability of the results. E-Views 13 was used for all the empirical tests performed.

The four objectives of this research study are as follows:

1. To examine the effects of capital expenditure on economic growth in Zimbabwe;
2. To examine the moderating effects of economic sanctions on the relationship between capital expenditure and economic growth;
3. To establish the moderating effect of financial leakages (corruption) on the relationship between capital expenditure and economic growth; and
4. To establish internal economic variability in Zimbabwe's economic growth pattern consequent of capital expenditures.

4.2 Descriptive Statistics

The descriptive statistics for the eight-time series are presented in Table 4.1. The variables for economic growth, trade and capital expenditure were transformed into a natural logarithm. The study used natural logarithmic transformation as a handy means of transforming highly skewed tested variables into a more normalized dataset. The study found that the average quarterly economic growth (GDPG) in Zimbabwe range between 5.19% and -2.97% as depicted by the maximum and minimum values portraying the existence of severe disparities in growth. This disparity is also reflected by the standard deviation value (1.98%) which is greater than the mean (1.35%)

signalling high volatility in growth. The mean corruption level in Zimbabwe for each quarter stood at -0.33 which falls within the high-level category, as the grading ranges between -2.5 to 2.5 with lower figures indicating lower level of corruption control (high level of corruption). This is also supported by the maximum and minimum values (-0.19 and -0.57, respectively) which falls within the high level of corruption category. Foreign direct investment (FDI) stood at 0.41%, on average indicating low levels in general. The variation on the above two variables as reflected by the standard deviation is low, a sign of low volatility. In addition, the standard deviation for Long Run Gross Domestic Product (LNGDP) and Long Run Trade (LNTRADE) are also low compared to the mean. The series LNGDP, Gross Domestic Product (GDPG), Long Run Capital Expenditure (LNCAP), and LNTRADE are positively skewed with positive coefficients of skewness (0.346; 0.100; 0.241; and 1.249, respectively). However, Corruption (CORR), FDI is negatively skewed having negative coefficients of skewness (-0.683; -0.024 and -1.359, respectively). Variables such as LNTRADE, has peaked distributions (leptokurtic) having kurtosis coefficients of 3.262; 11.84 and 3.115 respectively which is greater than the threshold level of 3. Meanwhile, LNGDP, GDPG, LNCAP, CORR and FDI are flat-topped distribution (platykurtic) relative to the normal distribution, having coefficients of kurtosis (2.977; 2.745; 2.893; 2.166 and 1.900, respectively) which are less than the threshold level of 3 with moment distribution. The Jarque-Bera statistics for normality test signal that the series LNTRADE and CORR are not normally distributed since their respective p-values are less than the 5% level of significance.

Table 4.1 Data Descriptive

	LNGDP	GDPG	LNCAP	CORR	LNTRADE	FDI
Mean	1.624	1.352	4.630	-0.333	2.708	0.408
Median	1.584	0.707	4.618	-0.311	2.631	0.433
Maxim	2.667	5.186	8.167	-0.188	3.170	0.647
Minim	0.796	-2.965	1.698	-0.568	2.509	0.13

						3
Std. Dev	0.418	1.983	1.477	0.122	0.179	0.146
Skew	0.346	0.100	0.241	-0.683	1.249	-0.24
Kurtosis	2.977	2.745	2.893	2.166	3.262	1.900
J-Bera	1.119	0.245	0.569	5.976	14.726	3.357
Prob.	0.571	0.885	0.752	0.050	0.001	0.187
Sum	90.961	75.701	259.3	-18.63	151.7	22.87
S.S Dev	9.559	216.4	115.1	0.820	1.759	1.172
Observe	56	56	56	56	56	56

Source: Author's Computation using E-Views 13 (2024)

However, LNGDP, GDPG, LNCAP and FDI are normally distributed, having their p-values (0.571; 0.885; 0.752; and 0.187, respectively) exceeding the 5 percent level of significance. The average GDP and capital expenditure figures for Zimbabwe over the period was US\$ 5.55 billion and US\$301.6 million respectively.

The study also presented correlation coefficients to reveal the probability of having multicollinearity and over-parameterization problems in the study. The study made reference to the correlation coefficient maximum threshold of 0.85 as recommended by Elith *et al.* (2006). The correlation analysis, shown in Table 4.2, shows the highest correlation exists between LNGDP and LNTRADE and also between LNCAPEX and LNTRADE while the smallest correlation exists between FDI and CORR. There is a strong negative correlation between trade and variables such as FDI, LNCAPEX,

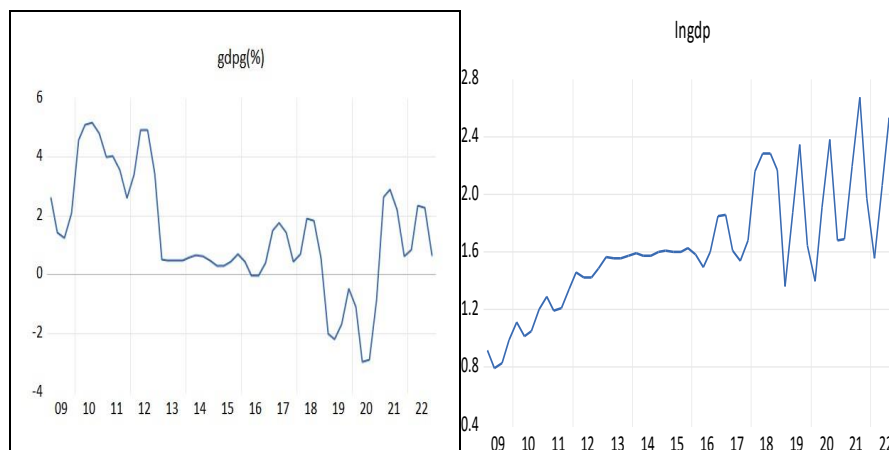
LNGDP and CORR over the time period. Moreover, LNGDP and GDPG are negatively correlated with CORR and positively correlated with LNCAPEX. Regarding the control variables, LNTRADE and CORR are negatively correlated with LNGDP. There is no multicollinearity issue in the research model, because the correlation between the independent variables and the control variables is generally low.

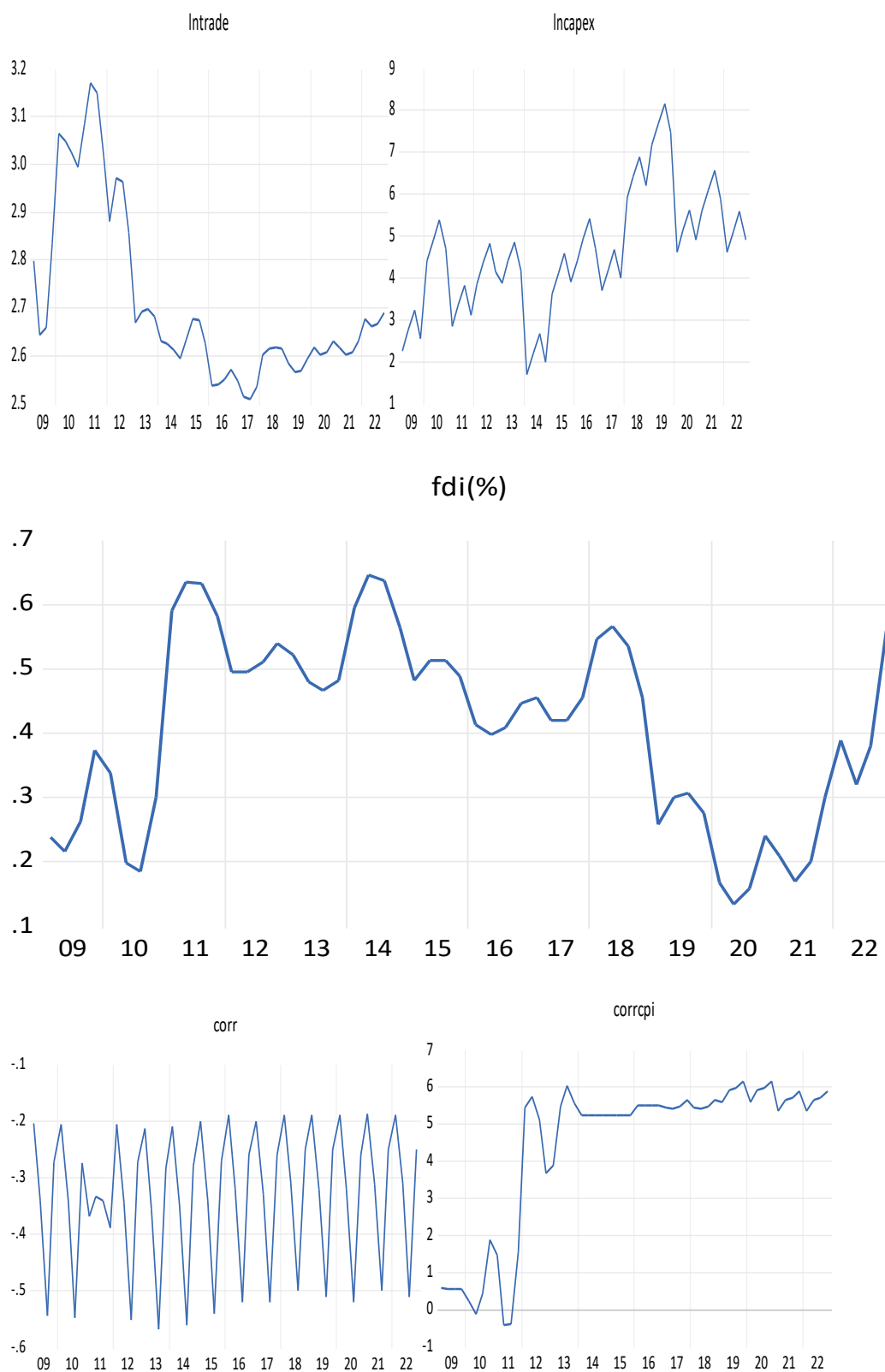
Table 4.2 Correlation Analysis

	FDI	GDPG	LNCA P	LNGD P	LNTRA DE	CORR
FDI	1.000					
GDPG	0.182	1.000				
LNCA P	-0.420	-0.272	1.000			
LNGDP	-0.026	-0.381*	0.596*	1.000		
LNTRA DE	0.186	0.758	-0.283*	-0.529*	1.000	
CORR	-0.007	-0.070	-0.142	-0.126	-0.057	1.0000

Source: Author's Computation using E-Views 13 (2024)

Figure 4.1 Graphs of Time Series





Source: Author's Computation using E-Views 13 (2024)

4.3 Unit Root Test Results

Table 4.3: Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	Order	Intercept	Trend and intercept	Without trend and intercept	Decision
LNGDP	0	-0.2060	-3.1905	0.9545	1(1)
	1	-14.189	-14.192	-13.992	
GDPG	0	-2.106	-3.4468	-1.5298	1(1)
	1	-3.7066	-6.5071	-3.7184	
LNCAP	0	-2.7529	-3.2704	-0.1490	1(1)
	1	-8.1657	-8.2604	-8.2065	
CORR	0	-3.7788***	-3.2319***	-3.7853***	1(0)
	1	-3.4997	-3.4434	-5.6669	
TRADE	0	-2.4965	-1.8436	-0.9326	1(1)
	1	-3.1533	-5.5058	-3.1172	
FDI	0	-2.0169	-3.2348	-0.1106	1(1)
	1	-4.2332	-5.3065	-4.0442	

Note: *** denotes statistical significance at 1% level

Source: Author's Computation using E-Views 13 (2024)

The graphs in Figure 4.1 demonstrate an informal way to identify the stationarity of the variables. The variables are in levels before the application of unit root tests. The variables are not oscillating around the mean and thus are not stationary in levels. The results for the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are shown in Tables 4.3 and 4.4 respectively in levels and first differences, where appropriate, including an intercept, intercept with a trend as well as without a trend or intercept in the test regression.

As explained in the methodology chapter, when the test statistic is more negative than the critical value, it implies that the null hypothesis that the variable contains a unit root can be rejected whereas if the test statistic is not more negative than the critical value, then the null hypothesis cannot be rejected. The results with intercept, trend and intercept and no trend and intercept indicate that the control of corruption is stationary at levels as the null hypothesis can be rejected at the 5% significance level or higher. The test statistics for the log of real GDP, GDP growth, capital expenditure

and foreign direct investment indicate that the null hypothesis cannot be rejected at level terms for all specifications meaning that the series have at least one-unit root.

Turning to the Phillips-Perron test results, the findings largely confirm the conclusions from the ADF tests as both LR GDP, Gross Domestic Product Growth (GDPG), LR CAPEX, TRADE and FDI are identified to be non-stationary at level $I(1)$. Corruption is stationary in levels. The combination of $I(1)$ and $I(0)$ variables makes it affirmable to proceed with the ARDL model estimation. The findings from the above two-unit root tests that were applied inform that the dependent variable was $I(1)$ whilst the independent variables were either $I(1)$ or $I(0)$ when examined with an intercept, or with trend and intercept and without a trend and intercept. These conclusions thus make it suitable for the analysis to proceed using the ARDL method.

Table 4.4: Phillips-Perron (PP) unit root test results

Variable	Order	Intercept	Trend and intercept	Without a trend and intercept	Decision
LNGDP	0	-1.8327	-5.4956	0.3100	1(1)
	1	-11.579	-12.425	-10.078	
GDPG	0	--1.8857	-2.091	-1.5816	1(1)
	1	-4.8529	-4.5271	-4.9090	
LRCAPEX	0	-2.1077	-2.7095	-1.2758	1(1)
	1	-6.2336	-6.7659	-6.3876	
CORR	0	-10.263***	-21.570***	-1.8630***	1(0)
	1	-34.5517	-33.567	-35.0218	
TRADE	0	-1.5424	-1.9469	-0.3427	1(1)
	1	-5.4418	-5.3441	-5.5239	
FDI	0	-3.2929	-3.2209	-0.7266	1(1)
	1	-8.8754	-7.1989	-9.1684	

Note: *** denotes statistical significance at 1% level

Source: Author's Computation using E-Views 13(2024)

4.4 Lag Selection

As mentioned in the methodology, the first step in estimating the ARDL model is the determination of the optimal lag length. Table 4.5 shows the results for the VAR lag

length selection criterion and revealed 4 as the appropriate optimal lag. Using the AIC test to break down the lags for each series, the results in Figure 4.2 shows that ARDL (3,0,0,0,4,0) is the appropriate model to use for this study. This is the combination that minimise the Akaike information criterion a Box Jenkins approach to estimation models with lags. According to Kutu and Ngalawa (2016), issues of serial correlation in the residuals are resolved with the right lag length selection. More results are shown in the appendix (see Table 4.5)

4.4.1 Lag Length Selection Criteria

Table 4.5: ARDL Lag Length Selection

VAR Lag Order Selection Criteria

Endogenous variables: LNGDP LNCAPEX CORR CORRCAP FDI LNTRADE

Exogenous variables: C

Date: 12/14/23 Time: 09:53

Sample: 2009Q1 2022Q4

Included observations: 52

Lag	LogL	LR	FPE	AIC	SC	HQ
0	25.12879	NA	1.93e-08	-0.735723	-0.510579	-0.649408
1	158.1646	230.2543	4.67e-10	-4.467870	-2.891866	-3.863667
2	244.7197	129.8326	7.06e-11	-6.412297	-3.485432	-5.290206
3	324.6490	101.4486	1.51e-11	-8.101883	-3.824156	-6.461904
4	400.7186	78.99535*	4.39e-12*	-9.643021*	-4.014434*	-7.485154*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Source: Author's Computation using E-Views 13

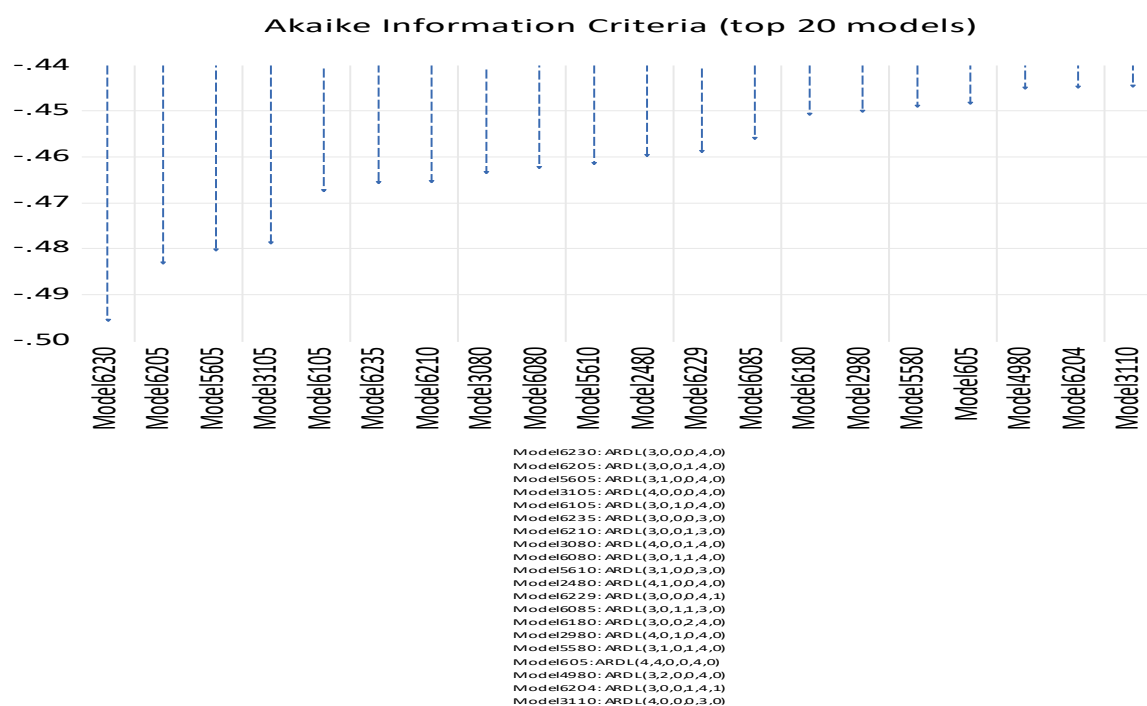


Figure 4.2: ARDL Lag Length Selection (AIC) (the Figure is not quite readable)

Source: Author's Computation using E-Views 13 (2024)

The study also diagnosed the model before estimating the interplay to check for the problem of model misspecification, autocorrelation, heteroscedasticity and normality of the error term.

4.5 Diagnostic Tests Results

4.5.1 Lagrangian Multiplier Test for Residual Autocorrelation

Serial auto-correlation refers to the correlation that occurs when one period residual are correlated with residuals in previous lags. According to Lütkepohl *et al.* (2006), a null hypothesis of no serial correlation is accepted if the computed p-value exceeds 0.005 at 5% level of significance. On the other hand, a null hypothesis of no serial correlation is rejected if the computed p-value is less than 0.005 at 5% level of significance. The study employed the Breusch–Godfrey LM Test to ascertain the existence of serial correlation problems. Results in Table 4.5 indicated a p– value of 0.4371 which is greater than 0.005 at 5% level of significance. Therefore, the null hypothesis of no serial autocorrelation was accepted concluding that the model does not suffer from serial correlation problems.

Table 4.6: Serial Correlation LM test for Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.608311	Prob. F(2,37)	0.5496
Obs*R-squared	1.655414	Prob. Chi-Square(2)	0.4371

Source: Author's Computation using E-Views 13(2024)

4.5.2 Stability Test

4.5.2.1 CUSUMQ Test

If the residual plots around the central line without closing the two parallel lines at the 5% level of significance, the model is deemed stable and can be used for projection or forecasting. The residual experiences have a mean regressive characteristic, which signal that the model is stable. As shown in Figure 4.3, Figure 4.4 and Figure 4.5 there were no structural breaks in the modeled variables, indicating a stable model.

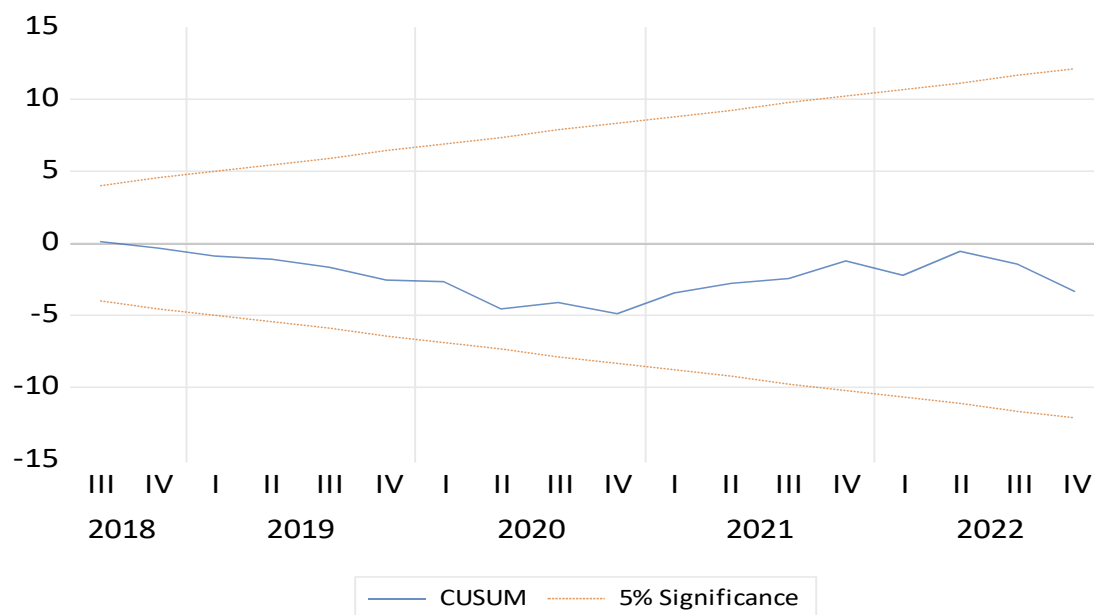


Figure 4.3: CUSUMQ Stability Test

Source: Author's Computation using E-Views 13 (2024)

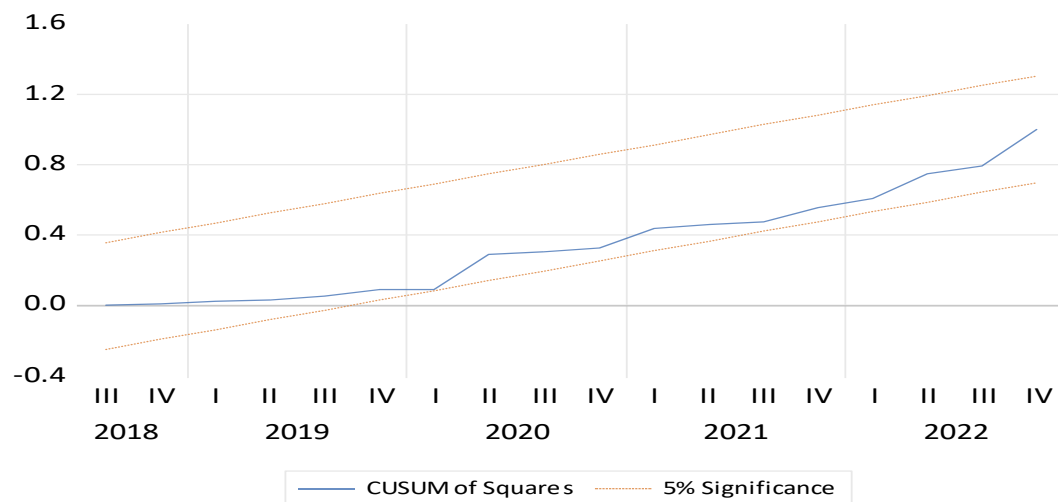


Figure 4.4: CUSUMQ Stability Test

Source: Author's Computation using E-Views 13 (2024)

Inverse Roots of AR Characteristic Polynomial

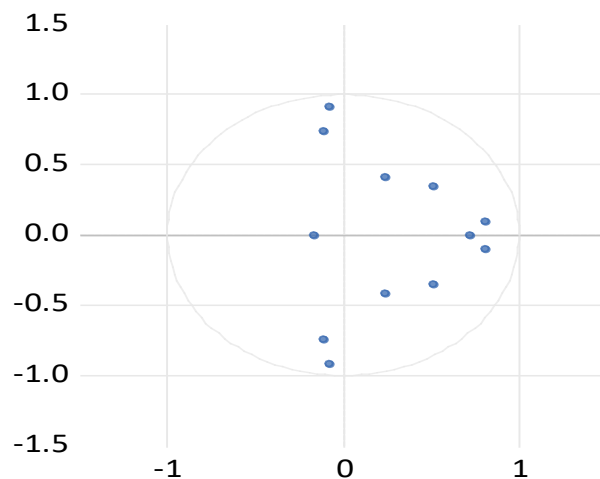


Figure 4.5 Model Stability Test

Source: Author's Computation using E-Views 13 (2024)

4.5.3 Heteroscedasticity Test

The fourth parameter to be tested is the assumption of unequal variances or heteroscedasticity. The assumption of heteroscedasticity means that different samples have the same variance even if they come from different populations. In ARDL analysis, heteroscedasticity means the residuals are not well-fitted with the predicted values. Failure to comply with this assumption could significantly affect the results or

even invalidate them. Various models can be used but this study employed the Breusch-Pagan Godfrey Test. The calculated p-values are shown in Table 4.6. Since the calculated p-values are greater than 0.005, this signal that a null hypothesis of no serial correlation is accepted at 5% level of significance.

Table 4.7 Heteroscedasticity Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.668406	Prob. F(12,39)	0.1126
Obs*R-squared	17.63927	Prob. Chi-Square(12)	0.1271
Scaled explained SS	9.358025	Prob. Chi-Square(12)	0.6721

Source: Author's Computation using E-Views 13(2024)

4.5.4 Normality Test

For robustness, the researcher also conducted diagnostic tests in the form of normality test to see how good the model specifications are. The results of the test are shown in Figure 4.6. The model passed the normality test since the probability of the Jarqua-Bera exceeds 0.005.

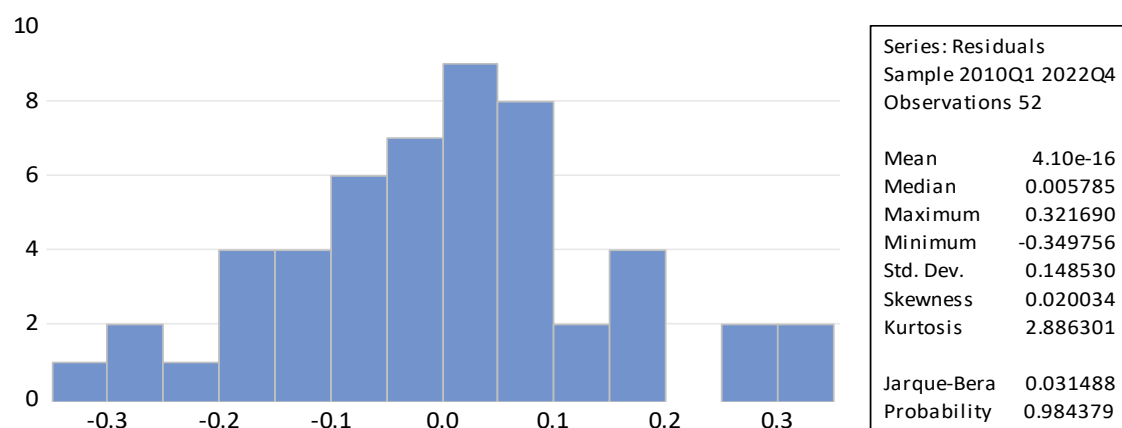


Figure 4.6 Normality Test Results

Source: Author's Computation using E-Views 13 (2024)

4.6 Bound Test Results

According to Pesaran *et al.* (2001) when the calculated F statistic is greater than the upper bound critical value, the null hypothesis is rejected; it signals that the underlying variables in the study are co-integrated. If the F-statistic fails to exceed the

lower bound critical value, the null hypothesis is accepted, informing that there is no co-integration among the variables.

Table 4.8: ARDL F-Values

ARDL F-Bounds Test		
Critical Value	Lower Bound Value 1(0)	Upper Bound Value 1(1)
1%	3.06	4.15
5%	2.39	3.38
10%	2.08	3.00
F-Statistic	4.208	

Source: Author's Computation using E-Views 13(2024)

Equally, if the F-statistic falls between the upper and lower bounds, the co-integration or order of integration must be known in order to make a conclusive reference. Based on this study's results in Table 4.7, the calculated F statistic of 4.208 exceeds the upper bounds at 5 percent significance levels, signaling that the variables have a long run relationship in line with previous studies such as Oteng-Abaiye (2011), Odihambo (2015), and Mazorodze (2018). These studies observed a cointegrating relationship between economic growth and government expenditure.

4.7 Empirical Findings

4.7.1 Error Correction Results

The bound test co-integration results inform that the variables are co-integrated at level 1(0) and at first difference 1(1) in the long run. Subsequently, the study established long run and short run equations together with the adjustment term. Optimal lags were automatically chosen using information criteria, AIC. The regression output was reported in Table 4.8 which also presents the result of the error correction model (short-run form) and long run form of the ARDL. The coefficient (-0.582) of the ECT term (speed of adjustment coefficient or error correction term) is negative and statistically significant at 5 percent level of significance, thus satisfying a convergence condition. This therefore suggests that LNGDP adjusts to LNCAPEX, CORR, LNTRADE and FDI in the long run. About 58.2 percent of the disequilibrium in the preceding periods has fallen back to equilibrium in the current period. In other words, it takes approximately 2 years to reach the equilibrium level in this model.

Therefore, long-run relationship or equilibrium has been restored amongst the variables. The R-Squared value of 0.79 which is the explanatory power of the model is high and thus, suggests that LRCAPEX, CORR and other control variables are good determinants or predictors of economic growth in the short-run. The remaining 21 percent account for other macroeconomic determinants of economic growth which are not accounted for in this study.

Table 4.9 ECM Results

Dependent Variable: D(LNGDP)				
Method: ARDL				
Date: 12/14/23 Time: 10:08				
Sample: 2010Q1 2022Q4				
Included observations: 52				
Dependent lags: 4 (Automatic)				
Automatic-lag linear regressors (4 max. lags): LNCAPEX CORR CORRCAP				
FDI___ LNTRADE				
Deterministics: Restricted constant and no trend (Case 2)				
Model selection method: Akaike info criterion (AIC)				
Number of models evaluated: 12500				
Selected model: ARDL(3,0,0,0,4,0)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.582466	0.099906	-5.830161	0.0000
D(LNGDP(-1))	0.081588	0.081685	0.998809	0.3232
D(LNGDP(-2))	-0.496894	0.095435	-5.206604	0.0000
D(FDI___)	1.329191	0.344011	3.863802	0.0004
D(FDI___(-1))	0.188113	0.374873	0.501805	0.6183
D(FDI___(-2))	0.942212	0.378096	2.491992	0.0165
D(FDI___(-3))	0.718036	0.349799	2.052709	0.0459
R-squared	0.786309	Mean dependent var		0.016309
Adjusted R-squared	0.757817	S.D. dependent var		0.321308
S.E. of regression	0.158122	Akaike info criterion		-0.726245
Sum squared resid	1.125121	Schwarz criterion		-0.463578
Log likelihood	25.88238	Hannan-Quinn criter.		-0.625545
F-statistic	27.59748	Durbin-Watson stat		1.880585
Prob(F-statistic)	0.000000			

* p-values are incompatible with t-Bounds distribution.

Source: Authour's computation using E-views 13 (2023)

4.7.2 Results for Model (1)

Model (1) in Table 4.9 shows the ARDL results on how corruption and capital expenditure affect economic growth before including the interaction effect of these two independent variables. The significant coefficients include the first lag of economic growth (LNGDP); therefore, past values of economic growth are a significant determinant of economic growth in the short run. The second lag of economic growth (LNGDP(-2)) is negative and significant implying that bad performance of the economy in the past has a cascading effect in growth in Zimbabwe. The same trend applies in the long run where the effect of LNGDP (-1) is

significant and negative. The short-run estimated results reveal that the level of capital expenditure retards economic growth in Zimbabwe though the effect is weak before introducing the interaction effect of capital expenditure and corruption. The results for this variable demonstrate that a 1% increase in capital expenditure cause a decline in economic growth, by about 0.19%, holding other variables in the model constant. This means that capital expenditure (LCAPEX) is an insignificant factor in explaining economic growth. This is against the apriori that government expenditure plays an important role in economic growth (Keynes, 1936). This short run outcome is consistent with Olaoge *et al.*, (2018) who employed the panel vector autoregressive and the two-step system generalised method of moments (GMM) models to examine the direction of causality between government expenditure and growth in West African states countries. The study findings showed no evidence of causality between government expenditure and economic growth in West African countries. Olaoge *et al.*, (2018) used time series data and applies ARDL estimation technique to determine the long run and short run relationship between the variables. The outcome of their study favours the Classical economists who were against the heavy government expenditure role since they believed in market economy. The classical economists contend that government intervention creates nothing but disturbances to the automatic mechanism of market economy. Although revenue programs and government expenditure as “necessary evils” (Economic Dream, 2010), ‘less government role’ is emphasised.

However, in the long run the results reveal a significant positive effect of capital expenditure on economic growth. The result suggests that a 1% increase in capital expenditure has the potential to increase economic growth by 0.14%. The outcome is in line with Pula and Elshani (2017) who examined the Wagner’s endogenous approach against Keynes exogenous approach to the growth-public expenditure relationship in Kosovo. They find a significant positive effect of capital expenditure on economic growth between 2004 and 2016 thus supporting the Keynes’ exogenous public expenditure growth theory. In addition, Sidek and Asutay (2020) employed time series data from 1984 to 2017 and analysed the impact of government expenditure on economic growth for a sample of 30 developed countries and 91 developing countries.

The authors concluded that there exists a positive effect of capital expenditure on economic growth in line with the findings in this study. This result supports the Keynesian theory view which hypothesises that capital expenditure is growth-stimulating in line with the empirical findings (Ram, 1986; Mhari, 2016). The possible explanation is that improvement in capital goods enhances labour productivity by making business entities more efficient and productive thus leading to economic growth.

Table 4.10 ARDL Results (3,0, 0, 0, 4, 0) selected based on Akaike Information Criterion

Sample:2010Q1- 2022Q4 Variables	Dependent Variable: LNGDP						Dependent Vari	
	<i>Model 1</i>			<i>Model 2</i>			<i>Model</i>	
	Coeff	Std. Err	T-Stat	Coeff	Std. Err	T-Stat	Coeff	Std. E
Long-run Results								
LNGDP(-1)	-0.627*	0.159	-3.944	-0.582*	0.151	-3.854	-0.583*	0.14
LNCAPEX	0.0849*	0.030	2.842	-0.049*	0.062	-0.795	0.124*	0.12
CORR	-0.171	0.234	-0.730	-0.272*	0.049	-2.77	-0.296*	0.04
CORR*LNCAPEX	-	-	-	-0.231*	0.036	-8.83	-0.368*	0.03
TRADE	-0.7750*	0.262	-2.958	-0.703*	0.249	-2.820	-0.682***	3.57
FDI(-1)	0.008	0.238	0.035	0.052	0.226	0.230	0.0429**	1.35
Short-run Results								
ΔLNGDP(-1)	0.143	0.117	1.223	0.0816*	0.113	0.722	0.1249*	0.15
Δ LNGDP(-2)	-0.516*	0.118	-4.377	-0.497**	0.112	-4.556	-0.419*	0.15
Δ LNCAPEX	-0.185	0.072	-2.55	-0.127*	0.049	-2.75	-0.120*	0.03
Δ CORR	-0.196*	0.155	-2.99	-0.236*	0.173	-2.88	-0.324*	0.15
Δ CORR*LNCAPEX	-	-	-	-0.149*	0.244	2.662	-0.112*	0.29
Δ TRADE	-	-	-	0.008***	3.736	-4.147	0.008***	3.36
Δ FDI	-	-	-	1.329**	0.4255	3.123	0.409**	1.05
No of Observations	52			52			52	
R-Squared	0.754			0.786			0.69	
Adj, R-Squared	0.686			0.721			0.62	
Prob (F-Statistic)	0.0000			0.0000			0.0000	
Durbin-Watson Stat	2.0149			2.8041			2.6730	

Note: ***, **, * denotes statistical significance at 1%, 5% and 10% level, respectively

Source: Author's Computation using E-Views 13 (2024)

This study informs that policymakers should recognize the importance of capital expenditure in building and expanding economic growth based on the findings. The study also corroborates Olouye *et al.* (2020) who find a positive effect of government spending on economic growth in the presence of institutional quality. This outcome however contradicts previous studies by Butkiewicz and Yanikkaya (2011), Babatunde (2015),

Hajamini and Falahi (2018), Nguyen and Bui (2022) which concluded a negative effect of capital expenditure on economic growth. These studies suggest that inefficient use of capital expenditure by the government can hamper economic growth.

The results in model (1) also show that the effect of control of corruption on economic growth is significantly negative both in the short run and long run. In the short run, a 1% increase in control of corruption retards economic growth by 0.20% and this has the potential of increasing to 0.25% in the long run. This finding demonstrates that corruption can inhibit the allocation of government resources, which can successively dampen economic growth. This is completely relevant in Zimbabwe which is characterised by poor institutional quality. Corruption has the potential of increasing uncertainty in terms of return on investment (Blackburn *et al.*, 2006), which can consecutively lead to a reduction in the investment motive for individuals thus decreasing the potency of resource allocation in the economy (d'Agostino *et al.*, 2016). In an environment linked with high corruption, like in Zimbabwe where the mean index is -1.23, the allocated resources in the economy will be wasted and ineffective (Cieslik & Goczek, 2018). Consequently, corruption can result in the discouragement of new investment, thus destabilizing the economy, hindering economic growth (Blackburn *et al.*, 2006; Meon & Sekkat, 2005; Pellegrini & Gerlagh, 2004; Rock & Bonnett, 2004; Nguyen & Bui, , 2022). The result in Zimbabwe could also be attributed to limitations on the allocation of government resources, thereby inhibiting economic growth. Corruption is negatively related to economic growth, according to the findings, which concur with most literary works including studies on analyzing the data on countries with amended development level, such as Kato and Sato (2015) and Huang (2016). However, this study does not withhold the crucial role of control of corruption in economic growth, which is proven in the studies by Ugur (2014), Saleh *et al.* (2016), Cieslik and Goczek (2018). According to this study, if control of corruption is implemented in concurrence with improved government effectiveness (especially improving the effectiveness of capital expenditure management), there is a possibility that control of corruption can stimulate economic growth.

This study finding advocates for the sand to the wheels' hypothesis which argue that corruption hinders economic performance by destructing innovative activities which depends on government-supplied goods which are entirely provided by state institutions such as permits, licenses, and import quotas, more than established producers do (Alfada, 2019; Bacao *et al.*, 2019; Lawal & George, 2020). These commodities are characterised

by high and inelastic demand; hence, they become a primary target for corruption (Ogun, 2018).

Loss and damage may arise from a wide variety of corrupt activities which take place in connection with an infrastructure capital expenditure. These activities may include bribery, extortion, fraud, cartels, abuse of power, embezzlement, and money laundering and the individuals who carry out these corrupt activities may include government officials (civil servants) and management and employees of the project owner, financiers of the project, tenderers, contractors, consultants, sub-contractors, and suppliers (Matorera, 2023). They may be acting either on their own behalf or on behalf of their organisations. Corrupt activities may take place at any time during the project, from the point where the project is being selected right through all phases of financing, design, tendering, execution, maintenance, operation and dispute resolution. Each of the corrupt activities may cause material and significant financial loss and damage. Financial loss may arise from increased maintenance and repair costs and legal fees. In the case of projects funded from the fiscus, the government is the owner of the infrastructure projects such as trunk roads, airports, dams, bridges, hospitals, schools, and state universities. The public funds voted for these capital projects are misallocated or outright misappropriated with the projects remaining underfunded. In this case corruption is the amounts that were not spent on the projects for which they were intended. This cost of corruption could have been because of flawed tendering system. This may be due to the corrupt supply of defective works, services and materials which have either been concealed from the certifier or been corruptly approved, or it may be due to the incompetence of the contractor who won the contract through bribery. These defects may necessitate increased maintenance and repair works. The contracts may allow for price variation as a way of increasing the cost of the project. In some cases, the project may be over designed to no benefit to the public who are the beneficiary. All these additional costs account for corruption. Corruption results in the taxpayer being burdened with the additional cost as a result of bribery. The cost of such corruption is the additional amount paid towards the government project. Lack of professional ethics and deficient laws regulating corruption as a criminal offence and the prosecution and sanctioning of it are also an important cause for the emergency and spread of corruption (Sumah, 2018). The author argues further that a great influence comes from the ineffective sanctioning of corruption which only increases the possibility of continuing the corruptive actions of those involved creating at

the same time a strong likelihood that that others will join in the corruption due to this inefficient sanctioning. The World Bank survey shows that US\$1 billion is paid in bribes annually in both the rich and in developing countries (World Bank, 2015).

Corruption reduces economic growth when public resources are excessively allocated to a given expenditure item. This would facilitate collection of more bribes with resultant negative effects on economic growth.

Ghosh & Kyriakos 2017). Other more recent works show that an increase in corruption leads to an increase in the share of public expenditure allocated to rent-seeking sectors in the total budget, which drives states to spend more on capital (Hessami 2014; Liu & Mikesell 2014).

Corruption derails investor confidence in a country as it increases the cost of doing business thus affecting profitability and economic growth. Difficult and drawn-out negotiations and bribes increase transaction costs as they act as a “hidden tax”, which is a cost of doing business (OECD, 2016). Likewise, corruption oftentimes involves many steps (heavy bureaucracy), including unnecessary procedures and delays that increase the possibilities of collecting bribes. Corruption undermines sustainable development. As indicated in the study results, corruption can negatively affect the capital expenditure as it undermines the ability of states to collect taxes. Finally, corruption can interrupt the decision-making process thus limiting the efficiency of government capital expenditure. In terms of policy implications: reducing the level of corruption in Zimbabwe will help efficient administration of capital expenditure and ultimately help increase economic growth. There is still much work to be done in terms of the interaction between corruption and capital expenditure.

The result of this however contradicts several scholars (for instance, Mallik, & Saha, 2016; Gründler and Potrafke, 2019; Al Qudah *et al.*, 2020; Malanski and Povoia, 2021) who suggested a positive impact of corruption on economic growth. These scholars contend that corruption can be useful in ‘greasing of the wheels’, which can boost economic growth. For example, Mallick and Saha (2016) concluded that in the medium corrupt countries’ corruption stimulates growth by reducing red-tape. This result however does not apply in Zimbabwe where the corruption level is high as indicated by the mean values in the descriptive statistics.

As for the control variables, the effect of trade was negative and significant whilst the effect of foreign direct investment was positive though not significant.

4.7.3 Results for Model 2 Moderating effect of Corruption on the nexus between Capital expenditure and Economic Growth

Displayed in Model 2 are the results on the moderating effect of corruption on the capital expenditure-economic growth nexus. After introducing the interaction effect (LNCAPEX*CORR), the coefficients for both capital expenditure and corruption were negative and significant in the short run supporting the view that capital expenditure, and control of corruption are all essential contributors to economic growth. In the short run a 1% increase in capital expenditure and control of corruption reduces economic growth by 0.13% and 0.24% respectively. According to Dzhumashev, (2014) and Keefer and Knack, (2007), corrupt government officials often allocate expenditure on projects where they can collect bribes and to keep them hidden. This means that corruption negatively affects capital expenditure which consecutively affects economic growth. Moreover, corruption can warp the budget revenue and affect the structure of the government's capital expenditure. Although corruption and government expenditure have negative impacts on economic growth, good control of corruption has the potential to reduce the degree of the negative impact of capital expenditure on economic growth. The findings in this study also support Ugur (2014) who synthesized the results of 29 previous studies and establish that corruption can impair economic growth through public finance. This is also in line with d'Agostino *et al.* (2016) who demonstrated that control of corruption can minify the level of the negative impact of government expenditure on economic growth. However, the results from this study are the first empirical evidence found in Zimbabwe; hence, they are of great significance for the economy.

In the long run, the study reveals a significant negative effect of capital expenditure on economic growth. A 1% increase in capital expenditure reduces economic growth by 0.05% after including the interaction effect) and the effect is significant. The transformation in the coefficients of capital expenditure from 0.08 (insignificant) to -0.05 (significant) implies that although government expenditure positively affects economic growth slightly, the level of corruption adversely affects the impact. This suggests that corruption in Zimbabwe is a drag and not a push factor for government capital expenditure policies. The result thus provides empirical evidence of a conditional relationship between capital expenditure and economic growth in Zimbabwe. The

findings suggest that for economies to reap the fruits of capital expenditure, governments should control or eradicate corruption. This outcome supports the Keynesian Theory which contends that expansionary fiscal policies enhance economic performance particularly in recessionary periods. The claim was hinged on the knowledge that fiscal expenditure increases money injection into the economy leading to an increment in aggregate demand which then cause a rise in economic growth. A rise in government expenditure specifically on infrastructure development results in higher economic growth. According to the theory private investment is inefficient in enhancing sustainable economic growth especially in recessions but government intervention is recognised as the most effective enhancer of sustainable economic growth. Basing on the theory a positive long run relationship between capital expenditure and economic growth is expected. This result is consistent with several scholars who found a positive relationship between government expenditure and economic growth (Sedrakyan & Candamio, 2019; Gisore, *et al.*, 2014; Sedrakyan & Candamio, 2019).

This study opines that, if control of corruption is enforced simultaneously with improved government effectiveness in the management of capital expenditure, it is assertable that growth in the economy can be stimulated. In Table 4.9, the study found a significant negative impact (-0.231) of the interaction variable (LNCAPEX*CORR) on economic growth at the 1% significance level in the long run. This implies that increasing the interaction (LNCAPEX*CORR) by 1% reduces economic growth in Zimbabwe by 0.23% in the long run. This impact has lowered the individual impact level of LNCAPEX from 0.08 to -0.049. This shows that the combination of LNCAPEX and CORR will reduce the positive impact of these two factors on LNGDP. In terms of CORR, the individual impact level has increase from -0.171 to -0.272. These results are consistent with the previous judgment of d'Agostino *et al.* (2016). However, our results are the first empirical evidence found in Zimbabwe; hence, these findings are of great significance. This ARDL estimation result answers the questions related to the role control of corruption plays on the LNCAPEX and LNGDP nexus.

In terms of the control variables, both foreign direct investment and trade openness positively affects economic growth in a significant manner in the short run. However, this is not the case in the long run where a 1% increase in foreign direct investment (FDI) leads to an increase in economic growth by 0.05% though the effect is not significant. The assertable explanation for the positive relationship is that foreign direct investment (FDI)

enhances industrialisation which increases production and output which are components of economic growth. Due to the ease of doing business challenges in Zimbabwe, coupled by a volatile environment could have dragged the effect of foreign direct investment. Investors prefer to invest in other countries, in fear of some policies which may not be investor friendly. The empirical evidence concerning the economic effects of sanctions indicates that they trigger financial crises as averred by Hatipoglu and Peksen, (2018). Sanctions result in reduction in trade (Felbermayr *et al.*, 2020b) and reduction in foreign direct investment (Mirkina, 2018). The impact of sanctions is often severe on countries sanctioned by the United States. Carmichael *et al.* (2022) contend that lenders will want to ensure that any transaction they enter complies with all relevant sanctions regimes, because a breach of sanctions legislation may result in them being liable for civil and or criminal penalties. Furthermore, a breach of any sanctions regime can lead to serious damage to their reputation.

In the case of Zimbabwe, the sanctions were as a result of land reform. Zimbabwe undertook a Fast-Track Land Reform and Redistribution Programme in year 2000 which expropriated land from 4,500 white commercial farmers and reallocated it to 169,347 indigenous farmers of whom 149,743 were model A1 and 19,604 were model A2 (Ministry of Lands, Agriculture, Fisheries, Water and Land Resettlement). This attracted economic sanctions by United States of America (USA) through enactment of the Zimbabwe Democracy and Economic Recovery Act (ZIDERA) in 2002. Supplementing the US' legislative sanctions of ZIDERA are Executive Sanctions (Executive Order 13288) of March 2003 renewable on yearly basis. The European Union also introduced its own sanctions through the Common Position 2002/145/CFSP in February 2002. The key results show a significant negative effect of sanctions on GDP growth, trade, and foreign direct investment. The estimated effects are economically relevant, as the country's GDP has been declining over the study period 2009 to 2022.

Sanctions can result in trade controls in the form of import and export quotas and cancellation and suspension of trade agreements. Furthermore, Aveisyana *et al.*, (2020) contend that various forms of government intervention in trade, such as tariffs, quotas, and taxes, discourage economic interaction between states and reduce the gains from free trade. Economic sanctions are a form of government action by senders of sanctions that are designed to block specified categories of trade or investment in the target country. A

consequence of sanctions is that the more successful sanctions are at restricting the supply of goods to the target, the higher the price of those goods become in the targeted country. As the price of goods in the target rise above world prices, the incentive for third party countries to step in and replace the supply of the goods also rises. Splinter and Klomp (2021) have found weak but significant, positive effect of economic sanctions on the likelihood of a growth deceleration.

The results show that contrary to expectation, the coefficient of LNTRADE is negative and significant in negative and significant in the long run though positive as expected in the short run. The negative contribution of trade on economic growth could be a result of economic sanctions that were imposed on Zimbabwe because of the land reform of 2000. The sanctions by the USA and European Union could have affected inflows of trade and FDI performance in Zimbabwe during the period under study. For the best part of the period under study, trade and FDI became an inherent source of revenue for Zimbabwe. As the economy passed through a protracted period of economic crisis, characterised by sanctions, insufficient domestic production, consumers resorted to imports thus negatively affecting the position of trade in the country. Nguyen and Ahmed (2023) contend that sanctions exert detrimental effect on the total inflows of FDI and its components.

The results in the short run confirmed the previous findings in literature that trade openness has a positive impact on GDP (Dava (2012); Asiedu (2013); Mwaba (2010); Yeboah *et al.* (2012) and Mazorodze (2018). However, Lutz and Ndikumana (2007) found a limited impact of trade openness on economic development in 33 African countries after controlling for export diversification, in contrast to other studies. This might have been caused by corruption since the growth effects of trade are enhanced by institutions.

4.8 Robustness of the Model Checks

Table 4.11: VAR Granger Causality/Block Exogeneity Wald Tests

VAR Granger Causality/Block Exogeneity Wald Tests			
Date: 12/03/23 Time:00:06			
Sample: 1992- 2022		Included Observations: 54	
<i>Dependent variable: LNGDP</i>			
Excluded	Chi-Sq	Df	Prob
LNCAPEX	15.379622	2	0.0006
CORR	15.23935	2	0.0005

All	24.81808	4	0.0002
Dependent Variable: LNCAPEX			
Excluded	Chi-Sq	Df	Prob
LNGDP	22.30563	2	0.0000
CORR	15.16478	2	0.0005
All	22.40944	4	0.0002
Dependent Variable: CORR			
Excluded	Chi-Sq	Df	Prob
LNGDP	0.420667	2	0.8103
CAPEX	0.246098	2	0.8842
All	1.500382	4	0.8266
Dependent Variable: LNGDP			
LNTRADE	14.391622	2	0.0006
FDI	0.266981	2	0.8144
All	12.63950	4	0.62158

Source: Author's Computation using E-Views 13(2024)

To check for robustness of the model results, the study conducted a granger causality test using Block exogeneity wild tests. The result of the test is shown in Table 4.11. The outcomes of the Granger causality test reflect causality among capital expenditure, corruption, and economic growth in Zimbabwe. The outcomes from the Granger causality test display a bidirectional causality relation between capital expenditure and economic growth ($\text{LNCAPEX} \rightarrow \text{LNGDP}$) and ($\text{LNGDP} \rightarrow \text{LNCAPEX}$). Some scholars have confirmed the causality running from government expenditure to economic growth (see for instance Olugbenga & Owoye, 2007; Mazorodze, 2018). Such a result is generally credible in the context of a developing economy like Zimbabwe where governments employ fiscal spending as a tool to spearhead the economy. Furthermore, the results of this study indicate that there is a unidirectional causal linkage running from corruption to capital expenditure ($\text{CORR} \rightarrow \text{LNCAPEX}$). Capital expenditure and economic growth failed to granger cause corruption. This finding confirmed that government expenditure affected economic growth through control of corruption. This therefore justifies the outcome of the research where corruption and capital expenditure affects economic growth negatively. This indicates that corruption affects economic growth and as the economy grows corruption also increases. Combining the two outcomes, corruption affects capital expenditure which also affects economic growth. Thus, it justifies the result that the interaction between corruption and capital expenditure negatively affects economic growth. In terms of the control variables, the study finds a unidirectional causality from LNTRADE to economic growth, in line with the ARDL results.

Table 4.12: FMOLS ; DMOLS & CCR estimation results

FMOLS Results			DMOLS Results		CCR Results	
LNGDP	Coeff.	P > Z	Coeff.	P > Z	Coeff.	P > Z
Constant	4.1897	0.000	1.6316	0.000	1.699	0.000
LNCAPEX	0.2656	0.0793	0.1514**	0.0843	0.106*	0.003
CORR	-0.271*	0.001	-0.269*	0.002	-0.271*	0.004
CORR*LRCAPEX	-0.5714*	0.0482	-0.231***	0.001	-0.234*	0.036
LNTRADE	-1.090*	0.0002	0.009***	0.001	0.008***	0.001
FDI	0.808*	0.0313	0.427	0.001	0.429**	0.001
R-Square	0.60751		0.95891		0.92461	
Adjusted R-Square	0.56750		0.83168		0.79154	

Note:***, **, * denotes statistical significance at 1%, 5% and 10% level, respectively

Source: Author's Computation using E-Views 13 (2024)

The study also conducted a Dynamic and Fully Modified Ordinary least squares regression (DMOLS and FMOLS) together with the Canonical Cointegrating Regression (CCR) using LNGDP and GDPG as the independent variables respectively, so as to determine the moderating role of control of corruption on the capital expenditure-economic growth nexus in Zimbabwe. The results are shown in Table 4.12 and Table 4.13. The results from all the three models (DMOLS, FMOLS and CCR) confirm that the interaction between corruption and capital expenditure derails economic growth in Zimbabwe. The results remain the same in terms of signs of the coefficients when LGDP is replaced by GDPG in Table 4.8. Model (3) in Table 4.8 also illustrates the moderating effects of corruption on the capex-growth nexus for robustness. GDPG was used as the independent variables and the ARDL results confirm the rest of the findings. The impulse response results in the appendix also confirm the results on all these models.

Table 4.13 : FMOLS ; DMOLS & CCR estimation results

FMOLS Results			DMOLS Results		CCR Results	
LRGDP	Coeff.	P > Z	Coeff.	P > Z	Coeff.	P > Z
Constant	1.9251	0.000	1.9251	0.000	1.9255	0.000
LRCAPEX	0.048	0.001	0.048	0.001	0.045*	0.001
CORR	-0.299	0.001	-0.298	0.002	-0.298*	0.004
CORR*LRCAPEX	-0.268	0.003	-0.268	0.003	-0.267*	0.003
LNTRADE	0.006***	0.001	0.009***	0.001	0.006***	0.001
FDI	0.474**	0.001	0.468	0.001	0.474**	0.001
R-Square	0.76923		0.76833		0.76923	
Adjusted R-Square	0.68317		0.68492		0.68317	
Durbin Watson Test	2.58619		2.57604		2.58541	
Prob (F-Statistic)	0.00000		0.00000		0.00000	

Note:***, **, * denotes statistical significance at 1%, 5% and 10% level, respectively

Source: Author's Computation using E-Views 13 (2024)

This outcome also differs from Mhari (2016) who concluded that capital expenditure stimulates growth in Zimbabwe.

4.9 Chapter Summary

The analysis used quarterised data to interrogate the relationship between capital expenditure and economic growth amid moderating variables corruption and sanctions. There is a positive relationship between capital expenditure and economic growth. However, both corruption and sanctions have negative effects on the relationship between capital expenditure and economic growth.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Zimbabwe has been deploying significant capital expenditure. However, the economic growth has been insignificant witnessing negative growth rates in some years over the study period 2009 to 2022. The study was therefore, on the relationship between capital expenditure and economic growth amid moderating variables financial leakages (corruption) and economic sanctions. The study used Autoregressive Distribution Lag to analyse financial leakages and economic sanctions to capture the heterogeneous effects on Zimbabwe. The three objectives were:

- a) To examine the relationship between capital expenditure and economic growth;
- b) To establish the moderating effect of financial leakages (corruption) on the relationship between capital expenditure and economic growth; and
- c) To establish the moderating effects of economic sanctions on the relationship between capital expenditure and economic growth.

It was important to establish internal economic variability in Zimbabwe's economic growth pattern consequent of capital expenditures. The results from amid the first empirical evidence found in Zimbabwe on the relationship between capital expenditure and economic growth in the midst of corruption and sanction. This makes the results of this research study of critical significance for the Zimbabwe.

5.2 Summary of Findings

The findings of the research study are that there is a positive relationship between capital expenditure and economic growth both in the short-run and long run. The results provide empirical evidence of a conditional relationship between capital expenditure and economic growth. The findings show that a rise in government expenditure, specifically on infrastructure development, results in higher economic growth. Furthermore, the findings are consistent with several scholars who found a positive relationship between government expenditure and economic growth contradicting those who found negative relationships. The research findings are also consistent with the Keynesian Theory which states that expansionary fiscal policies enhance economic performance particularly in

recessionary periods. During the study period Zimbabwe has been experiencing negative growth rates despite significant capital deployment.

However, on financial leakages, the findings demonstrate that in Zimbabwe they are negatively related to economic growth. Financial leakages have significant negative effects on economic growth both in the short run and long run. The findings show that in the short run, a 1% increase in control of corruption retards economic growth by 0.20%. This has the potential of increasing to 0.25% in the long run. The findings demonstrate that corruption can inhibit the allocation of government resources, which can successively dampen economic growth. The findings are pertinent in Zimbabwe which is characterised by poor institutional quality. Corruption increases uncertainty in terms of return on investment which can lead to reduction in the investment motive in the economy. The findings show that in Zimbabwe the environment is linked with high corruption, with the mean index of negative -1.23. This makes allocated resources in the economy to be wasted and ineffective. In Zimbabwe there is the Zimbabwe Anti-Corruption Commission (ZACC), meant to deal decisively with those involved in corrupt activities. Efforts by government to mitigate or eliminate corruption have not been successful despite the existence of the Anti-Corruption Commission. The findings suggest that for the economy to reap the fruits of deployment of capital expenditure, the government should decisively deal with corruption. Corruption reduces growth through its effects on the allocation of public resources because of allocating more resources to a given expenditure. The findings support action against corruption requiring government intervention through the Anti-Corruption Commission by giving it teeth.

On economic sanctions examined inflows of foreign direct investment and inflows of trade of goods and services. Economic sanctions as a moderator on both foreign direct investment and trade openness positively affects economic growth in a significant manner in the short run. However, this is not the case in the long run where a 1% increase in foreign direct investment leads to an increase in economic growth by 0.05% though the effect is not significant. The assertable explanation for the positive relationship is that foreign direct investment enhances industrialisation which increases production and output. These components are imperative for economic growth. Due to the ease of doing business challenges in Zimbabwe, coupled by a volatile environment could have dragged the effect of foreign direct investment. Investors fear for penalties by “senders” to those

countries that would trade with Zimbabwe. Furthermore, the policies of the government of Zimbabwe may not be investor friendly to attract foreign direct investments and stimulate trade of goods and services. The empirical evidence concerning the economic effects of sanctions indicate that they trigger financial crises. The findings of the study show that sanctions result in reduction in trade and reduction in foreign direct investment. Furthermore, a breach of any sanctions regime can lead to serious damage to their reputation. The USA sanctions resulted in trade controls in form of import and export quotas and cancellation and suspension of trade agreements. Furthermore, various forms of interventions in trade, such as tariffs, quotas, and taxes, discourage economic interaction between Zimbabwe and other states thereby reducing the gains from free trade. As the price of goods in Zimbabwe rises above world prices, the incentive for third party countries to step in and replace the supply of the goods also rises. The aim of sanctions is to restrict the cross-border flow of financial activities. Such sanctions create collateral damage by reducing trade in goods and services. The presence of sanctions increases the risk of other countries doing business, with Zimbabwe. Sanctions engender hesitation among potential investors, penalise capital accumulation and hamper economic growth. Access to markets becomes elusive and expensive. The findings show that there is a significant negative effect of international sanctions on GDP growth as well as on trade and foreign direct investment.

5.3 Conclusions

In conclusion the findings of the research are that the government should continue to prioritise capital expenditure as it has positive effects on economic growth as an engine for economic growth. However, working against this growth are financial leakages (corruption). The authorities should deepen, sharpen and expand the fight against the corrosive corruption by sanctioning those involved in the cancerous corrupt acts. Procurement in the public sector should be more transparent. The government should engage sanctions senders to resolve the challenges being caused by sanctions.

The philosophy that guided the quantitative research was positivism. This empirical analysis on the relationship between capital expenditure and economic growth during corruption and sanctions is the first in Zimbabwe. Both financial leakages and economic sanctions are moderating on this relationship retarding economic growth. The government should stimulate the economy by addressing the regressors. The study used

quantitative secondary data from the World Bank and government of Zimbabwe for the quantitative analysis. ARDL was used to examine the short run and long run secondary quantitative data. It is recommended that we conclude based on the objectives set.

5.4 Recommendations

The research findings identified a positive relationship between capital expenditure and economic growth. However, this relationship is being moderated by financial leakages and economic sanctions. The financial leakages are eroding the financial value of capital expenditure while economic sanctions are scaring away potential investors. The negative effects of these two variables of concern explain the small to negative economic GDP growth rates over the study period 2009 to 2022.

The recommendations from the findings of the study are subdivided into practice, policy, theoretical implications and future studies.

5.4.1 Recommendations to Practice

On capital expenditure, the government of Zimbabwe should deploy even more financial resources for capital expenditure towards infrastructure development to stimulate economic growth. However, very strong and decisive measures should be taken to eradicate corruption. Lifestyle audits should be more rigorous and ruthless. Long custodial sentences are called for on all those fuelling and involved in corruption.

Some senior government officials are signing Integrity Pledges. However, this is optional to those who want to sign them. The integrity pledges create sense of guilt on the part of would-be corrupt officials. The signing of the integrity pledges should be made mandatory to all public servants including politicians such as Ministers of Transport and Infrastructure Development, Local Government and Public Works, Mines and Mining Development, National Housing, Industry and Commerce, Information and Publicity and Agriculture, Lands, Fisheries and Water Development. These Ministries handle large tenders in respect of capital goods such as infrastructure.

On sanctions, the government of Zimbabwe, with the support of African Union and Southern African Development Community, should directly engage the USA government to have Zimbabwe Democracy and Economic Recovery Act repealed. This would create an environment conducive for free international trade of goods and services. Furthermore,

it would attract inflow of quality Foreign Direct Investments, which is usually accompanied with transfer of latest technology.

5.4.2 Recommendations on Policy

The policy makers, the government of Zimbabwe, should improve on governance on all financial transactions. The government should strengthen current legislation on procurement which is failing to serve as a deterrent to acts of corruption. The procurement act should play a facilitating role minimising human interaction to eliminate corruption in procurement in the public sector.

Elimination of corruption creates confidence in investors. The government should therefore seriously consider entrenching Integrity Pledges into law through statutes.

The authorities should create conducive macroeconomic environment to attract investors and grow the economy. The policy makers should attend to the land reform issues, which are of concern to the sanctions imposers. The hanging fruit to this is the fulfilling of the undertaking to pay for improvements to the dispossessed farmers.

5.4.3 Recommendations on Theoretical Implications

More theoretical research is required on the less understood effects of sanctions as an instrument of coercion. Most theoretical research has been restricted to one specific area as opposed to comprehensive research. It is not clear whether the Zimbabwe economy would not have still deteriorated in the absence of sanctions. Solutions from empirical research are required to deal with the cancerous pathways of financial leakages.

5.4.4 Recommendations for Future Studies

This study restricted to analysis of the relationship between capital expenditure and economic growth in the midst of moderating variables financial leakages and economic sanctions. Other moderators such as inflation and poor management of the resources were not analysed. The study also isolated capital expenditure as opposed to total government expenditure. The research also used quantitative secondary data for its analysis. No primary data was collected. More future research is required to investigate what would have happened if there were no sanctions. Recommendations are being made for more comprehensive research studies to address these areas based on cross country experiences of other sub-Saharan African countries.

In line with Education 5.0 future studies should find ways to tackle corruption which has moderating effects on deployment and use of capital expenditure.

REFERENCES

Abdukadir, M.A. (2018). The effect of corruption on economic growth in Uganda. (Unpublished Masters Dissertation in economics), Makerere University, Kampala-Uganda

Abbott P. du Plessis A., (2022) “New features of the 2022 Code of Good Practice: On the prevention and elimination of harassment in the workplace” South Africa Boarder for People Practice 216

Abdulkareem Alhassan, Anoush Shabani sabzehmeidani, Amjad issa Taha, Murat Ismet Haseki, (2023). Sanctions and economic growth: Do sanction diversity and level of development matter?, Heliyon, Volume 9, Issue 9, e19571, ISSN 2405-8440, <https://doi.org/10.1016/j.heliyon.2023.e19571>.

Abel Nyarko-Asomani, Vijay K. Bhasin and Peter B. Aglobitse (2019) Government capital expenditure, recurrent expenditure and economic growth in Ghana Published Online: 31 Dec 2019 <https://hdl.handle.net/10520/EJC-1b2f6ea97f>

Abutabenjeh, S., Jaradat, R. (2018). Clarification of research design, research methods, and research methodology: A guide for public administration researchers and practitioners. *SAGE Journals* (36) 3, 237-258. <https://doi.org/10.1177%2F0144739418775787>

Acceldata, (2022) What is data reliability <https://www.acceldata.io/article/what-is-data-Reliability>

Adam, A., and S. Tsarsitalidou. (2019). “Do sanctions lead to a decline in civil liberties?” *Public Choice* 180 (3-4): 191–215.

AfDB (2018a). The Africa infrastructure development index 2018. Statistics Department, July

Adedoyin, Olasile. (2020). Quantitative Research Method.

Adelopo, I., and Rufai, I (2020) Trust deficit and anti-corruption initiatives. J. Bus Ethics 163, 429 – 449. Doi: 10.1007/s10551 – 018 – 4059-z

Ades, Alberto, and Rafael Di Tella. (1999). "Rents, Competition, and Corruption." American Economic Review, 89 (4): 982-993.DOI: 10.1257/aer.89.4.982

Adom, Dickson & Hussein, Emad & Adu-Agyem, Joe. (2018). THEORETICAL ANDCONCEPTUAL FRAMEWORK: MANDATORY INGREDIENTS OF A QUALITY RESEARCH. International Journal of Scientific Research. 7. 438-441.

Afesorgbor, S. K. (2019). “The Impact of Economic Sanctions on International Trade: How do Threatened Sanctions Compare with Imposed Sanctions?” European Journal of Political Economy 56:11–26.

Afesorgbor, Sylvanus Kwaku, (2016) *The impact of economic sanctions on international trade: how do threatened sanctions compare with imposed sanctions?*, EUI MWP, 2016/15 - <https://hdl.handle.net/1814/41787>

Afonso A, de Sá Fortes Leitão Rodrigues E (2022) Corruption and economic growth: does the size of the government matter? Econ Change Restruct 55(2):543–576. <https://doi.org/10.1007/s10644-021-09338-4>

African Development Bank (2011) “Infrastructure and Growth in Zimbabwe: An Action Plan for Sustainable Economic Growth.

African Development Bank (2018) Africa’s Infrastructure Great Potential But Little Impact on Inclusive Growth [fadbf.org/fileadmin/uploads/afdb/Documents/Publications/2018AEEO/ African_Outlook_2018_EN_Chapter3.pdf](https://fadbf.org/fileadmin/uploads/afdb/Documents/Publications/2018AEEO/African_Outlook_2018_EN_Chapter3.pdf)

Agenor P.R, (2019) Growth and welfare effects of macroprudential regulation Macroecon. Dyn., 23 (2019), pp 3140 – 3162.

Ahmad, U. G., & Loganathan, N. (2015). The causal nexus between government expenditure and economic growth in Nigeria: evidence from a bootstrap rolling window approach. *The American Journal of Innovative Research and Applied Sciences*, 2(1), 16-24. Rr

Ahn, D.P and R.D. Ludema. (2019). “Measuring Smartness: The Economic Impact of Targeted Sanctions against Russia,” in T. Besedeš and V. Nitsch (eds), *Disrupted Economic Relationships: Disasters, Sanctions, Dissolutions*, MIT Press.

Ahn, D.P and R.D. Ludema. (2020). “The Sword and the Shield: The Economics of Targeted Sanctions,” *European Economic Review*. 130, 103587.

Ahuja, D., & Pandit, D. (2020). Public Expenditure and Economic Growth: Evidence from the Developing Countries. *FIIB Business Review*, 2319714520938901.

Aidam Patricia Woedem (2018) The Dynamics between Government Capital Expenditure and Revenue in Ghana: A Vector Error Correction Model Approach. *International Journal of Academic and Applied Research (IJAAR)* ISSN: 2000-005X Vol. 2 Issue 11, November – 2018, Pages: 27-38 <http://www.ijeais.org/ijaar> 27.

Aidt T. S. *et al.* (2021) Foreign influence and domestic policy *J. Econ. Lit.*

Aidt, T. S., F. Albornoz, and E. Hauk. (2020). “Foreign influence and domestic policy”. *Journal of Economic Literature*. Forthcoming.

Ajwad, A., Khadim, N., Ilyas, U., Rashid, M., and Aqdas, A. (2020). Effect of Mixing Steel Dust and Shred-Like Steel Fibres on the Properties of Concrete. *NFC IEFJR Journal of Engineering and Scientific Research*, Vol. 7, 24-29.

Akpan N. Government Expenditure and Economic Growth in Nigeria (2005). *CBN Economic Financial. Rev.* 2005;43(1).

Akrout Z (2020) Corruption and economic growth in Tunisia: direct or indirect effects? Int J Econ Financ Issues 10(6):31–39. <https://econjournals.com/index.php/ijefi/article/view/10621>

Akujuobi, N.E. *et al.* (2021). Public Expenditure and capital formation: Evidence from Nigeria, African Journal of Social Issues, 4(1): 87 – 104

Al Qudah A, Zouaoui A, Aboelsoud ME (2020) Does corruption adversely affect economic growth in Tunisia? ARDL approach. J Money Laund Control 23(1):38–54. <https://doi.org/10.1108/JMLC-12-2018-0076>

Aladejare, S. A. (2019). Testing the robustness of public spending determinants on public spending decisions in Nigeria. International Economic Journal, 33(1), 65-87

Alain Hecq, Luca Margaritella, Stephan Smeekes, (2023) Granger Causality Testing in High- Dimensional VARs: A Post-Double-Selection Procedure, *Journal of Financial Econometrics*, Volume 21, Issue 3, Summer 2023, Pages 915–958, <https://doi.org/10.1093/jjfinec/nbab023>

Albertyn W. 2021 "Nepotism and its dangers in the workplace" Labour Talk Newsletters. Labour Man Consultants

Alharahsheh, H. H., & Pius, A. (2020). A review of key paradigms: Positivism VS interpretivism. Global Academic Journal of Humanities and Social Sciences, 2(3), 39-43.

Alhassan A, Sabzehmeidani AS, Taha AI, Haseki MI. (2023) Sanctions and economic growth: Do sanction diversity and level of development matter? Heliyon. Sep 2;9(9):e19571. doi: 10.1016/j.heliyon.2023.e19571. PMID: 37809628; PMCID: PMC10558833.

Ali Z, Bhaskar SB. (2016) Basic statistical tools in research and data analysis. Indian J Anaesth;60:662-9.

Allen, M. (2017). *The SAGE encyclopaedia of communication research methods* (Vols. 1-4). Thousand Oaks, CA: SAGE Publications, Inc doi: 10.4135/9781483381411

Allen, W.R. (1991). Mercantilism. In: Eatwell, J., Milgate, M., Newman, P. (eds) *The World of Economics*. The New Palgrave. Palgrave Macmillan, London.
https://doi.org/10.1007/978-1-349-21315-3_58

Allen Susan Hannah, Cilizoglu Menevis, Lektzian David, Su Yi-Hao. (2020) . “Essay 3: The Consequences of Economic Sanctions .” *International Studies Perspectives* 21 (4): 438 –77

Aluthge C., Jibir A., and Abdu M. (2021). Impact of government expenditure on economic growth in Nigeria, 1970 – 2019” *CBN Journal of Applied Statistics*. 12(1) 139 – 174

Aly Abdou, Olivier Basdevant, Elizabeth David-Barrent and Mihaly Fazekas (2022) Assessing Vulnerabilities to Corruption in Public Procurement and Their Price Impact
<https://www.elibrary.imf.org/view/journals/001/2022/094/article-A001-en.xml>

Amadeo Kimberly (2021) Keynesian Economics Theory : How it works with examples, Reviewed by Erica Rasure updated on December 30,2021.
<https://www.thebalancemoney.com/keynesian-economics-theory-definition-4159776>

André Roncaglia de Carvalho, Rafael S. M. Ribeiro & André M. Marques (2018) Economic development and inflation: a theoretical and empirical analysis, *International Review of Applied Economics*, 32:4, 546-565, DOI: [10.1080/02692171.2017.1351531](https://doi.org/10.1080/02692171.2017.1351531)

Anokhin, S., & Schulze, W. S. (2009). Entrepreneurship, innovation, and corruption. *Journal of Business Venturing*, 24(5), 465–476. <https://doi.org/10.1016/j.jbusvent.2008.06.001>

Apuke, Oberiri. (2017). Quantitative Research Methods : A Synopsis Approach. *Arabian Journal of Business and Management Review (kuwait Chapter)*.. 6. 40-47. 10.12816/0040336.

Asongu SA, Folarin EO, Biekpe N (2019b) The stability of demand for money in the proposed southern African monetary union. *Int J Emerg Mark.* <https://doi.org/10.1108/IJOEM-08-2018-0443>

Assi, R., Dimson, J. Goodman, A. & Andersen, J. S. (2019). Spending reviews: a more powerful approach to ensuring value in public finances. Public and Social Sector Insights, London: McKinsey & Company.

Azolibe, C. B., Okonkwo, J. J., & Adigwe, P. K. (2020). Government Infrastructure Expenditure and Investment Drive in an Emerging Market Economy: Evidence from Nigeria. *Emerging Economy Studies*, 6(1), 61–85. <https://doi.org/10.1177/2394901520907722>

Babatunde, S.A. (2018). Government spending on infrastructure and economic growth in Nigeria. *Economic Research*, 31:1: 997-1014.

Babbie, E. (2001). *The Practice of Social Research* (9th Ed.). Wadsworth Thomson, Belmont.

Balaj, D., & Lani, L. (2017). The impact of public expenditure on economic growth of Kosovo. *Acta Universitatis Danubius. Œconomica*, 13(5). <https://journals.univ-danubius.ro/index.php/oeconomica/article/view/4443/4254>

Baldi, S., Bottasso, A., Conti, M., and Piccardo, C. (2016). To bid or not to bid: That is the question: Public procurement, project complexity and corruption. *European Journal of Political Economy*, Vol. 43, 89-106.

Baldwin Harriett (2022) Strategic and Economic Challenges posed by Corruption: Data Science Team (2019) Types of Data & Measurement Scales: Nominal, Ordinal, Interval and Ratio <https://datascience.eu/mathematics-statistics/types-of-data-measurement-scales-nominal-ordinal-interval-and-ratio/>

Banerjee R, Boly A, Gillanders R (2022) Anti-tax evasion, anti-corruption and public good provision: an experimental analysis of policy spillovers. J Econ Behav Organ 197:179–194. <https://doi.org/10.1016/j.jebo.2022.03.006>

Banoba, Paul (2019) Sub Saharan Africa: Corruption Is a Big Issue in 2016 African Elections. Retrieved January 16, 2019 (https://www.transparency.org/news/feature/africa_corruption_is_a_big_issue_in_2016_african_elections).

Banoba, Paul (2017) Sub Saharan Africa: Corruption Is a Big Issue in 2016 African Elections. Retrieved January 16, 2019 (https://www.transparency.org/news/feature/africa_corruption_is_a_big_issue_in_2016_african_elections).

Banton Caroline (2020) What Is the Neoclassical Growth Theory, and What Does It Predict?

Barlas, A. W. (2020). The impact of government expenditure on economic growth in Afghanistan, Journal of Economics and Business, 3(2), 729-733.

Barney Warf (2017) Department of Geography, University of Kansas, Lawrence, Kansas, USA : PSU Research Review; ISSN: 2399-1747 Open Access. Article publication date 13 April 2017

Barro, R.J. (1990). Government spending in simple model of endogenous growth. Journal of Political Economy, 20(2):221-247.

Barry, C.M. and Kleinberg, K.B. (2015), “*Profiting from sanctions: economic coercion and U.S. foreign direct investment in third-party states*”, International Organization, Vol. 69 No. 4, pp. 881-912.

Bartlett, M.S. and Kendall, D.G. (1946) The Statistical Analysis of Variance Heterogeneity And the Logarithmic Transformation. Supplement to the Journal of the Royal Statistical Society, 8, 128-138. <https://doi.org/10.2307/2983618>

Belgibayeva A, Plekhanov A (2019) Does corruption matter for sources of foreign direct investment? *Rev World Econ* 155(3):487–510. <https://doi.org/10.1007/s10290-019-00354-1>

Bělín, M., and J. Hanousek. (2021). “Which sanctions matter? Analysis of the EU/Russian sanctions of 2014”. *Journal of Comparative Economics* 49 (1): 244–257

Berry, C. J. (2018). *Adam Smith Very Short Introductions Series*. Oxford: Oxford University Press. Retrieved from ISBN 978-0-198-78445-6. <https://doi.org/10.1093/actrade/9780198784456.001.0001>

Besedeš, T., S. Goldbach, and V. Nitsch. (2017). “You’re Banned! The Effect of Sanctions on German Cross-Border Financial Flows,” *Economic Policy*. 32(April): 263-318.

Besedeš, T., S. Goldbach, and V. Nitsch. (2021). “Cheap Talk? Financial Sanctions and Non Financial Activity,” *European Economic Review*. 134, 103688.

Bhandari, P., (2023, June 22). Mediator vs Moderator Variables : Differences and Examples. Scribbr. Retrieved January 31, 2024, from <https://www.scribbr.com/methodology/mediator-vs-moderator/>

Bhandari, M. P. (2023) “The Corruption a Chronic Disease of Humanity: Causes, Effects and Consequences”, *Scientific Journal of Bielsko-Biala School of Finance and Law*. Bielsko-Biala, PL, 27(1) pp

Bhasin H. (2019) "Abuse of power at workplace – meaning, examples and impacts" **Marketing 91** Available at: <https://www.marketing91.com/abuse-of-power-at-workplace/> Bryman A. Bell E. 2015 *Business research methods* Oxford University Press

Biesta GJJ, Burbules NC. (2003) *Pragmatism and Educational Research*. Rowman & Littlefield Publishers, Inc.; 2003.

Bleyer, Archie & Barr, Ronald & Ries, Lynn & Whelan, Jeremy & Ferrari, Andrea. (2017). Erratum to: Cancer in Adolescents and Young Adults. 10.1007/978-3-319-33679-4_36.

Bonga W.G. (2021) Corruption prevalence in SADC regional bloc Quest Journals' Journal of Research in Humanities and Social Science, 9 (1) (2021), pp. 8-16

Boru, Tesfaye. (2018). CHAPTER FIVE RESEARCH DESIGN AND METHODOLOGY Lelissa TB (2018); Research Methodology; University of South Africa, PHD Thesis. 10.13140/RG.2.2.21467.62242.

Bosio, E, S Djankov, E Glaeser and A Shleifer (2020), “Public Procurement in Law and Practice”, NBER Working Paper No. 27188.

Boslaugh, S. (2007). *Secondary data sources for public health: A practical guide*. Cambridge University Press.

Bosma, B., Chia, R., & Fouweather, I. (2016). Radical learning through semantic transformation: Capitalizing on novelty. *Management Learning*, 47(1), 14-27.

Britannica, T. Editors of Encyclopaedia (2022, January 24). John Maynard Keynes. Encyclopaedia Britannica. <https://www.britannica.com/biography/John-Maynard-Keynes>

Bryman, A., & Cramer, D. (2005). *Quantitative Data Analysis with SPSS 12 and 13*. Routledge: London.

Bulut, Yakup & AKIN, Cemil & Akin, Soner. (2016). The bureaucratic cost and its relation, with the factors on regulatory aspects in state of law.

Buthelezi, E. M. (2023). Impact of government expenditure on economic growth in different states in South Africa. *Cogent Economics & Finance*, 11(1). <https://doi.org/10.1080/23322039.2023.2209959>

Busayo Longe (2023) What is Secondary Data? <https://www.formpl.us/blog/secondary-Data>

Busetto, L., Wick, W. & Gumbinger, C. (2020) How to use and assess qualitative research methods. *Neurol. Res. Pract.* 2, 14 <https://doi.org/10.1186/s42466-020-00059-z>

Calahorra-Jimenez, M., Alarcón, L. F., Torres-Machi, C., Chamorro, A., and Molenaar, K. (2020). Improving cost performance in design-bid-build road projects by mapping the reasons for cost overruns into the project phases. *Revista de la construcción*, Vol. 19(2), 334-345.

Calderón, C, C Cantú and P Chuhan-Pole (2018). Infrastructure development in sub-Saharan Africa: A scorecard. Policy Research Working Paper No. WPS8425, World Bank, Washington, DC.

Callister L.25 April (2023) "6 red flags for workplace bribery & corruption" Skill cast Blog Available at: <https://www.skillcast.com>

Campos, N, E Engel, R D Fischer and A Galetovic (2019), “Renegotiations and Corruption in Infrastructure: The Odebrecht Case”, Working paper.

Carlin, W. and D. Soskice. 2006. Macroeconomics: Imperfections, Institutions and Policies. New York: Oxford University Press.

Carroll C. (2019). The Romer (1986) Model of Growth, The National Bureau of Economics Research, (1), p. 1-2

Carson, D., Gilmore, A., Perry, C., & Gronhaug, K. (2005). *Qualitative Marketing Research*. London: Sage.

Castro, Tomas & Rodrigues, Paulo & Taylor, Robert. (2015). On the Behaviour of Phillips– Perron Tests in the Presence of Persistent Cycles. *Oxford Bulletin of Economics and Statistics*. 77. 10.1111/obes.12091.

Ceva, Emanuela and Bagnoli, Carla. (2023). "Individual Responsibility under Systemic Corruption: A Coercion-Based View" *Moral Philosophy and Politics*, vol. 10, no. 1, 2023, pp. 95-117. <https://doi.org/10.1515/mopp-2020-0033>

Chakawa Joshua (2022) Why sanctions have not worked: Zimbabwe's experience from 2001-2021, Third World Thematics: A TWQ Journal, DOI [10.1080/23802014.2022.2080248](https://doi.org/10.1080/23802014.2022.2080248)

Chan, A. P. C. and E. K. Owusu (2017) Corruption forms in the construction industry: Literature review. *Journal of Construction Engineering and Management*. 143(8): 04017057.

Chaplin W.F. (1991) The next generation of moderator research in personality psychology *J. Pers.*, 59 (2) pp. 143-178

Chen H, Hao Y, Li J, Song X (2018) The impact of environmental regulation, shadow economy, and corruption on environmental quality: theory and empirical evidence from China. *J Clean Prod* 195:200–21

Chen, X. M. (1996). Dingxing yanjiu fangfa pingjie [A review of qualitative research methods]. *Educational Research and Experiment*, 3, 62-68.

Chen, Y., Che, L. Zheng, D. You H. (2020) Corruption culture and accounting quality *J. Account. Publ. Pol.*, 39 (2) (2020), Article 106698

Clarke, C. (2009). Paths between positivism and interpretivism: An appraisal of Hay's via media. *Politics*, 29(1), 28–36.

Choruma, A. (2017). Corruption stalls Zimbabwe's economic agenda, *Financial Gazette*, June 30

Churchill, S. A., Ugur, M., & Yew, S. L. (2017). Does government size affect per-capita income growth? A hierarchical meta-regression analysis. *Economic Record*, 93(300), 142-171.

Churchill G., and D. Iacobucci, (2002) “Marketing Research, Methodological Foundations,” 8th Edition, Harcourt Publishing, London,

Coghlan, D., Brydon-Miller, M. (2014). *The SAGE encyclopedia of action research* (Vols. 1- 2). London, : SAGE Publications Ltd doi: 10.4135/9781446294406

Cohen, L., Manion. L., & Morrison, K. (2011). *Research methods in education*. London: Routledge.

Collins, H. (2010) “Creative Research: The Theory and Practice of Research for the Creative Industries” AVA Publications, p.38

Collins, H. J. (2019). *Creative research the theory and practice of research for the Creative Industries*. Bloomsbury Visual Arts.

Colonnelli, E and M Prem (2020), “Corruption and Firms”, Working paper.

Cornwall, J. L. (2018, October 4). Economic growth. Retrieved from Encyclopedia Britannica. : <https://www.britannica.com/topic/economic-growth>

Costa GA, Machado D, Martins V (2020). The efficiency of social control in municipal bidding: a study in social observatories. *Soc Contab Gestao* 14(4):112

Creon Butler, Sean Hagan, and Dominic Martin (2022) *Corruption Risks Loom Large over Financing of Green Infrastructure*: Peterson Institute for International Economics (PIIE) <https://www.piie.com/sites/default/files/2022-09/pb22-11.pdf>

Creswell, J. W. & Poth, C. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed). Sage

Creswell, J. W. (2014). *Qualitative Inquiry & Research Design: Choosing among Five Approaches* (4th Ed.). Thousand Oaks, CA: SAGE.

Creswell, J.T. and Guetterman, T.C. (2019) *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (sixth ed.), Pearson (2019)

Creswell, J.W., & Creswell, J.D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed. Thousand Oaks, CA: Sage.

Creswell, John W., and Vicki L. Plano Clark. (2011) *Designing and Conducting Mixed Methods Research*, 2nd ed. Thousand Oaks: Sage.

Creswell, John W., and Vicki L. Plano Clark (2011) *Designing and Conducting Mixed Methods Research*, 2nd ed. Thousand Oaks: Sage.

Crozet, M., and J. Hinz. (2020). “Friendly fire: The trade impact of the Russia sanctions and counter-sanctions”. *Economic Policy* 35 (101): 97–146.

Crozet, M., & Hinz, J. (2016). Friendly fire: The trade impact of the Russia sanctions and counter-sanctions (No. 2059). Kiel Working Paper. <https://www.econstor.eu/handle/10419/148042>

Cuthbertson, L.M., Robb, YA, S. Blair, (2020) Theory and application of research Principles and philosophical underpinning for a study utilising interpretative phenomenological analysis, *Radiography*, Volume 6, Issue 2, Pages e94-e102, ISSN 1078-8174,

Dai, M., G. Felbermayr, A. Kirilakha, C. Syropoulos, E. Yalcin, and Y. Yotov. (2021). “Timing the Impact of Sanctions on Trade,” Drexel University Working Paper.

Damijan S. (2023) "Corruption: A review of issues" *Economic and Business Review* 251110 Accessed on DOI: <https://doi.org/10.15458/2335-4216.1314>

Daniel Liberto (2021) What Is New Keynesian Economics? Reviewed by Robert C. Kelly, updated March 24, 2021

Daron Acemoglu, J.A. Robinson (2012). *The Origins of Power, Prosperity, and Poverty* Crown Business, New York (US)

Dashti-Gibson, J., *et al* (2017) Government expenditure and Economic growth in the European Union countries. *International Journal of Social Economics*. 45. 00-00. 10.1108/IJSE-12-2016-0365.

De Jong, J. F. M., Ferdinandusse, M., & Funda, J. (2018). Public capital in the 21st century: as productive as ever? *Applied Economics*, 50(51), 5543-5560.

De la Croix, D. & Delavallade, C. (2007) Corruption Allocation optimal de l'Investissement public. *Revue Économique* 58(3):637–647

Deborah Carmichael and Monhé van der Walt (2022) Loan Agreements: Navigating The Complexities Of Sanctions In A Time Of Conflict 29 June 2022, ENSafrica

Delavallade C (2006) Corruption and distribution of public spending in developing countries. *J Econ Fin*. <https://doi.org/10.1007/BF02761488>

Demena, B. A., Reta, A. S., Jativa, G. B., Kimararungu, P. B., & van Bergeijk, P. A. (2021). Publication bias of economic sanctions research: a meta-analysis of the impact of trade linkage, duration and prior relations on sanctions success. In *Research handbook on economic sanctions* (pp. 125-150). Edward Elgar Publishing.

Denzin, N. K. (1989). *Interpretive Interactionism*. Newbury Park, CA: SAGE.

Dimant, Eugen & Tosato, Guglielmo. (2017). Causes and Effects of Corruption: What has Past Decade's Empirical Research Taught us? A Survey. *Journal of Economic Surveys*. 32. 10.1111/joes.12198.

Dincer, O. (2020). If you're corrupt, you'd better be free. *Journal of Economic Studies*, 47(6), 1307–1325. <https://doi.org/10.1108/JES-04-2019-0153>

Dix-Carneiro, R. and Kovak, B. K., 2017. Trade liberalization and regional dynamics. *American Economic Review*, 107(10), pp. 2908-46. <https://doi.org/10.1257/aer.20161214>

Diyoke, K. O., Yusuf, A., & Demirbas, E. (2017). Government expenditure and economic growth in lower middle income countries in Sub-Saharan Africa: an empirical investigation. *Asian Journal of Economics, Business and Accounting*, 5(4) 1-11.

Dominik E, Christiana H (2017). Causes and consequences of corruption: An overview of empirical results, IW-Report, No. 2/2017, Institut der deutschen Wirtschaft (IW), Köln.
Federal Republic of Nigeria (FRN) (1999). The Constitution, Lagos: Government Printing Press.

Draca, M., J. Garred, N. Warrinnier, and L. Stickland. (2017). “On Target? The Incidence of Sanctions Across Listed Firms in Iran,” University of Warwick Working Paper.

Draca M. *et al.* (2023) On target? Sanctions and the economic interests of elite policymakers in Iran *Econom. J.*

Dritsakis N. and Adamopoulos, A., (2004). A causal relationship between government spending and economic development: an empirical examination of the Greek economy. *Applied Economic*, 36 (5), pp 457 – 464.

Dudzevičiūtė, G., Šimelytė, A., & Liušvaitienė, A. (2018). Government expenditure and economic growth in the European Union countries. *International Journal of Social Economics*, 45(2), 372-386.

Early, B. R., and D. Peksen. (2019). “Searching in the shadows: The impact of economic sanctions on informal economies”. *Political Research Quarterly* 72 (4): 821–834.

Early, B. R., and M. Schulzke. (2019). “Still unjust, just in different ways: How targeted sanctions fall short of just war theory’s principles”. *International Studies Review* 21 (1): 57– 80.

Easterby-Smith, M., Thorpe, R. and Lowe, A. (2002) *Management Research: An Introduction*. Sage Publishing, London.

Ebaid, A., & Bahari, Z. (2019). The nexus between government expenditure and economic growth: evidence of the Wagner's law in Kuwait. *Review of Middle East Economics and Finance*, 15(1), 1-9.

Ebaid, A., & Bahari, Z. (2019). The nexus between government expenditure and economic growth: evidence of the Wagner's law in Kuwait. *Review of Middle East Economics and Finance*, 15(1), 1-9.

Economist (2021). Handle with care: Sanctions are now a central tool of governments' foreign policy. April 22. Retrieved from <https://www.economist.com/finance-and-economics/2021/04/22/sanctions-are-now-a-central-tool-of-governments-foreign-policy>

Eddie G. Cross (2016) *The Greatest Hindrance to fighting Corruption in Africa*_The Greatest Hindrance to fighting Corruption in Africa : Corruption in Society and its Consequences: Member of Parliament Republic of Zimbabwe: 18th November 2016: The Herald newspaper

Efing, M., S. Goldbach, and V. Nitsch. (2018). "Freeze! Financial sanctions and bank responses," Bundesbank Discussion Paper No. 45/2018.

Eleftherios Spyromitros & Minas Panagiotidis (2022) The impact of corruption on economic growth in developing countries and a comparative analysis of corruption measurement indicators, *Cogent Economics & Finance*, 10:1, DOI: [10.1080/23322039.2022.2129368](https://doi.org/10.1080/23322039.2022.2129368)

Elith, J., H. Graham C., Anderson, R.P., Dudík, M., Ferrier, S., Guisan, A. and Li, J. (2006), "Novel methods improve prediction of species' distributions from occurrence data", *Ecography*, Vol. 29 No. 2, pp. 129-151.

Emmelen A. van der Scheer, Hannah J. E. Bijlsma & Cees A. W. Glas (2019) Validity and reliability of student perceptions of teaching quality in primary education, *School*

Effectiveness and School Improvement, 30:1, 30-50, DOI: [10.1080/09243453.2018.1539015](https://doi.org/10.1080/09243453.2018.1539015)

Engle, R., & Granger, C. (1991). Long-run economic relationships: Readings in cointegration. Oxford University Press.

Enns, C and Bersaglio, B. (2020). On the coloniality of “new” mega-infrastructure Projects in East Africa. *Antipode*, 52 (1) (2020), pp. 101-123

Eric Sims, Jing Cynthia Wu, Ji Zhang Tsinghua (2021) The Four Equation New Keynesian Model University of Notre Dame and NBER PBCSF: Current draft: June 2, 2021

Eurostat. (2020). “User guide on European statistics on international trade in goods.”

Faith Semmanda (2020) Factors affecting economic growth in sub-Saharan Africa Södertörn University Institution of Social Sciences :Economics : Spring Semester 2020 Mentor: Johanna Palmberg : <http://sh.diva-portal.org> › get ›

Farzanegan, M. R. (2019). “The effects of international sanctions on military spending of Iran: A synthetic control analysis”. CESifo Working Papers 7937.

Farzanegan, M. R., and B. Hayo. (2019). “Sanctions and the shadow economy: Empirical evidence from Iranian provinces”. *Applied Economics Letters* 26 (6): 501–505.

Farzanegan M.R. (2022). The effects of international sanctions on Iran's military spending: a synthetic control analysis. *Defence Peace Econ.*, 33 (7) (2022), pp. 767-778, [10.1080/10242694.2021.1941548](https://doi.org/10.1080/10242694.2021.1941548)

Feilzer YM. (2010) Doing mixed methods research pragmatically: implications for the rediscovery of pragmatism as a research paradigm. *J Mix Methods Res.* 2010;4(1):6-16

Felbermayr, G., A. Kirilakha, C. Syropoulos, E. Yalcin, and Y.V. Yotov. (2020b). “The Global Sanctions Database,” *European Economic Review*. 129, 103561.

Felbermayr G. *et al.* (2021) *Understanding economic sanctions: Interdisciplinary Perspectives* (Placeholder1) *on theory and evidence Eur. Econ. Rev*

Felbermayr, G., C. Syropoulos, E. Yalcin, and Y.V. Yotov. (2020a). “On the Heterogeneous Effects of Sanctions on Trade and Welfare: Evidence from the Sanctions on Iran and a New Database,” School of Economics Working Paper Series 2020-4, Le Bow College of Business, Drexel University, 2020.

Felbermayr, G., Syropoulos, C., Yalcin, E., Yotov, Y.V., (2020b). On the Heterogeneous Effects of Sanctions on Trade and...

Felbermayr, Gabriel; Syropoulos, Constantinos; Yalcin, Erdal; Yotov, Yoto V. (2019): On the effects of sanctions on trade and welfare: New evidence based on structural gravity and a new database, Kiel Working Paper, No. 2131, Kiel Institute for the World Economy (IfW), Kiel

Felbermayr G., *et al* (2021). Understanding economic sanctions: Interdisciplinary perspectives on theory and evidence. European Economic Review

Felbermayr, G., A. Kirilakha, C. Syropoulos, E. Yalcin, and Y.V. Yotov, (2020). “The Global Sanctions Data Base,” European Economic Review, Volume 129. https://ideas.repec.org/p/ris/drxlwp/2020_002.html

Forester, John. (1984) “Bounded Rationality and the Politics of Muddling Through.” Public Administration Review, 44 (1984): 23–31.

Garland, M.W. and Biglaiser, G. (2009), “*Do electoral rules matter? Political institutions and foreign direct investment in Latin America*”, Comparative Political Studies, Vol. 42 No. 2, pp. 224-251.

Ghazali, A. 2010. “Analysing the Relationship between Foreign Direct Investment, Domestic Investment and Economic Growth for Pakistan.” *International Research Journal of Finance and Economics* 47:123–31.

Ghodsi, M., & Karamelikli, H. (2022). The Impact of Sanctions Imposed by the European Union against Iran on their Bilateral Trade: General versus Targeted Sanctions. *World Trade Review*, 21(1), 33-58. doi:10.1017/S1474745621000318

Ghodsi, M. (2019). Iran's endogenous role in the international economic system. In: Heinz Gärtner and Mitra Shahmoradi (eds), *Iran in the International System. Between Great Powers and Great Ideas*, Chapter 4, Routledge Advances in International Relations and Global Politics, Routledge, London, 2019. <https://www.routledge.com/Iran-in-the-International-System-Between-Great-Powers-and-Great-Ideas/GartnerShahmoradi/p/book/9780367194475>

Ghomi, M. (2021). Who is afraid of sanctions? The macroeconomic and distributional Effects of the sanctions against Iran. *Economics & Politics*

Ghosh S, Kyriakos N (2017) Corruption, fiscal policy, and growth: a unified approach. *BE J Macroecon*. <https://doi.org/10.1515/bejm-2016-0010> SN Bus Econ (2023) 3:80 Page 25 of 26 80

Ghouse, G, SA Khan and AU Rehman (2018). ARDL model as the remedy for spurious regression problems, performance and prospectus. MPRA Paper No. 83973, Pakistan Institute of Development Economics

GIACC (2020) What is Corruption. Global Infrastructure Anti-Corruption Centre, Chesham, UK. <https://giaccentre.org/what-is-corruption/>

Giri, Ram & Shrestha, Sagun & Giri, S & Dawadi, Saraswati. (2021). Mixed-Methods Research: A Discussion on its Types, Challenges, and Criticisms. *Journal of Practical Studies in Education*. 2. 10.46809/jpse.v2i2.20.

Glasow, P. A. (2005). *Fundamentals of Survey Research Methodology*. MITRE Product, Washington C3 Center.

Global Witness (2017) Shell Knew Finance Uncovering Oil Briefing_WIP9_lowres_with_links.pdf

Goh, S. K., Sam, C. Y., and McNown, R., (2017). Re-examining foreign direct investment, exports, and economic growth in Asian economies using a bootstrap ARDL test for cointegration. *Journal of Asian Economics*, 51, pp. 12-22. <https://doi.org/10.1016/j.asieco.2017.06.001>

Goldsby, T.J., Michael A., Knemeyer, J.W. Miller, C.M. Wallenburg (2013) Measurement and moderation: finding the boundary conditions in logistics and supply chain research *J. Bus. Logist.*, 34 (2) (2013), pp. 109-116

Gossel, Sean Joss. (2018) “FDI, Democracy and Corruption in Sub-Saharan Africa.” *Journal of Policy Modeling* 40.4 647–662. Web. 7 May 2018.

GoZ (2018) Vision 2030 “Towards a Prosperous and Empowered Upper Middle Income Society by 2030” September 2018, Harare

Government of Zimbabwe; World Bank. (2016) Zimbabwe Public Expenditure Review: Volume 5. Social Protection. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/27903> License: CC BY 3.0 IGO.”

Gossel, Sean Joss. (2018) “FDI, Democracy and Corruption in Sub-Saharan Africa.” *Journal of Policy Modelling* 40.4 647–662. Web. 7 May 2018.

Grant, C. & Osanloo, A. (2014) Understanding, Selecting, and Integrating a Theoretical Framework in Dissertation Research: Creating the Blueprint for ‘House’. *Administrative Issues Journal: Connecting Education, Practice and Research*, Pp. 12-22 DOI: 10.5929/2014.4.2.9

Grigorios Kotronoulas, Susana Miguel, Maura Dowling, Paz Fernández-Ortega, Sara Colomer-Lahiguera, Gülcan Bağçivan, Eva Pape, Amanda Drury, Cherith Semple, Karin B. Dieperink, Constantina Papadopoulou, (2023) An Overview of the Fundamentals of Data Management, Analysis, and Interpretation in Quantitative Research, *Seminars in Oncology Nursing*, Volume 39, Issue 2, 2023, 151398, ISSN 0749-2081, <https://doi.org/10.1016/j.soncn.2023.151398>

Grant, C. & Osanloo, A. (2014) Understanding, Selecting, and Integrating a Theoretical Framework in Dissertation Research: Creating the Blueprint for ‘House’. *Administrative Issues Journal: Connecting Education, Practice and Research*, Pp. 12-22 DOI: 10.5929/2014.4.2.9

Gregorious A, Ghosh, S. (2007). The impact of Government Expenditure on Kamau; *AJEBA*, 21(8): 29-36, 2021; Article no.AJEBA.69695

Gründler, K., & Potrafke, N. (2019). Corruption and economic growth: New empirical evidence. *European Journal of Political Economy*, 60, 101810.

Gukat, B. T., & Ogboru, I. (2017). An empirical analysis of government expenditure and economic growth in Nigeria. *Journal of Economics and Development Studies*, 5(4),122-134.

Gupta, R. (2018). The impact of government expenditure on economic growth in Nepal. Retrieved from: <http://dx.doi.org/10.2139/ssrn.3099218>

Gullstrand, J. (2020). “What goes around comes around: The effects of sanctions on Swedish firms in the wake of the Ukraine crisis,” *World Economy*. 43(9): 2315-2342. 18

Gustafsson, A., & Magnebrink, V. (2022). The impact of sanctions on a nation’s GDP growth: <https://urn.kb.se/resolve?urn=urn:nbn:se:lnu:diva-116151>

Gutmann Jerg, Matthias Neuenkirch, Florian Neumeier, (2023) The economic effects of international sanctions: An event study, *Journal of Comparative Economics*, Volume 51, Issue 4, 2023, Pages 1214-1231, ISSN 0147-5967, <https://doi.org/10.1016/j.jce.2023.05.005>.

Gukat, B. T., & Ogboru, I. (2017). An empirical analysis of government expenditure and economic growth in Nigeria. *Journal of Economics and Development Studies*, 5(4),122-134.

Gullstrand, J. (2020). “What goes around comes around: The effects of sanctions on Swedish firms in the wake of the Ukraine crisis”. *The World Economy* 43 (9): 2315–2342.

Guetterman TC. (2019) Basics of statistics for primary care research. *Fam Med Community Health*.:e000067. doi: 10.1136/fmch-2018-000067. Epub 2019 Mar 28. PMID: 31218217; PMCID: PMC6583801

Gujarati, D. (2005). *Basic Econometrics* (5th ed). McGraw Hill. USA.

Gupta, R. (2018). The impact of government expenditure on economic growth in Nepal. Available at SSRN3099218. <https://ssrn.com/abstract=3099218> or <http://dx.doi.org/10.2139/ssrn.3099218>.

Gupta, R. (2018). The impact of government expenditure on economic growth in Nepal. Available at SSRN3099218. <https://ssrn.com/abstract=3099218> or <http://dx.doi.org/10.2139/ssrn.3099218>.

Gutmann, Jerg; Neuenkirch, Matthias; Neumeier, Florian (2021) : The Economic Effects of International Sanctions: An Event Study, ILE Working Paper Series, No. 49, University of Hamburg, Institute of Law and Economics (ILE), Hamburg

Haidar, J. (2017). “Sanctions and Export Deflection: Evidence from Iran,” *Economic Policy*, 32(90): 319-355.

Håkansson, A. (2013). Portal of research methods and methodologies for research projects and degree projects. In *The 2013 World Congress in Computer Science, Computer Engineering, and Applied Computing WORLDCOMP 2013*; Las Vegas, Nevada, USA , 22-25 July (pp. 67-73). CSREA Press USA

Halla, S.G. and Ahmad, M. (2012) Institutions-Growth Spatial Dependence: An Empirical Test. *Procedia-Social and Behavioural Sciences*, 65, 925-930. <https://doi.org/10.1016/j.sbspro.2012.11.221>

Hamed Taherdoost (2021) Data Collection Methods and Tools for Research; A Step-by-Step Guide to Choose Data Collection Technique for Academic and Business Research Projects International Journal of Academic Research in Management (IJARM) Vol. 10, No. 1, 2021, Page: 10-38, ISSN: 2296-1747 © Helvetic Editions LTD, Switzerland www.elvedit.com

Hammarberg, K., Kirkman, M., & Lacey, S. de. (2016). Qualitative research methods: When to use them and how to judge them. Human Reproduction, 31(3), 498-501. <https://doi.org/10.1093/humrep/dev334>

Hammersley, M., & Atkinson, P. (1983). Ethnography: Principles in Practice. Routledge, London.

Harouna Sedgo, Luc-Désiré Omgba. (2021) Corruption and distortion of public expenditures: Evidence from Africa. ffhal-04159761f

Hassan ZA, Schattner P, Mazza D. (2006) Doing A Pilot Study: Why Is It Essential? Malays Fam Physician. 2006 Aug 31;1(2-3):70-3. PMID: 27570591; PMCID: PMC4453116.

Hasselgren, B., (2018). Transport Infrastructure in Time, Scope and Scale: an Economic History and Evolutionary Perspective. Springer International Publishing AG, Switzerland.

Hassler U., Wolters J. 2006. Autoregressive distributed lag models and cointegration. *Allgemeines Statistisches Archiv* 90: 59–74. <https://doi.org/10.1007/s10182-006-0221-5>.

Hatipoglu & Dursun Peksen, 2018. “Economic Sanctions and Banking Crises in Target Economies,” Defence and Peace Economics, Taylor & Francis Journals, vol. 29(2), pages 171-189, February.

Hay, C. (2002), Political Analysis: A Critical Introduction, Basingstoke: Palgrave.

Hayashi Jr, P., Abib, G., & Hoppen, N. (2019). Validity in qualitative research: A processual approach. *The Qualitative Report*, 24(1), 98-112. Retrieved from <https://nsuworks.nova.edu/tqr/vol24/iss1/8>

Hayes Adam; Peter Westfall; Suzanne Kvilhaug (2022) Heteroscedasticity Definition: Simple Meaning and Types Explained,: <https://www.investopedia.com/terms/h/heteroskedasticity.asp#:~:text=Heteroskedastic%20refers%20to%20a%20condition,a%20regression%20model%20varies%20widely.&text=Multiple%20line>

He X, Kirikkaleli D, Torun M, Li Z. (2021) Modelling Economic Risk in the QISMUT Countries: Evidence From Nonlinear Cointegration Tests. *SAGE Open*. October 2021. doi:[10.1177/21582440211052542](https://doi.org/10.1177/21582440211052542)

Helm, R., Mark A., (2012) Analysis and evaluation of moderator effects in regression models: state of art, alternatives and empirical example *Rev. Manag. Sci.*, 6 (4) (2012), pp. 307-332

Henri Njangang, Simplicie A. Asongu, Eric Mouchili, (2024). Does corruption starve Africa? The mitigating effect of political distribution of power, *Journal of Policy Modeling*, Volume 46, Issue 1, Pages 171-197,

Hessami Z (2014) Political corruption, public procurement and budget composition: Theory And evidence from OECD countries. *Eur J Polit Econ* 34:372–389. <https://doi.org/10.1016/j.ejpoleco.2014.02.005>

Hildebrand DL. (2011) Pragmatic democracy: inquiry, objectivity, and experience. *Metaphilosophy*. 2011;42(5):589-604.

Hlatshwayo, S., Oeking, A., Ghazanchyan, M. M., Corvino, D., Shukla, A., & Leigh, M. L. Y. (2018). The measurement and macro-relevance of corruption: A big data approach. In *The measurement of corruption* (pp. 1–38). Washington, DC: International Monetary Fund.

Ho Alfred Tat-Kei (2018) From Performance Budgeting to Performance Budget Management : Theory and Practice. <http://doi.org/10.1111/puar.12915> 11 February 2018

Hoeks S, Kardys I, Lenzen M, van Domburg R, Boersma E. (2013) Tools and techniques Statistics: Descriptive statistics. *EuroIntervention*. 2013;9:1001–

Holden MT, Lynch P. (2004) Choosing the appropriate methodology: Understanding research philosophy. *The Marketing Review*. 4(4):397-409. DOI: 10.1362/1469347042772428

Hope K.R. (2000) Corruption and Development in Africa. In: Hope K.R., Chikulo B.C. (eds) *Corruption and Development in Africa*. Palgrave Macmillan, London. https://doi.org/10.1057/9780333982440_2

Hope, K.R. Sr (2020) Channels of corruption in Africa: analytical review of trends in financial crimes *J. Financ. Crime*, 27 (1) (2020), pp. 294-306

Hossan, Dalowar & Mansor, Zuraina & Jaharuddin, Nor. (2023). Research Population And Sampling in Quantitative Study. *International Journal of Business and Technopreneurship (IJBT)*. 13. 209-222. 10.58915/ijbt.v13i3.263.

Hossain, A.T., Kryzanowski, L and Ma X.B. (2020). US political corruption and loan Pricing *J. Financ. Res.*, 43 (3) (2020), pp. 459-489

Hosseini, M.R., Martek, I., Banihashemi, S., Chan, A.P., Darko, A., Tahmasebi M., (2020) Distinguishing characteristics of corruption risks in Iranian construction projects: a weighted correlation network analysis *Sci. Eng. Ethics*, 26 (1) , pp. 205-231

Hothersall SJ. (2019) Epistemology and social work: enhancing the integration of theory, practice and research through philosophical pragmatism. *Eur J Soc Work*. 2019;22(5):860-870

Howell, K. E. (2013). Empiricism, positivism and post-positivism. In *An introduction to The philosophy of methodology* (pp. 32–54). London: SAGE Publications Ltd.

Husnain MI, Khan M, Haq Padda I, Akram N, Haider A. (2011) Public Spending, Foreign Direct Investment and Economic Growth: A Time Series Analysis for Pakistan (1975-2008). *International Research Journal of Finance and Economics*. 2011;61:21– 27.

Hyde Albert C (1992) “The Development of Budgeting and Budget Theory: The Threads of Budget Reform ,” In AC Hyde (ed), *Government Budgeting: Theory Process, Politics*, Pacific Grove, CA: Brooks/Cole Publishing, 1992: 1 – 6

Hyndman, R.J. & Athanasopoulos G., (2021) *Forecasting: principles and practice*, 3rd edition, O Texts: Melbourne, Australia. [OTexts.com/fpp3](https://www.otexts.com/fpp3) . (Accessed on September 26, 2022).

Idris, M., & Bakar, R. (2017). Public sector spending and economic growth in Nigeria: In search of a stable relationship. *Asian Research Journal of Arts & Social Sciences*, 3(2), 1-19

Ikubor, O. J., Oluwaseun, O. A., Saheed, Z. S., & Abraham, A. A. (2022). Government capital expenditure in the economic services sector and economic growth in Nigeria. *Journal of economics and allied research*, 7(2), 296–308. Retrieved from <https://jearecons.com/index.php/jearecons/article/view/198>

Imperiale, A. J. and F. Vanclay (2020) Top-down reconstruction and the failure to “build back better” resilient communities after disaster: lessons from the 2009 L'Aquila Italy earthquake. *Disaster Prevention and Management: An International Journal*. 29(4): 541-555.

Ionel Bostan, Constantin Toma, George Aevoae, Ioan-Bogdan, Daniela Neonila Mardiros & Stefan Catalin Topliceanu (2023) Effects of Internal and External Factors on Economic Growth in Emerging Economies: Evidence from CEE Countries, *Eastern European Economics*, 61:1, 66-85, DOI: [10.1080/00128775.2022.2109489](https://doi.org/10.1080/00128775.2022.2109489)

Jacob Jensen (2021) Anthony Downs and the Equilibrium Theory of Democracy *Alternative Traditions in Public Choice*p. 29-47 <https://doi.org/10.4000/oeconomia.10467>

Jäger-Klein, C., Kodzoman, E., and Stampfer, L. (2023) : Secondary Data Collection And Heritage Documentation - Case Study of A Remote Documentation of Travnik's Varoška Mosque, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLVIII-M-2-2023, 751–757, <https://doi.org/10.5194/isprs-archives-XLVIII-M-2-2023-751-2023>, 2023.

Jibir, A. & Aluthge, C. (2019b). *Fiscal Policy Operation in Nigeria: Trends, Magnitude and Challenges*. Turkey: KSP Book Publishers.

Jibir, A., & Aluthge, C. (2019a). Modelling the determinants of government expenditure In Nigeria. *Cogent Economics & Finance*, 7(1), 0.1080/23322039.2019.1620154.

Johansen, S. (1995). Identifying restrictions of linear equations with applications to simultaneous equations and cointegration. *Journal of econometrics*, 69(1), 111–132

Jordi, Galí, (2018). "The State of New Keynesian Economics: A Partial Assessment." *Journal of Economic Perspectives*, 32 (3): 87-112

Joshua Chakawa (2022) Why sanctions have not worked: Zimbabwe's experience from 2001-2021, *Third World Thematics: A TWQ Journal*, DOI [10.1080/23802014.2022.2080248](https://doi.org/10.1080/23802014.2022.2080248)

Joslyn J. (2019) Bribery in Sub-Saharan Africa: The Mediating Effects of Institutional Development and Trust. *Socius*. January 2019. doi:[10.1177/2378023118824804](https://doi.org/10.1177/2378023118824804)

Joy, J., & Panda, P. K. (2020). Pattern of public debt and debt overhang among BRICS nations: An empirical analysis. *Journal of Financial Economic Policy*, 12(3), 345–363. <https://doi.org/10.1108/JFEP-01-2019-0021>

Junyong. In (2017). Introduction of a pilot study. *Korean Journal of Anesthesiology*. 70. 601. [10.4097/kjae.2017.70.6.601](https://doi.org/10.4097/kjae.2017.70.6.601).

Kabir, S. M. S. (2016). *Methods Of Data Collection Basic Guidelines for Research: An Introductory Approach for All Disciplines* (first ed., pp. 201-275).

Kalai, M. and Zghidi, N., (2019). Foreign direct investment, trade, and economic growth in MENA countries: empirical analysis using ARDL bounds testing approach. *Journal of the Knowledge Economy*, 10(1), pp. 397-421. <https://doi.org/10.1007/s13132-017-0460-6>

Kaliyadan F, Kulkarni V. (2019) Types of Variables, Descriptive Statistics, and Sample Size. *Indian Dermatol Online J.* 2019 Jan-Feb;10(1):82-86. doi: 10.4103/idoj.IDOJ_468_18. PMID: 30775310; PMCID: PMC6362742.

Kamangar F, Islami F. (2013) Sample size calculation for epidemiologic studies: Principles and methods. *Archives of Iranian Medicine (AIM)*. 2013 May 1;16(5).

Kanayo Ogujiuba & Megan Cornelissen, (2020). “Macroeconomic Theory and Unemployment: A Comparison between the Keynesian and New Keynesian and New Classical Model” *Acta Universitatis Danubius. O Economica*, Danubius University of Galati, issue 16(2), pages 71-88, APRIL.

Kartika D, Kebijakan L, Barang P, Pemerintah J (2020) The impact of e-procurement implementation on public procurement’s corruption cases – evidences from Indonesia and India. *J Kajian* 11:193 – 212

Kelly LM, Cordeiro M. (2020) Three principles of pragmatism for research on Organizational processes. *Methodological Innovations*. May 2020. doi:[10.1177/2059799120937242](https://doi.org/10.1177/2059799120937242)

Kenganzi, J. (2018). Factors Affecting Uganda’s Economic Growth: An Autoregressive Distributed Lag Approach. Masters Research Report, Kampala: Makerere University. <http://hdl.handle.net/10570/7143>

Kenny C. (2009) Measuring corruption in infrastructure: Evidence from transition and developing countries. *Journal of Development Studies*. 2009;45(3):314-332

Kenton Will (2022) The World Bank, Investopedia.com Reviewed by Michael J. Boyle and Vikki Velasquez <https://www.investopedia.com/terms/w/worldbank.asp>

Kenton Will (2023) Neoclassical Economics: What it is and why it is important, Investopedia January 14, 2023

Kerlinger, F. N., & Lee, H. B. (Eds.) (2000). *Foundations of Behavioural Research* (4th Ed.) Orlando, FL: Harcourt College Publishers.

Key Valdimer (1940) The Lack of a Budgetary Theory, journal={American Political Science Review, year= (1940), volume=(34), pages=1137 - 1144, url=<https://api.semanticscholar.org/CorpusID:143510249>

Keynes, J.M., (1936). The general theory of money, interest and employment. Reprinted In *The Collected Writings of John Maynard Keynes*, 7.

Khadim, Nouman & Jaffar, Syed & Musarat, Muhammad Ali & Ilyas, Usman. (2021). Effects of Corruption on Infrastructure Projects in Developing Countries. 12. 284-295.

Khanchandani, Vanita, (2023) "Pilot testing for Feasibility of Role of Public Libraries in Citizenship Information" (2023). *Library Philosophy and Practice* (e-journal). 7625. <https://digitalcommons.unl.edu/libphilprac/7625>

Kholodilin, K. A., and A. Netšunajev. (2019). “Crimea and punishment: The impact of sanctions on Russian economy and economies of the Euro area”. *Baltic Journal of Economics* 19 (1): 39–51.

Kirikkaleli, Dervis. (2020) Does political risk matter for economic and financial risks in Venezuela?. *Economic Structures* 9, 3. *Journal of Economic Structures* <https://doi.org/10.1186/s40008-020-0188-5>

Kirikkaleli, D., & Ozbeser, B. (2022). New insights into an old issue: Exploring the nexus between government expenditures and economic growth in the United States. *Applied Economics Letters*, [29](https://doi.org/10.1080/13504851.2020.1859448)(2), 129–134. <https://doi.org/10.1080/13504851.2020.1859448>

Kittisak, J., Sakapas, S., Chanathat, B. and Thitinan, C. (2019). The impact of government expenditure, gross fixed capital formation, trade and portfolio investment on economic growth of Asian economies, *Journal of Security and Sustainability Issues*, 9(2)

Klaus Gründler, Niklas Potrafke, (2019), Corruption and economic growth: New empirical evidence, *European Journal of Political Economy*, Volume 60, 101810, ISSN 0176-2680,

Klaus E. Meyer, Tony Fang, Andrei Y. Panibratov, Mike W. Peng, Ajai Gaur, (2023,). International business under sanctions, *Journal of World Business*, Volume 58, Issue 2, 101426, ISSN 1090-9516, <https://doi.org/10.1016/j.jwb.2023.101426>

Korman J, Bratimasrene T. (2007) “The relationship between Government Expenditure and Economic Growth in Thailand”, *Journal of Economic Education*. 2007;14:234- 246.

Komakech R.A. (2019) Corruption in public procurement in Uganda: what to do? *Proceedings of the 2nd International Conferences on Governance and Service Delivery in Developing Economies* ISBN: 978-9970-857-00-5

Kothari, C. R. (2004). *Research Methodology: Methods and techniques*. New Age International

KPMG (2012) *Fraud, Bribery and Corruption Survey 2012*. KPMG, Victoria. <http://www.kpmg.com/MY/en/IssuesAndInsights/ArticlesPublications/Documents/2013/fraud-survey-report.pdf>

Kripfganz Sebastian & Daniel Schneider, (2018). “ardl Estimating autoregressive distribution lag and equilibrium correction models,” [London Stata Conference 2018](#) 09, Stata Users Group.

Kripfganz, S (2019). Generalized methods of moments estimations of linear dynamic panel data models. In *Proc. London Stata Conf.*

Kripfganz, S., & Schneider, D. C. (2023). ardl: Estimating autoregressive distributed lag And equilibrium correction models. *The Stata Journal*, 23(4), 983-1019. <https://doi.org/10.1177/1536867X231212434>

Kunwar, K. B. (2019). Impact of government expenditure in economic growth of Nepal: ARDL approach. *Contemporary Research: An Interdisciplinary Academic Journal*, 3(1), 33–40. <https://doi.org/10.3126/craiaj.v3i1.27488>

Kuoribo, E. Owusu-Manu, D.G. Yomoah, R. Debrah, C. Acheampong, A. Edwards D.J. (2021) Ethical and unethical behaviour of built environment professionals in the Ghanaian construction industry *J. Eng. Des. Technol.* (2021)

Kurebwa, J. (2019). Zimbabwe-EU Relations After the New Political Dispensation: Prospects for Re-engagement, *International Journal of Political Science and Development*, 7 (1): 8 – 15. <https://doi.org/10.14662/IJPSD2019.001>

Kweka, J.P. and Morrissey, O.(2000). Government spending and economic growth in Tanzania, 1965- 1996. Center for Research in Economic Development and Trade, University of Nottingham.

Kwon O, Syropoulos, C, Yotov Y. V (2022). CESifo working paper no. 9818 [Online]. Available: <https://ssrn.com/abstract=4154087> (2022)

Lakmeeharan Kannan, Qaizer Manji, Ronald Nyairo, and Harald Poeltner (2020) Solving Africa's Infrastructure Paradox McKinsey <https://www.mckinsey.com/capabilities/operations/our-insights>

Laerd (2018) Statistics. Types of variables; Available from: <https://statistics.laerd.com/statistical-guides/types-of-variable.php>.

Lambsdorff, Johann Graf and Grubiak, Kevin and Werner, Katharina, (2023) Intrinsic Motivation vs. Corruption? Experimental Evidence on the Performance of Officials. Available at SSRN: <https://ssrn.com/abstract=4467433> or <http://dx.doi.org/10.2139/ssrn.4467433>

Landau, D. (1983). Government Expenditure and Economic Growth: A Cross-Country Study. *Southern Economic Journal*, 49 (3), 783–792. <https://doi.org/10.2307/1058716>

Latham, J. (2017) Conceptual Framework <http://johnlatham.me/frameworks/research-methods-framework/conceptual-framework/> (accessed 2017 March 15)

Lawton, C. (2019). Effective use of secondary quantitative data sources. *Handbook of Research methods on the quality of working lives*, 177.

Le Thanh Ha & Pham Xuan Nam (2022) An investigation of relationship between global economic sanction and life expectancy: do financial and institutional system matter?, *Development Studies Research*, 9:1, 48-66, DOI: [10.1080/21665095.2022.2032237](https://doi.org/10.1080/21665095.2022.2032237)

Le, T.H. and Bach, N.T. (2022), “*Global sanctions, foreign direct investment, and global linkages: evidence from global data*”, *The Journal of International Trade and Economic Development*, Vol. 31 No. 7, pp. 1-28.

Le, T.H. and Bach, N.T. (2022), “*Global sanctions, foreign direct investment, and global linkages: evidence from global data*”, *The Journal of International Trade and Economic Development*, Vol. 31 No. 7, pp. 1-28.

Liou, R. Y.-L., Murdie, A., & Peksen, D. (2021). Revisiting the Causal Links between Economic Sanctions and Human Rights Violations. *Political Research Quarterly*, 74(4), 808-821. <https://doi.org/10.1177/1065912920941596>

Khadim, Nouman & Jaffar, Syed & Musarat, Muhammad Ali & Ilyas, Usman. (2021). Effects of Corruption on Infrastructure Projects in Developing Countries. 12. 284-295.

Le, Y., Shan, M., Chan, A. P., and Hu, Y. (2014). Investigating the causal relationships between causes of and vulnerabilities to corruption in the Chinese public construction sector. *Journal of Construction Engineering and Management*, Vol. 140(9), 05014007.

Lektzian, D. and Biglaiser, G. (2013), “*Investment, opportunity, and risk: do U.S. Sanctions deter or encourage global investment?*”, *International Studies Quarterly*, Vol. 57 No. 1, pp. 65-78.

LeLoup, Lance T. (2002). "Budget Theory for a New Century." In *Budget Theory in the Public Sector*, edited by Aman Khan and Bartley Hildreth. Westport, CT: Greenwood Publishing Group.

Levitt, B. S., V. T. Gawronski, et al. (2019) Public Perceptions of Code Enforcement and Safer Buildings in Latin America and the Caribbean. *Natural Hazards Review*. 20(4): 04019009.

Lichtman, M. (2013). *Qualitative Research in Education: A User's Guide*. (3rd ed). USA: SAGE Publication

Lim, T.S. and Loh, W.Y. (1996) A Comparison of Tests of Equality of Variances. *Computational Statistics and Data Analysis*, 22, 287-301.
[https://doi.org/10.1016/0167-9473\(95\)00054-2](https://doi.org/10.1016/0167-9473(95)00054-2)

Lincoln, Y. S., & Guba, E. G. (2006). *Naturalistic inquiry*. Sage Publications.

Linthicum, K., R.-G. Lin II, et al. (2017) More than 200 killed as powerful 7.1 earthquake strikes central Mexico. *Los Angeles Times*, Mexico City.
<https://www.latimes.com/world/la-fgmexico-earthquake-20170919-story.html>

Lisman, J. and J. Sandee. (1964). Derivation of Quarterly Figures from Annual Data. *Journal of the Royal Statistical Society (Series C)*, 13, 87-90

Litwin, M.S. (1995) *How to Measure Survey Reliability and Validity*. Sage Publications, Inc., Thousand Oaks, CA. <https://dx.doi.org/10.4135/9781483348957>

Liu C, Mikesell JL (2014) The impact of public officials' corruption on the size and Allocation of U.S. state spending. *Public Admin Rev* 74(3):346–359.
<https://doi.org/10.1111/puar.12212>

Liu, N., Zhou, Q.M., (2006). Quantitative analysis of effects of transportation infrastructure investment on national economy. *J. Highw. Transp. Res. Dev.* (5), 150–154.

Lütkepohl, H., Krätzig, M., & Boreiko, D. (2006). VAR analysis in JMulTi. *Handbook of Economic Forecasting*.

Lyra, M.S., Damásio, B., Pinheiro, F.L. *et al.* (2022). Fraud, corruption, and collusion in public procurement activities, a systematic literature review on data-driven methods. *Appl Netw Sci* 7, 83. <https://doi.org/10.1007/s41109-022-00523-6>

Magaisa, A. T. (2019). The potency of propaganda. Big Saturday Read. 18 October.

Mazorodze B. (2018) Government expenditure and economic growth in Zimbabwe. *Afr j Bus econ res.* 2018;13(2):183-202.

Moeeni, Safoura. (2021). The Intergenerational Effects of Economic Sanctions. Policy Research Working Paper;No. 9836. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/36548> License: CC BY 3.0 IGO.”

Ma Junjie & Ma Yingxin (2022). The Discussions of Positivism and Interpretivism. *Glob Acad J Humanit Soc Sci*; Vol-4, Iss-1 pp- 10-14.

Maaß, Christina H. (2022). ADF and Phillips-Perron unit root tests and KPSS test for stationarity.. *PLOS ONE*. Figure. <https://doi.org/10.1371/journal.pone.0276485.s007>

Machel, M., Coombes, T., (2011) Corruption is getting worse in Southern Africa and Most people pay bribes for public services. Available at: https://www.transparency.org/news/pressrelease/20111122_corruption_southern_africa.

Madani, Kaveh. (2021). Have International Sanctions Impacted Iran’s Environment?. *World*. 2. 231-252. 10.3390/world2020015.

Magakwe, J. (2022). The Root Causes of Corruption in Public Procurement: A Global Perspective. Intech Open. doi: 10.5772/intechopen.105941

Magnus Söderlund, (2023) Moderator variables in consumer research: A call for caution, Journal of Retailing and Consumer Services, Volume 73, , 103352, ISSN 0969-6989, <https://doi.org/10.1016/j.jretconser.2023.103352>.

Majid U, Ennis J, Bhola M. (2017) The role of meaning in life in adjustment to a chronic medical condition. Research Poster Abstracts, Canadian Journal of Pain, 2017 May 26;1:1, A88. <https://doi.org/10.1080/24740527.2017.132932>

Majid U. (2017) Research Fundamentals: The research question, outcomes, and background. URNCST Journal. 2017 Oct 24: 1(2). <https://doi.org/10.26685/urncst.14>

Majid, Umair. (2018). Research Fundamentals: Study Design, Population, and Sample Size. Undergraduate Research in Natural and Clinical Science and Technology (URNCST) Journal. 2. 10.26685/urncst.16.

Malanski LK, Póvoa ACS (2021) Economic growth and corruption in emerging markets: Does economic freedom matter? Int Econ 166:58–70. <https://doi.org/10.1016/j.inteco.2021.02.001>

Mallik, G., & Saha, S. (2016). Corruption and growth: a complex relationship. *International Journal of Development Issues*, 15(2), 113-129.

Malthus, T. (1798). An Essay on the Principle of Population. London: Printed for J. Johnson, in St. Paul's Church-Yard. DIEM (1) 2022 101

Malyniak BS, Martyniuk OM, Kyrylenko OP (2019) The effect of corruption on the efficiency of budget expenditure of states with different levels of democracy. Financ Credit Act Probl Theory Pract 1(28):290–301. <https://doi.org/10.18371/fcaptp.v1i28.163927>

Nan S (2022) Study on the relation of grassroots corruption and government expenditure. Procedia Comput Sci 199:1031–1035

Maparu, T.S., Mazumder, T.N., (2017). Transport infrastructure, economic development and urbanization in India (1990–2011): is there any causal relationship? *Transport. Res. Pol. Pract.* 100, 319–336.

Maqsoom, A., Wazir, S. J., Choudhry, R. M., Thaheem, M. J., and Zahoor, H. (2019). Influence of Perceived Fairness on Contractors' Potential to Dispute: Moderating Effect of Engineering Ethics. *Journal of Construction Engineering and Management*, Vol. 146(1), 04019090.

Maretha, C. (2023). Positivism in Philosophical Studies. *Journal of Innovation in Teaching and Instructional Media*, 3(3), 124-138. <https://doi.org/10.52690/jitim.v3i3.716>

Maria Perrotta Berlin (2022) The Effects of Sanctions, Stockholm Institute of Transition Economics (SITE) <https://www.hhs.se/en/persons/p/perrotta-berlin-maria/>

Martinich, A. and Stroll, . Avrum (2023, December 26). *epistemology*. *Encyclopedia Britannica*. <https://www.britannica.com/topic/epistemology>

Matallah A. (2019) Does fiscal policy spur economic growth? Empirical evidence from Algeria. *Ectap.ro*. Published 2019. Accessed December 4, 2020.

Matorera, D. (2023). Corruption: Drivers, Modes and Consequences. *Intech Open*. doi: 10.5772/intechopen.106826

Matshazi, N. (2019). SADC anti-sanctions day: A pointless sideshow. *Newsday*. 17 October.

Matshela Khathutshelo, Binza Mzikayise, Mukonza Ricky Munyaradzi (2023) Impediments to the Prevention of Corruption in the Department of Home Affairs: The Case of the Counter Corruption Unit doi: 10.36369/2616-9045/2023/v12i2a10 *African Journal of Governance and Development*.

Mauro, P. (1995). Corruption and growth. *The quarterly journal of economics*, 110(3), 681-712.

Mauro, Sara Giovanna (2019) Public Sector Performance-Based Budgeting in Italy. In Performance- Based Budgeting in the Public Sector. Edited by Michiel S. de Vries, Juraj Nemec and David Špaček. Basingtoke: Palgrave Macmillan, pp. 125–40.

Maxwell, J. A. (1992). Understanding and validity in qualitative research. Harvard Educational Review, 62(3), 279-300.

Mazorodze, Brian. (2018). Government expenditure and economic growth in Zimbabwe. African Journal of Business and Economic Research. 13. 183-202. 10.31920/1750-4562/2018/v13n2a9.

Mazorodze, Brian. (2021). Are Sanctions hurting the Zimbabwean Economy? A Saturday Read.

Mbanyele W. (2019) Public expenditure and economic growth causal linkage: Disaggregated empirical analysis for Zimbabwe. Asian Dev Pol Rev. 2019;7(4):239-252

Mbulawa, (2021). “Trade and Investment Led Growth in Southern African Development Community (SADC),” Eurasian Journal of Economic and Finance, Eurasian Publications, vol. 9(2), pages 79 – 88.

McClosky, H. (1969). Political Inquiry: The Native and Uses of Survey Research. Macmillan, New York.

McCombes, S. (2019). *Research Design: Types, Methods, and Examples*.

McDaniel, C. and Gates, R., (2004) Marketing Research”, 6th Edition, John Wiley and Sons Inc, Hoboken, NJ

Meersman, H., Nazemzadeh, M., (2017). The contribution of transport infrastructure to economic activity: the case of Belgium. Case Stud. Transport Pol. 5 (2), 316–324.

Mejía, G., Sánchez, O., Castañeda, K., and Pellicer, E. (2020). Delay causes in road infrastructure projects in developing countries. *Revista de la construcción*, Vol. 19(2), 220-234.

Melitz, M. J. and Trefler, D., (2012). Gains from trade when firms matter. *Journal of Economic Perspectives*, 26(2), pp. 91-118. <https://doi.org/10.1257/jep.26.2.91>

Menocal A.R. Taxell N. Johson J.S. Schmaljohann M. Montero A. G Simone F.D Dupuy K. Tobias J. (2015) Why corruption matters: Understanding causes, effects and how to address them Britain United Kingdom Department for International Development

Mertens DM. (2017) Transformative research: personal and societal. *Int J Transform Res.* 2017;4(1):18-24

Mertens Claas, (2024). Carrots as Sticks: How Effective Are Foreign Aid Suspensions and Economic Sanctions?, *International Studies Quarterly*, Volume 68, Issue 2, June 2024, sqae016, <https://doi.org/10.1093/isq/sqae016>

Metehan Yilgör, Cemil Ertugrul and Merve Eker Celepcioğlu (2012). The effect of public expenditure on economic growth: Turkey example. *Investment Management and Financial Innovations*, 9(2-1).

Messick R. (2022) Curbing Fraud, Corruption and Collusion in the Roads Sector. Washington: World Bank. Available from: http://siteresources.worldbank.org/INTDOII/Resources/Roads_Paper_Final.pdf; 2011. [Accessed: May 9, 2022]

Metu A. G., Maduka O. D., Eze A., Ajudua E. (2019). Impact of fiscal policy on inclusive growth in Nigeria. *African Journal of Sustainable Development*, 9(2), 61–87.

Meyer, K. E., & Li, C. (2022). The MNE and its subsidiaries at times of global disruptions: An international relations perspective. *Global Strategy Journal*, 12(3): 555-567.

Mhlanga, David & Ndhlovu, Emmanuel. (2021). Socio-economic and Political Challenges in Zimbabwe and the Development Implications for Southern Africa. *Journal of African Foreign Affairs*. 8. 75-98. 10.31920/2056-5658/2021/v8n2a5.

Middleton, F. (2023), The 4 Types of Validity in Research: Scribbr. <https://www.scribbr.com/methodology/types-of-validity/>

Miller, S. (2018). "Corruption." In *The Stanford Encyclopedia of Philosophy*, edited by E. Zalta. Also available at <https://plato.stanford.edu/archives/win2018/entries/corruption>. Search in

Miller FG, Fins JJ, Bacchetta MD. (1996) Clinical pragmatism: John Dewey and clinical ethics. *J Contemp Health Law Policy*. 1996;13:27-51.

Mirkina Irina, (2018) FDI and sanctions: An empirical analysis of short- and long-run effects, *European Journal of Political Economy*, Volume 54, 2018, Pages 198-225, ISSN 0176-2680

Miromanova, A. (2019). "Quantifying the Trade Reducing Effect of Embargoes: Firm Level Evidence from Russia," Unpublished Manuscript.

Misak Avetisyan*, David Lektzianb (2020) The Effect of Economic Sanctions on Domestic Production, Trade and Transportation of Sanctioned Goods a Texas Tech University, Department of Economics, Lubbock, TX 79409 b Texas Tech University, Department of Political Science, Lubbock, TX 79409

MND Staff (2018) 40 Buildings fell during earthquake due to corruption, organization charges: Mexico News Daily Sunday May 14, 2023. <https://mexiconewsdaily.com/news/buildings-fell-during-earthquake-due-t0-corruption/>

Mohajan, Haradhan (2018) Qualitative Research Methodology in Social Sciences and Related Subjects *Journal of Economic Development, Environment and People*, Vol-7, Issue 01, 2018, pp. 23-48

Mohajan, Haradhan. (2021). Quantitative Research: A Successful Investigation in Natural And Social Sciences. *Journal of Economic Development, Environment and People*. 9. 10.26458/jedep.v9i4.679.

Mohammad Reza Ghasemi, Joshua Ignatius, Babak Rezaee, (2019) Improving Discriminating power in data envelopment models based on deviation variables framework, *European Journal of Operational Research*, Volume 278, Issue 2, 2019, Pages 442-447, ISSN 0377-2217, <https://doi.org/10.1016/j.ejor.2018.08.046>.

Molefe, K., & Choga, I. (2017). Government expenditure and economic growth in South Africa: a vector error correction modelling and Granger Causality Test. *Journal of Economics and Behavioral Studies*, 9(4), 164-172.

Monte Carlo Data (2023) What is Reliability. <https://www.montecarlodata.com/blog-what-is-data-reliability/>

Montgomery, D.C., Jennings C.L., Murat Kulahci (2015) *Introduction to Time Series Analysis and Forecasting*, 2nd edition, John Wiley & Sons

Moroi Takako (2021) Quantitative and Qualitative Research and Philosophical Assumptions *Journal of Bunkyo Gakuin University, Department of Foreign Languages* (20), 127 132, 2021-02

Mose N, Kalio A, Kiprop S, Kibet L, Bagu J. (2014) Effect Of Government Expenditure On Economic Growth In East Africa: Panel Data Analysis. *Journal of International Academic Research for Multidisciplinary*. 2014; 2 (4):428-44.

Mosher, Frederick C. (1954) *Program Budgeting: Theory and Practice*. Chicago IL: Public Administration Service

Motshegwa B. Mutoonono P. Mikazhu T. 2019 "Embezzlement of the National Petroleum Fund in Botswana" *Journal of Public Administration and Development Alternatives*

Moustakas, C. (1994). *Phenomenological Research Methods*. Thousand Oaks, CA: Sage.

Mudassar, K and HU Rehman (2019). Human capital and economic growth nexus: Does corruption matter? *Pakistan Journal of Commerce and Social Sciences*, 13(2), 409–418.

Mugun, Wycliffe. (2021). Effect of Corruption on Economic Growth in Eastern Africa: Disaggregated Approach. 2454-6194.

Muhammad, Q., Zhu, Y., Yu, Y., Memon, J. A., and Ali, M., (2020). Impact of service trade liberalization on economic growth. *Journal of Critical Reviews*, 7(7), pp. 281-285.
<https://doi.org/10.31838/jcr.07.07.45>

Murshed, S.M., 2020. “Microeconomic effects of trade and financial sanctions” ISS Working papers – General Series 126242, International Institute of Social Studies of Erasmus University Rotterdam (ISS), The Hague.

Musiwaro Ndakaripa (2021) Zimbabwe’s Economic Meltdown: Are Sanctions Really to Blame?, *The Washington Quarterly*, 44:2, 95-120, DOI: [10.1080/0163660X.2021.1934997](https://doi.org/10.1080/0163660X.2021.1934997)

Mutanda, D. (2023). EU sanctions on Zimbabwe: rethinking Africa’s economic and political security in the global age. *Politikon*, 50(4), 334–351.
<https://doi.org/10.1080/02589346.2023.2280372>

Mutongwiza, L. (2019). Govt says no respect to human rights unless sanctions are lifted. 263 Chat. 23 August.

Myrdal G (1968) *Asian Drama: an enquiry in the poverty of nations*. Pantheon Books, New York

My-Linh Thi Nguyen, & Ngoc Toan Bui * (2022) Government expenditure and economic growth: does the role of corruption control matter?

Nest, Michael, Saul Mullard, and Cecilie Wathne. (2020). Corruption and climate finance: Implications for climate change interventions. U4 Brief 2020:14. Norway: Chr.

Michelsen Institute (CMI). Available at <https://www.u4.no/publications/corruption-andclimate-finance.pdf>.

Nacionālā enciklopēdija. (2021, February 17). Retrieved from <https://enciklopedija.lv/skirklis/96811-klasisk%C4%81-ekonomisk%C4%81-liber%C4%81isma-idejisk%C4%81-skola,-politiskaj%C4%81-ekonomik%C4%81>.

Nations, U. (1972). Report of the United Nations conference on the human environment. Stockholm

Nakhli, S.R., Rafat, M., Bakhshi Dastjerdi, R. and Rafei, M. (2021), "How do the Financial and oil sanctions affect the Iran's economy: a DSGE framework", *Journal of Economic Studies*, Vol. 48 No. 4, pp. 761-785.

Neuenkirch M. *et al.* (2015) *The impact of UN and US economic sanctions on GDP Growth Eur. J. Political Econ*

Neuenkirch, Matthias; Neumeier, Florian (2014) : The impact of UN and US economic sanctions on GDP growth, MAGKS Joint Discussion Paper Series in Economics, No. 24-2014, Philipps-University Marburg, Faculty of Business Administration and Economics, Marburg

Neumayer, E., & Plümper, T. (2017). *Robustness tests for quantitative research*. Cambridge University Press.

New York Times (2017, December 04). Four things Mnangagwa can do to revive Zimbabwe's economy.

Nguyen L.Q.T. and Ahmed R. (2023) "The impact of economic sanctions on foreign direct investment: empirical evidence from global data", *Journal of Economics and Development*, Vol. 25 No. 1, pp. 79-99. <https://doi.org/10.1108/JED-10-2022-0206>

Nguyen M-LT, Bui NT (2022) Government expenditure and economic growth: Does the role of corruption control matter? *Heliyon* 8(10):e10822. <https://doi.org/10.1016/j.heliyon.2022.e10822>

Nichols, B. (2019). It's not sanctions, it's corruption and lack of reform. *Newsday*. 24 October.

Nitish Sardana, Sahar Shekoohi, Elyse M. Cornett, Alan David Kaye, (2023) Qualitative and quantitative research methods, Editor(s): Alan David Kaye, Richard D. Urman, Elyse M. Cornett, Amber N. Edinoff, Substance Use and Addiction Research, Academic Press, 2023, Pages 65-69, ISBN 9780323988148, <https://doi.org/10.1016/B978-0-323-98814-8.00008-1>.

Nkoro, E., & Uko, A. K. (2016). Autoregressive Distributed Lag (ARDL) cointegration technique: application and interpretation. *Journal of Statistical and Econometric methods*, 5(4), 63-91.

Nolen, J. (2021, February 17). Encyclopaedia Britannica: Classical economics. Retrieved from <https://www.britannica.com/topic/classical-economics>

Noordin, Siti & Masrek, Mohamad. (2016). Adopting the Quantitative and Qualitative Methods in the Social Science Research: Justifying the Underpinning Philosophical Orientation.

Nosratabadi, J. (2023) The effect of trade sanctions on employment through total factor productivity. *Int Econ Policy* **20**, 163–187 (2023). <https://doi.org/10.1007/s10368-023-00555-y>

Nyarko-Asomani, A., Bhasin, V. K., & Aglobitse, P. B. (2019). Government capital expenditure, recurrent expenditure and economic growth in Ghana. *Ghanaian Journal of Economics*, 7(1), 44-70.

Nyasha, Sheilla, Odhiambo Nicholas, M., (2019) The Impact of Public Expenditure on Economic Growth: A Review of International Literature, Department of Economics College of Economic & Management Sciences Folia Oeconomica Stetinensia Volume 19 (2019) Issue 2 DOI: 10.2478/fofi-2019-0015

Nyasha, Sheilla, Odhiambo Nicholas, M., (2019) The Impact of Public Expenditure on Economic Growth: A Review of International Literature, Department of Economics College of Economic & Management Sciences Folia Oeconomica Stetinensia Volume 19 (2019) Issue 2 DOI: 10.2478/fofi-2019-0015

Nyoni, Thabani. (2017). The Curse of Corruption In Zimbabwe. International Journal of Advanced Research and Publications.

Nyoni, Thabani, (2019). “The curse is real in Zimbabwe: economic sanctions must go.” MPRA paper 96911, University Library of Munich, Germany.

O’Driscoll, D. (2017) Impact of Economic sanctions on poverty and economic growth. K4D Helpdesk Report. Brighton, UK: Institute of Development Studies.

OECD (2002) Frascati Manual: proposed standard practice for surveys on research and experimental development, (6th edition). Retrieved 27 May 2012 from www.oecd.org/sti/frascatimanual

OECD (2017. 2016) OECD Performance Budgeting Survey Highlights: Integrating Performance and results in Budgeting. Paris: OECD Publishing.

OECD (2014) OECD Foreign Bribery Report-An Analysis of the Crime of Bribery of Foreign Public Officials. OECD Publishing, Paris.

OECD (2021) Government at a Glance 2021. Publishing, Paris.

Ogundiya, I. S., Titus, U. M., and Medupin, C. F., (2023). Low wages – corruption nexus: The Sokoto state of Nigeria civil service dilemmas. African Journal of Political Science and International Relations, 17(4), 65 – 77.

Ogunleye, T.A., Olaleye, M.O. and Solomon, A.Z. (2014) Econometric Modelling of Commercial Banks’ Expenditure on the Sources of Profit Maximization in Nigeria. Scholars Journal of Economics, Business and Management, 1, 276-290.

Okonkwo, Osmond & Ojima, Davis & Echeta, Desmond & Duru, Erasmus & Ejike, & Okechukwu, Akamike & Manasseh, Charles. (2023). IMPACT OF GOVERNMENT CAPITAL EXPENDITURE ON THE ECONOMIC GROWTH RATE OF NIGERIA. 8. 335-348.

Olaoye, O. O., Orisadare, M., Okorie, U. U., & Abanikanda, E. (2020). Re-examining the government expenditure–growth nexus in ECOWAS countries. *Journal of Economic and Administrative Sciences*, 36(4), 277-301.

Olatunji, S and E Charles (2017). Infrastructural investment and industrial growth: A private investment led approach. *Ethiopian Journal of Business and Economics*, 6(2), 159–183.

Olugboyega Oluseye, (2023) Exploring potential political corruption in large-scale Infrastructure projects in Nigeria, *Project Leadership and Society*, Volume 5, 2024, 100108, ISSN 2666-7215, <https://doi.org/10.1016/j.plas.2023.100108>.

Olsen, W. (2012). *Data collection: Key debates and methods in social research* (Vol. 1): Sage.

Onesmus N. (2018) "Strategies for combating corruption: A case study of four (4) Zimbabwean public secondary schools" Doctoral dissertation University of South Africa.

Onifade, S.T., *et al.* (2020) An empirical retrospect of the impacts of government Expenditures on economic growth: new evidence from the Nigerian economy. *Economic Structures* 9, 6 (2020). <https://doi.org/10.1186/s40008-020-0186-7>

Onifade, S.T., C, evik, S., Erdogan, S., Asongu, S. & Bekun, F. V. (2020). An empirical retrospect of the impacts of government expenditures on economic growth: new evidence from the Nigerian economy. *Economic Structures* 9(6). <https://doi.org/10.1186/s40008-020-0186-7>

Onifade, S.T., *et al.* (2020) An empirical retrospect of the impacts of government Expenditures on economic growth: new evidence from the Nigerian economy. *Economic Structures* **9**, 6 (2020). <https://doi.org/10.1186/s40008-020-0186-7>

Onifade, O.C.; Olanrewaju, S.O. (2020) Investigating Performances of Some Statistical Tests For Heteroscedasticity Assumption in Generalized Linear Model: A Monte Carlo Simulations Study. *Open J. Stat.* 2020, *10*, 453–493

Onifade, S. T., Çevik, S., Erdoğan, S., Asongu, S., & Bekun, F. V. (2020). An empirical retrospect of the impacts of government expenditures on economic growth: New evidence from the Nigerian economy. *Journal of Economic Structures*, **9**(1), 1–13.
<https://doi.org/10.1186/s40008-020-0186-7>

Osei, M. J., & Kim, J. (2020). Foreign direct investment and economic growth: Is more financial development better? *Economic Modelling*, **93**, 154–161. <https://doi.org/10.1016/j.econmod.2020.07.009>

Owui, H.O., Asukwu, I.J., Olugbemi, M.D., Nkamare, S.E. and Emefiele, C.C. (2020). Government capital expenditure and economic growth in Nigeria, *International Journal of Economics and Financial Management* **5**(2).

Owusu, Kingsford E., and Chan, A. P. (2018). Barriers affecting effective application of anticorruption measures in infrastructure projects: Disparities between developed and developing countries. *Journal of Management in Engineering*, Vol. **35**(1), 04018056

Oyinlola, M.A. and Akinnibosun, O. (2013). Public expenditure and economic growth nexus: Further evidence from Nigeria. *Journal of Economics and International Finance*, **5**(4): 146- 154.

Owusu, E.K., Chan, A.P., Wang T. (2021) Tackling corruption in urban infrastructure procurement: dynamic evaluation of the critical constructs and the anti-corruption measures *Cities*, **119** (2021), Article 103379

Oyadeyi O (2023a) Banking innovation, financial inclusion and economic growth in Nigeria. *J Knowl Econ.* <https://doi.org/10.1007/s13132-023-01396-5>

Özdamar, Özgür, and Evgeniia Shahin. (2021) Consequences of Economic Sanctions: The State of the Art and Paths Forward, *International Studies Review*, viab029, <https://doi.org/10.1093/isr/viab029>

Ozili P.K. (2020) "Advances and issues in fraud research: A commentary" *Journal of Financial Crime* 271

Qamruzzaman, M., Jianguo, W. (2018) Nexus between financial innovation and Economic growth in South Asia: evidence from ARDL and nonlinear ARDL approaches. *Financ Innov* 4, 20 (2018). <https://doi.org/10.1186/s40854-018-0103-3>

Owusu-Manu, D.G., Jehuri, A.B., Edwards, D.J., Boateng, F. and Asumadu, G. (2019), “The impact of infrastructure development on economic growth in sub-Saharan Africa with special focus on Ghana”, *Journal of Financial Management of Property and Construction*, Vol. 24 No. 24 No. 3. Pp. 253 – 273. <https://doi.org/10.1108/JFMPC-09-2018-0050>

Owusu, E.K., Chan, A.P. and Wang T. (2021) Tackling corruption in urban infrastructure procurement: dynamic evaluation of the critical constructs and the anti-corruption measures *Cities*, 119, Article 103379

Pandey, P., & Pandey, M. M. (2015). *Research Methodology: Tools and Techniques* (Vol. 1). Romania: Bridge Center.

Pandey, Parbati & Margam, Madhusudhan & Singh, B.P.. (2023). Quantitative Research Approach and its Applications in Library and Information Science Research. Access: An International Journal of Nepal Library Association. 2. 77-90. 10.3126/access.v2i01.58895.

Paolo Mauro, Paulo Medas, Jean Marc Fournier (2019) The Cost of Corruption
<https://www.imf.org/en/Publications/fandd/issues/2019/09/the-true-cost-of-global-corruption-mauro>

Parasuraman, A Parsu & Berry, Leonard & Zeithaml, Valarie. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of retailing*. 67. 420-450.

Park, Y. S., Konge, L., & Artino Jr, A. R. (2020). The positivism paradigm of research. *Academic medicine*, 95(5), 690-694.

Parui, P. (2024). Fiscal expansion, government debt and economic growth: a post-Keynesian perspective. *Journal of Post Keynesian Economics*, 47(1), 117–154.
<https://doi.org/10.1080/01603477.2023.2221444>

Paudel Ramesh C. (2023) Capital expenditure and economic growth: A disaggregated analysis for Nepal, *Cogent Economics & Finance*, 11:1, DOI: [10.1080/23322039.2023.2191449](https://doi.org/10.1080/23322039.2023.2191449)

Paul Baines; Bal Chansarkar, (2002) “Introducing Marketing Research,” Wiley.

Peace K, Hsu JP. (2018) The Importance of Statistics in Medical Science;
https://www.researchgate.net/publication/237518872_The_Importance_of_Statistics_in_Medical_Science

Peksen, D. (2021). Economic sanctions and political stability and violence in target countries. *Research Handbook on Economic Sanctions*, 187-201. <https://doi.org/10.4337/9781839102721.00016>

Pelsa, Inese & Balina, Signe. (2022). Development Of Economic Theory – From Theories Of Economic Growth And Economic Development To The Paradigm Of Sustainable Development. DIEM: Dubrovnik International Economic Meeting. 7. 91-101. 10.17818/DIEM/2022/1.10.

Peninsula Group (2023) "Bribery and corruption in business" International Journal of Applied Business and Economic Research

Persson, T., Tabellini, G., & Trebbi, F. (2003). Electoral rules and corruption. *Journal of the European Economic Association*, 1(4), 958-989.

Pesaran, M. H., Y. Shin, and R. Smith, (2001) Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16, pp. 289-326.

Pesaran, M., Shin, Y., & Smith, R. (2009) Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, (94), 289-326.

Peter, A., & Bakari, I. (2018). Impact of population growth on economic growth in Africa: A dynamic panel data approach (1980-2015). *Pakistan Journal of Humanities and Social Science (PJHSS)*, 6(4), 412–427. <https://ssrn.com/abstract=3331577>

Peterson, T. M. (2021). Sanctions and Third-party Compliance with US Foreign Policy Preferences: An Analysis of Dual-use Trade. *Journal of Conflict Resolution*, 65(10), 1820-1846. <https://doi.org/10.1177/00220027211014945>

Phiri, A. (2019). Does military spending nonlinearly affect economic growth in South Africa? *Defence and Peace Economics*, 30(4), 474–487. <https://doi.org/10.1080/10242694.2017.1361272>

Piabuo, S.M., Tieguhong, J.C. (2017) Health expenditure and economic growth – a Review of the literature and an analysis between the economic community for central African states (CEMAC) and selected African countries. *Health Econ Rev* 7, 23 (2017). <https://doi.org/10.1186/s13561-017-0159-1>

Plaue, M. (2023). Inferential statistics. In: Data Science. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-662-67882-4_4

Poku Kwasi, Emmanuel Opoku & Priscilla Agyeiwaa Ennin (2022) The influence of government expenditure on economic growth in Ghana: An Ardl approach, *Cogent Economics & Finance*, 10:1, DOI: [10.1080/23322039.2022.2160036](https://doi.org/10.1080/23322039.2022.2160036)

Portela, C. (2016). Are European Union Sanctions “Targeted”? *Cambridge Review of International Affairs*, 29(3), 912-929. <https://doi.org/10.1080/09557571.2016.1231660>

Pretorius, S., Steyn, H. and Bond-Barnard T.J. (2022) The relationship between project management maturity and project success *The Journal of Modern Project Management*, 10 (1), pp. 218-231

Pulla, Venkat & Carter, Elizabeth. (2018). Employing Interpretivism in Social Work Research. *International Journal of Social Work and Human Services Practice*. 6. 9-14. 10.13189/ijrh.2018.060102.

Punch, K.F.(2013) *Introduction to social research: Quantitative and qualitative approaches*. London: Sage

Pushak, Nataliya & Briceno-Garmendia, Cecilia. (2011). Zimbabwe's Infrastructure: A Continental Perspective.

QuestionPro (2023) *Secondary Research: Definition, Methods and Examples*. <https://www.questionpro.com/blog/secondary-research/>

Radulescu, M., L. Serbanescu, and C. Sinisi. (2019). “Consumption Vs. Investments for Stimulating Economic Growth and Employment in the CEE Countries-a Panel Analysis.” *Economic Research* 32 (1): 2329–53.

Rahman, M. M. (2023). Sample Size Determination for Survey Research and Non-Probability Sampling Techniques: A Review and Set of Recommendations. *Journal of Entrepreneurship, Business and Economics*, 11(1), 42–62.

Rahman, M., & Islam, A. (2020). Some dynamic macroeconomic perspectives for India's economic growth: Applications of linear ARDL bounds testing for co-integration and

VECM. *Journal of Financial Economic Policy*, 12(4), 641–658. <https://doi.org/10.1108/JFEP-11-2018-0165>

Rathore, Pushpendra Kumar Singh, Shailendra Rathore, Rudra Pratap Singh, and Sugandha Agnihotri. (2018). Solar power utility sector in India: Challenges and opportunities. *Renewable and Sustainable Energy Review* 81, no. 2: 2703-13.

Raza, Muhammad & Ahmed, Mumtaz & Razzaque, Shahid & Hina, Hafsa. (2023). Testing for Heteroskedasticity in The Presence of Outliers. *Journal of Education and Social Studies*. 4. 313-329. 10.52223/jess.2023.4209.

Reinikka, Ritva and Svensson, Jakob, (2002) Explaining Leakage of Public Funds (February 2002). Available at SSRN: <https://ssrn.com/abstract=303984>

Ricardo, D. (1817). *On the Principles of Political Economy and Taxation*. Georg Olms Verlag.

Riyami, A. T. (2015). Main Approaches to Educational Research. *International Journal of Innovation and Research in Educational Sciences*, 2(5), 412-416.

Rodrik, D., 2018. What do trade agreements really do? *Journal of Economic Perspectives*, 32(2), pp. 73-90. <https://doi.org/10.1257/jep.32.2.73>

Romer PM (1990). Endogenous Technological Change. *Journal of Political Economy*. (1990); 98:71-102.

Romer D. (1996) *Advanced Macroeconomics*, the MacGrow-Hill Co. Inc., Singapore; 1996.

Rosamond, B. (2017, November 3). mesoregionalism. *Encyclopaedia Britannica*. <https://www.britannica.com/topic/mesoregionalism>

Roser, Max (2021). What is economic growth? And why is it so important? Published online at OurWorldInData.org. Retrieved from: [https://ourworldindata.org/what is economic growth](https://ourworldindata.org/what-is-economic-growth) online resource

Rossman, G., & Rallis, S. (2017). Issues That Arise in the Field. SAGE Publications, Inc, <https://dx.doi.org/10.4135/9781071802694>

Royal Government of Bhutan Anti-corruption Commission (2017) Fighting corruption is a collective responsibility Bhutan.

Rumanzi, P. , Turyareeba, D. , Kaberuka, W. , Mbabazize, R. and Ainomugisha, P. (2021) Uganda's growth Determinants: A Test of the Relevance of the Neoclassical Growth Theory. *Modern Economy*, 12, 107-139. doi: [10.4236/me.2021.121006](https://doi.org/10.4236/me.2021.121006).

Runciman, W. G. (1983). A treatise on social theory: The methodology of social theory. Cambridge, MA: Cambridge University Press.

Rustiarini N, Sutrisno T, Nurkholis N, Andayani W, (2019) Why people commit public procurement fraud? The fraud diamond view. *J Publ Procure* 19(4):345 – 362

Ryan, G. (2018). Introduction to positivism, Interpretivism and critical theory. *Nurse Researcher*, 25(4), 14–20.

Sabir S., Qamar M. (2019). Fiscal policy, institutions and inclusive growth: Evidence From the developing Asian countries. *International Journal of Social Economics*, 46, 822–837.

Saidi, S., Shahbaz, M., Akhtar, P., (2018). The long-run relationships between transport energy consumption, transport infrastructure, and economic growth in MENA countries. *Transport. Res. Pol. Pract.* 111, 78–95.

Saidu, I. E., & Ibrahim, A. (2019). Impact of Public Capital Expenditure on Economic Growth in Nigeria. *Lapai Journal of Economics*, 3(1), 169-177.

Saliterer, Iris, Mariafrancesca Sicilia, and Ileana Steccolini. (2018). Public Budgets and Budgeting in Europe: State of the Art and Future Challenges. In *The Palgrave Handbook of Public Administration and Management in Europe*. Edited by Edoardo Ongaro and Sandra van Thiel. Basingstoke: Palgrave MacMillan, pp. 141–63.

Salkind, N. J. (2009). *Exploring Research* (7th edition). New Jersey: Pearson Education.

Sanderson, David, Sonny Patel, Martin Loosemore, Anshu Sharma, Kelsy Greenwald, Ronak Patel. (2022) "Corruption and disasters in the built environment: a literature review." *Disasters* 46, no. 4 (2022): 928-945. DOI: 10.1111/disa.12500 Okafor

Sarwat Jahan, Ahmed Saber Mahmud, and Chris Papageorgiou Sarwat Jahan, Ahmed Saber Mahmud, and Chris Papageorgiou (2014) What Is Keynesian Economics? The central tenet of this school of thought is that government intervention can stabilize the economy <https://www.imf.org/external/pubs/ft/fandd/2014/09/pdf/basics.pdf>

Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students*. Pearson.

Saunders, Mark & Bristow, Alexandra. (2023) *2023 Research Methods for Business Students* Preface and Chapter 4.

Saunders, Mark & Lewis, Philip & Thornhill, Adrian & Bristow, Alex. (2019). "Research Methods for Business Students" Chapter 4: Understanding research philosophy and approaches to theory development.

Seltman HJ, (2012) editor. *Experimental Design and Analysis*. 1st ed. Pittsburgh, PA: Carnegie Mellon University; 2012. Variable classification; pp. 9–18.

Shakirat Adepeju Babatunde (2018) Government spending on infrastructure and economic growth in Nigeria, *Economic Research-Ekonomiska Istrazivanja*, 31:1, 997-1014, DOI: 10.1080/1331677X.2018. [1436453](https://doi.org/10.1080/1331677X.2018.1436453)

Shank, G. & Brown, L. (2007). Exploring Educational Research Literacy. New York: Routledge.

Sharma, Sohil. (2019). Descriptive Statistics.

Shenton, A.K. (2004) Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22 63 – 75

Shin, Y., Yu, B., & Greenwood-Nimmo, M. (2014). Modelling asymmetric cointegration and dynamic multipliers in a nonlinear ARDL framework. In *Festschrift in honour of Peter Schmidt* (pp. 281-314). Springer, New York, NY.

Shin, G., Choi, S.W. and Luo, S. (2016), “Do economic sanctions impair target economies?”, *International Political Science Review*, Vol. 37 No. 4, pp. 485-499.

Shkodra, J., Krasniqi, A., & Ahmeti, N. (2022). THE impact of government expenditure on economic growth in southeast European countries. *Journal of Management Information & Decision Sciences*, 25(4), 100–1025.

Sibanda, Vusumuzi & Makwata, Ranganayi. (2017). Zimbabwe Post Independence Economic Policies: A Critical Review.

Sicilia, Mariafrancesca, and Ileana Steccolini. (2017). Public budgeting in search for an identity: State of the art and future challenges. *Public Management Review* 19: 905–10

Sileyew, J. K. (2020). Research Design and Methodology. Semantic Scholar, Cyberspace. <https://doi.org/10.5772/intechopen.85731>

Silva Martins, Fellipe & Carneiro da Cunha, Julio & Serra, Fernando. (2018). Secondary Data in Research – Uses and Opportunities. *Revista Ibero-Americana de Estratégia*. 17. 01-04. 10.5585/ijsm.v17i4.2723.

Slevitch, L. (2011). Qualitative and quantitative methodologies compared: ontological and epistemological perspectives. *Journal of Quality Assurance in Hospitality & Tourism*, 12(1), 73–81. <https://doi.org/10.1080/1528008X.2011.541810>

Smeets, M. (2018). Can Economic Sanctions Be Effective? Economic Research and Statistics Division, Staff Working Papers ERSD-2018-03, World Trade Organization.

Smith, Adam (1776) *The Wealth of Nations*. W. Strahan and T. Cadell, London.

Smith, M. (2023). Adam Smith on Growth and Economic Development. *History of Economics Review*, 86(1), 2–15. <https://doi.org/10.1080/10370196.2023.2243741>

Smith, A. 1776 (1976). *An Inquiry into the Nature and Causes of the Wealth of Nations*, Glasgow Edition of the Works and Correspondence of Adam

Smith, Matthew (2023) Adam Smith on Growth and Economic Development, *History of Economics Review*, 86:1, 2-15, DOI: [10.1080/10370196.2023.2243741](https://doi.org/10.1080/10370196.2023.2243741)

Smithies, O. (1955) Grouped Variations in the Occurrence of New Protein Components in Normal Human Serum. *Nature* 175, 307–308 (1955). <https://doi.org/10.1038/175307a0>

Sokang, K. (2018). The Impact of Foreign Direct Investment on the Economic Growth in Cambodia: Empirical Evidence. *International Journal of Innovation and Economic Development*, 4, 31-38. <https://doi.org/10.18775/ijied.1849-7551-7020.2015.45.2003>

Solow, R. M. (1956) A contribution to the theory of Economic Growth. *The Quarterly Journal of Economics*. 1956;70(1):65-94.

Solow, R.M. and Swan, T.W. (1956) Economic Growth and Capital Accumulation. *Economic Record*, 32, 334-361. <https://doi.org/10.1111/j.1475-4932.1956.tb00434.x>

Sombie, A. (2023). An empirical analysis using new instrumental variable methods of distributional effects of corruption on public expenditures in developing countries. *SN Bus Econ* 3, 80 <https://doi.org/10.1007/s43546-023-00452-1>

Song, Jing. (2021). A Review of the Soundness of a Study Based on the Understanding of a Good Research. *Studies in English Language Teaching*. 9. p57. 10.22158/selt.v9n1p57

Splinter, Melody & Klomp, Jeroen. (2021). Do Sanctions Cause Economic Growth Collapses? 10.1007/978-94-6265-471-6_7.

Srivats K.,R., (2022) Nuts and Bolts of Government Capital Expenditure Spend. New Delhi, 29 January 2022

Stang, A., Rothman, K.J. (2023) Statistical inference and effect measures in abstracts of randomized controlled trials, 1975–2021. A systematic review. *Eur J Epidemiol* 38, 1035–1042. <https://doi.org/10.1007/s10654-023-01047-8>

Statsmodels (2023). Statsmodels.tsa.stattools.kpss (Accessed on September 26, 2022).

Sukamolson, S. (2007). Fundamentals of Quantitative Research. Language Institute, Chulalongkorn University, 1–20.

Sumah, S (2018). Corruption, Causes and Consequences. In Tech. doi: 10.5772/intechopen.72953

Surucu, Lutfi & Maslakci, Ahmet. (2020). Validity and Reliability in Quantitative Research. 8. 2694-2726. 10.15295/bmij.v8i3.1540.

Suwa T, Fujiu M, Morisaki Y, Fukuoka T. (2023) Analysis of Estimation of Soundness and Deterioration Factors of Sewage Pipes Using Machine Learning. *Sustainability*. 15(22):16081. <https://doi.org/10.3390/su152216081>

Taherdoost Hamed. (2021) Data Collection Methods and Tools for Research; A Step-by-Step Guide to Choose Data Collection Technique for Academic and Business Research Projects. *International Journal of Academic Research in Management (IJARM)*, 2021, 10 (1), pp.10-38. ffhal-03741847f

Taherdoost, H. (2021). Handbook on Research Skills: The Essential Step-By-Step; Guide on How to Do a Research Project (Kindle ed.): Amazon.

Tank A, Fox EB, Shojaie A. (2019). Identifiability and estimation of structural vector autoregressive models for subsampled and mixed-frequency time series. *Biometrika* 106(2):433–52

Tanzi, V., & Davoodi, H. (1997). Corruption, Public Investment and Growth. No 1997/139, IMF Working Papers from International Monetary Fund.

Tanzi V, Davoodi HR. (2000) Corruption, growth, and public finances. IMF Working Paper. 2000. pp. 1-27. Available on: <https://www.imf.org/external/pubs/ft/wp/2000/wp00182.pdf>

Tanzi V, Davoodi H. (1997) Corruption, public investment, and growth. IMF Working Paper 97/139. Washington: International Monetary Fund; 1997

Tanzi V (1998). Corruption Around the World: Causes, Consequences, Scope, and Cures. Staff Papers IMF 45(4):559-559.

Tesfaye Etena, Lemi Taye, Mekonnen Bersisa, (2022) Infrastructure Development and Economic Growth in East Africa: Quantity versus Quality Dimensions Using Panel-ARDL Approach. Journal Article International Journal of Empirical Economics. 2240001. 01.04.10.1142/S2810943022400017 [doi] <https://www.worldscientific.com/doi/abs/>

Thakur, Harish. (2021). Research Design : Research Methodology in Social Sciences (A Short Manual) (pp.175) Publisher: New Delhi: Corvette

Thompson, M. (2011). Ontological shift or ontological drift? Reality claims, Epistemological frameworks, and theory generation in organization studies. *Academy of Management Review*, 36(4), 754-773.

Tobias J. (2015) Why corruption matters: Understanding causes, effects and how to address them Britain United Kingdom Department for International Development

Torbat, A. E. (2005). Impacts of the US trade and financial sanctions on Iran. *World Economy*, 28(3), 407-434.

Torrise, G., (2009). Public infrastructure: definition, classification and measurement issues. *Econ. Manag. Financ. Mark.* 4 (3), 100–124.

Tran Hung Son, Nguyen Thanh Liem & Nguyen Vinh Khuong (2020) Corruption, nonperforming loans, and economic growth: International evidence, *Cogent Business & Management*, 7:1, DOI: [10.1080/23311975.2020.1735691](https://doi.org/10.1080/23311975.2020.1735691)

Transparency International (2020) Corruption Perceptions Index 2019 Transparency International, 96. International Secretariat Alt-Moabit, p. 10559. Berlin Germany.

Transparency International (2020). Climate Change Mitigation Finance and Project Implementation in Bangladesh: Governance Challenges and Way Forwards (November). Dhaka. Available at https://www.ti-bangladesh.org/beta3/images/2020/report/Mitigation-Finance/Mitigation_Finance_Governance_ES_EN.pdf.

Transparency International (2022) The global coalition against corruption: Available at: <https://www.transparency.org/en/what-is-corruption>

Treharne, Gareth & Riggs, Damien. (2015). Ensuring Quality in Qualitative Research. 10.1007/978-1-137-29105-9_5.

Tuli, F. (2010). The basis of distinction between quantitative and qualitative in social science: reflection on ontological, epistemological and methodological perspectives. *Ethiopian Journal of Education and Science*, 6 (1), 97-108.

Uberti JL (2021) Corruption and growth: historical evidence, 1790–2010. *J Comp*

UNICEF (2022) Global Insight Sanctions and Children.

UNCTAD (2003), World Investment Report 2003: FDI Policies for Development, United Nations, NY, Geneva.

UNCTAD (2009), World Investment Report 2009: Transnational Corporations, Agricultural Production and Development, United Nations, NY, Geneva. Econ. [https://doi.org/ 10.1016/j.jce.2021.10.002](https://doi.org/10.1016/j.jce.2021.10.002)

van Bergeijk, P. A. G., ed. (2021a). Research handbook on economic sanctions. Cheltenham: Edward Elgar.

Van den Broeck J, Sandøy IF, Brestoff JR. (2013) The Recruitment, Sampling, and Enrolment Plan. In Epidemiology: Principles and Practical Guidelines 2013 (pp. 171-196). Springer Netherlands.

Van der Walldt, Gerrit. (2020) Constructing conceptual frameworks in Social science research. TD: The Journal for Transdisciplinary Research in Southern Africa. 1-9. 10.4102/td.v16i1.758.].

Van, L. T. H., Vo, A. T., Nguyen, N. T., & Vo, D. H. (2021). Financial inclusion and economic growth: An international evidence. *Emerging Markets Finance and Trade*, 57(1), 239–263. <https://doi.org/10.1080/1540496X.2019.1697672>

Varona L., Gonzales J. R. 2021. Dynamics of the impact of COVID-19 on the economic activity of Peru. *PLOS ONE* 16: e0244920. <https://doi.org/10.1371/journal.pone.0244920>

Vijay Kumar G (2023) Statistical Tests to Check Stationarity in Time Series Published On June 16, 2021 and Last Modified On June 6th, 2023

Villanueva, Delano. (2023). Toward a general neoclassical theory of economic growth. *The Philippine Review of Economics*. 60. 64-80. 10.37907/4ERP3202D.

Volosin N (2015) Datos abiertos, corrupcion y compras publicas. RIGA – ILDA.

Vtyurina, S. (2020). Effectiveness and equity in social spending: the case of Spain. IMF Working Paper, No. WP/20/16.

Vveinhardt J. Sroka W.2020 Sustainability MDPI

Wang, X., Miao, S., Tang, J., (2020). Vulnerability and resilience analysis of the air Traffic control sector network in China. Sustainability 12 (9), 3749.

Wang S, Yuan Y, Wang H (2019) Corruption, hidden economy and environmental pollution: A spatial econometric analysis based on China's provincial panel data. Int J Environ Res Public Health 16(16):2871

Wagner A (1883) "Three extracts on Public Finance" Translated and reprinted in RA Musgrave and AT Peacock (eds), *Classics in the Theory of Public Finance*, London, Macmillan, 1958.

Wagner, A., (1958) "Extracts on public finance," in *Classics in the Theory of Public Finance*, R. A. Musgrave and A. T. Peacock, Eds., Macmillan, London, UK,

Waweru, D. (2021). Government Capital Expenditure and Economic Growth: An Empirical Investigation. *Asian Journal of Economics, Business and Accounting*, 21(8), 29–36. <https://doi.org/10.9734/ajeba/2021/v21i830409>

Waweru, David & Mose, Naftaly. (2021). Government Capital Expenditure and Economic Growth: An Empirical Investigation. 29-36. 10.9734/AJEBA/2021/v21i83040.

Webb, C. (2020). "Re-examining the costs of sanctions and sanctions threats using stock market data". *International Interactions* 46 (5): 749–777.

Weber, M., & Henderson, A. M. (2012). *Max Weber: The theory of social and economic organization*. Martino Publishing.

Weerahandi, S. (1995) ANOVA under Unequal Error Variances. *Biometrics*, 51, 589-599. <https://doi.org/10.2307/2532947>

Wei, W. W., & Stram, D. O. (1990). Disaggregation of time series models. *Journal of the Royal Statistical Society, Series B (Methodological)*, 52(3), 453-467.

Weil, D.N. 2009. *Economic Growth*. Boston: Pearson Education Inc.

Weinstein, J. (2021, February 15). Internet Encyclopedia of Philosophy. Adam Smith (1723-1790). Retrieved from <https://iep.utm.edu/smith/>

Welfolo, T. (2019). *Evaluation of Core Competencies Required by Project Managers to Effectively Execute a Construction Project* Doctoral dissertation, Cape Peninsula University of Technology

Wellington, J., & Szczerbinski, M. (2007). *Research methods for the social sciences*, London: Continuum.

Wells J. (2014) Corruption and collusion in construction: A view from the industry. In: Søreide T, Williams A, editors. *Corruption, Grabbing and Development: Real World Challenges*. Cheltenham: Edward Elgar Publishing; 2014. pp. 23-34

White, H. (1980) A Heteroscedasticity Consistent Covariance Matrix and Direct Test for Heteroscedasticity. *Econometrica*, 48, 817-838.
<https://doi.org/10.2307/1912934>

Whiting P, Savović J, Higgins JP, Caldwell DM, Reeves BC, Shea B, Davies P, Kleijnen J, Churchill R; ROBIS group. ROBIS: (2016) A new tool to assess risk of bias in systematic reviews was developed. *J Clin Epidemiol*. 2016 Jan;69:225-34. doi: 10.1016/j.jclinepi.2015.06.005. Epub 2015 Jun 16. PMID: 26092286; PMCID: PMC4687950.

Wickberg, Sofia. (2021). Understanding corruption in the twenty-first century: towards a new constructivist research agenda. *French Politics*. 19. 10.1057/s41253-020-00144-4.

Wildavsky, Aaron. (1961) "Political Implications of Budgetary Reform." *Public Administration Review*, 21 (autumn 1961): 183 – 190

Will Hillier (2022) What is Secondary Data? A Complete Guide
<https://careerfoundry.com/en/blog/data-analytics/what-is-secondary-data/#secondary-data>

Will Kenton (2021) Classical Growth Theory: Reviewed by Eric Estevez; Updated July 25, 2021

Willoughby, Katherine (2014). Public Budgeting in Context: Structure, Law, Reform and Results. Jossey-Bass Publishers.

Winter M.J. (2017) "An analysis of the abuse of power by leaders in Christian organisations: Cultural comparisons from Canada, Germany and South Africa" Master's thesis University of South Africa

Witt, M. A., Lewin, A., Li, P.P. & Gaur, A. (2023). Decoupling in international business: Evidence, drivers, impact and implications for IB research, Journal of World Business, 58(1): 101399.

World Bank (2015). Russia Economic Report No. 33: The Dawn of a New Economic Era? Washington, DC. <https://www.worldbank.org/en/country/russia/publication/russia-economic-report-33>

World Bank (2020) National Accounts Data and OECD National Accounts Data Files. License: CC BY-4.0; ID: NY.GDP.MKTP.KD.ZG

World Bank., (2017). Zimbabwe Economic Update. The State in the Economy. June Issue

World Bank. (2019) Zimbabwe Public Expenditure Review with a Focus on Agriculture. World Bank, Washington, DC. © World Bank.
<https://openknowledge.worldbank.org/handle/10986/32506> License: CC BY 3.0 IGO.”

World Bank (2020) National Accounts Data, and OECD National Accounts Data Files. License: CC BY-4.0; ID: NY.GDP.MKTP.KD.ZG

World Bank. (2015) The Cost of Corruptions. 2004. Available from <http://go.worldbank.org/LJA29GHA80>

World Bank (2015). Introduction to Public Sector Governance and Accountability Series: Public Expenditure analysis. Washington, D.C.: The World Bank Group.

World Bank in Africa (2022) Growth in sub-Saharan Africa <https://www.worldbank.org/en/region/afr/overview> : updated April 2022.

World Health Organization 2022 Managing conflicts of interest: A how-to guide for public pharmaceutical-sector committees in low- and middle income countries **135**

Wu Chebili B, La Cascia H, Collineau F, Salomon A, Calvet B, & Moreau Y (2022). Electronic government procurement implementation types

Xie, Guo & Cui, Zhanhong & Ren, Siyu & Li, Kai. (2023). Pathways to carbon neutrality: how do government corruption and resource misallocation affect carbon emissions?. Environmental Science and Pollution Research. 30. 1-15. 10.1007/s11356-023-25179-2.

Xu, X. and Yan, Y., (2014). Does government investment crowd out private investment in China?. Journal of Economic Policy Reform, 17(1), pp.1-12.

Yasin, M. (2000) Public Spending and Economic Growth: Empirical Investigation of Sub-Saharan Africa. Southwestern Economic Review, 4(1), 59–68.

Yellapu, Vikas. (2018). Descriptive statistics. International Journal of Academic Medicine. 4. 60. 10.4103/IJAM.IJAM_7_18.

Yijia Zhang and Lu Cheng, (2023) The role of transport infrastructure in economic growth: Empirical evidence in the UK, Transport Policy, Volume 133, 2023, Pages 223-233, ISSN 0967-070X, <https://doi.org/10.1016/j.tranpol.2023.01.017>

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: epistemological, theoretical, and methodological differences. *European Journal of Education*, 48(2), 311–311. <https://doi.org/10.1111/ejed.12014>

Yin ZD, Nie HH (2020) Corruption, officials governance and economic development. *China Econ Q* 19(2):411–432. <https://doi.org/10.13821/j.cnki.ceq.2020.01.02>

Yusof MH, Mohd Haniff MAH, Kamaruddin Z, Mohd Jaafar NA, Saihani SB(2023) Investigating the causality between corruption and economic growth: a systematic review *Inf Manag Bus Rev* 15:492–501

Zahonogo, P., (2016). Trade and economic growth in developing countries: evidence from sub-Saharan Africa. *Journal of African Trade*, 3(1-2), pp.41-56. <https://doi.org/10.1016/j.joat.2017.02.001>

Zakharov, N. (2019). Does corruption hinder investment? Evidence from Russian regions. *European Journal of Political Economy*, 56, 39-61.

Zallé, O. (2017) Spatial Effect of Political Risk on Economic Growth in Africa. *Modern Economy*, 8, 1383-1399. <https://doi.org/10.4236/me.2017.812093>

Zarewa, G.A., (2019). Barriers to effective stakeholder management in the delivery of multifarious infrastructure projects (MIPs). *J. Eng. Proj. Prod. Manag.*, 9 (2) (2019), pp. 85-96

Zekeri Momoh (2015) Global Network for Peace and Anti-Corruption Initiative (GNPAI) Abuja, Nigeria. Proceedings of The International Academic Conference for Sub-Sahara African Transformation & Development Vol. 3 No.6 March, 12-13 2015-University of Ilorin, 1000 Capacity Lecture Theatre Hall, Ilorin, Kwara State - Nigeria

Zikmund, W & Carr, B & Griffin, Mitch & Babin, Barry & Carr, Jon. (2013). *Business Research Method*.

Zimelis, A. (2020), Corruption research: A need for an integrated approach. *International Area Studies Review*, 23(3), 288–306. <https://doi.org/10.1177/2233865920926778>

ZimEye. (2019). ZANU-PF supporters camp at U.S embassy demanding removal of targeted sanctions. 3 April.

Zhang, M., Zhang, H., Zhang, L. *et al.* (2023) Corruption, anti-corruption, and economic development. *Humanit Soc Sci Commun* **10**, 434. <https://doi.org/10.1057/s41599-023-01930-5>

Zheng C, Deng F, Zhuo C, Sun W (2022) Green credit policy, institution supply and enterprise green innovation. *Journal of Economic Analysis* 1(1):28–51

Zoie O'Brien Nick Fagge (2018) Mafia firms blamed for using weakened cement on Italy's infrastructure; NZ Herald Daily Mail 17 August 2018)1:58 AM5 mins to read

Žukauskas, P., Vveinhardt, J., & Andriukaitienė, R. (2018). Philosophy and Paradigm of Scientific Research. In *Tech*. doi: 10.5772/intechopen.70628

APPENDIX 4.1 (Appendices are placed after list of references)

	CAPEX_U...	CORR	CORRCAP	CORRCPI	CPICAP	FC	YEAR	US\$BIL...	GDPG	INFL	LNCAPEX	LNGDP	LNTRADE	TRADE
Mean	301.5881	-0.332625	-1.564626	4.435464	21.81965	0.4	2015.500	50661	1.351811	18.31190	4.629758	1.624299	2.708195	15.25738
Median	101.3350	-0.311000	-1.331464	5.452400	24.21384	0.4	2015.500	76200	0.706550	0.728360	4.618412	1.584363	2.630621	13.88239
Maximum	3523.658	-0.188000	-0.356656	6.159000	48.82385	0.6	2022.000	40000	5.186000	332.9040	8.167255	2.667228	3.170300	23.81462
Minimum	5.465000	-0.568000	-4.165300	-0.417600	-1.471525	0.1	2009.000	17200	-2.965000	-163.4040	1.698364	0.796245	2.508867	12.29100
Std. Dev.	606.2129	0.122074	0.832834	2.105150	13.27055	0.1	4.067610	65658	1.983429	67.80518	1.446752	0.417769	0.178848	3.038798
Skewness	3.654842	-0.683047	-1.079447	-1.359149	-0.214483	-0.2	-6.31E-18	41493	0.100212	2.281392	0.241052	0.346082	1.249218	1.436374
Kurtosis	17.39067	2.166463	3.602483	3.114847	2.236157	1.8	1.787692	51770	2.745185	11.83959	2.893486	2.977101	3.262472	3.791342
Jarque-Bera	607.8870	5.975664	11.72223	17.27212	1.790760	3.3	3.429277	28236	0.245235	230.9007	0.568796	1.119105	14.72584	20.71744
Probability	0.000000	0.050397	0.002848	0.000178	0.408452	0.1	0.180029	00001	0.884602	0.000000	0.752467	0.571465	0.000634	0.000032
Sum	16888.93	-18.62700	-87.61906	248.3860	1221.900	22.	112868.0	18370	75.70140	1025.466	259.2665	90.96073	151.6589	854.4130
Sum Sq. Dev.	20212174	0.819613	38.14869	243.7410	9685.909	1.1	910.0000	10432	216.3694	252864.9	115.1200	9.599207	1.759258	507.8861
Observations	56	56	56	56	56		56	56	56	56	56	56	56	56

	CORR	CORRCPI	FDI	GDPG	INFL	LNCAPEX	LNGDP	LNTRADE
CORR	1	0.03049220...	-0.0069686...	-0.0696056...	-0.0961393...	-0.1421263...	-0.1262294...	-0.0572694...
CORRCPI	0.03049220...	1	0.02144969...	-0.5947456...	0.16115511...	0.42942629...	0.72083012...	-0.7526333...
FDI	-0.0069686...	0.02144969...	1	0.18217825...	-0.4065213...	-0.4226896...	-0.0256641...	0.18569793...
GDPG	-0.0696056...	-0.5947456...	0.18217825...	1	-0.4137274...	-0.2718855...	-0.3812373...	0.75836598...
INFL	-0.0961393...	0.16115511...	-0.4065213...	-0.4137274...	1	0.25258591...	0.26719409...	-0.1633303...
LNCAPEX	-0.1421263...	0.42942629...	-0.4226896...	-0.2718855...	0.25258591...	1	0.59586458...	-0.2832284...
LNGDP	-0.1262294...	0.72083012...	-0.0256641...	-0.3812373...	0.26719409...	0.59586458...	1	-0.5290130...
LNTRADE	-0.0572694...	-0.7526333...	0.18569793...	0.75836598...	-0.1633303...	-0.2832284...	-0.5290130...	1

APPENDIX A

LAG LENGTH

Dependent Variable: LNGDP

Method: ARDL

Date: 12/14/23 Time: 10:08

Sample: 2010Q1 2022Q4

Included observations: 52

Dependent lags: 4 (Automatic)

Automatic-lag linear regressors (4 max. lags): LNCAPEX CORR CORRCAP

FDI___ LNTRADE

Deterministics: Restricted constant and no trend (Case 2)

Model selection method: Akaike info criterion (AIC)

Number of models evaluated: 12500

Selected model: ARDL(3,0,0,4,0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNGDP(-1)	0.499122	0.115584	4.318274	0.0001
LNGDP(-2)	-0.578482	0.122362	-4.727623	0.0000
LNGDP(-3)	0.496894	0.111521	4.455602	0.0001
LNCAPEX	-0.049245	0.061977	-0.794566	0.4317
CORR	1.747193	0.818975	2.133389	0.0392
CORRCAP	-0.396788	0.163199	-2.431312	0.0197
FDI___	1.329191	0.425581	3.123236	0.0034
FDI___(-1)	-1.089103	0.624643	-1.743560	0.0891
FDI___(-2)	0.754099	0.700925	1.075862	0.2886
FDI___(-3)	-0.224176	0.671550	-0.333819	0.7403
FDI___(-4)	-0.718036	0.432062	-1.661881	0.1046
LNTRADE	-0.702538	0.249053	-2.820839	0.0075
C	3.042262	0.866237	3.512041	0.0011
R-squared	0.843886	Mean dependent var	1.681335	
Adjusted R-squared	0.795851	S.D. dependent var	0.375919	
S.E. of regression	0.169851	Akaike info criterion	-0.495476	
Sum squared resid	1.125121	Schwarz criterion	-0.007665	
Log likelihood	25.88238	Hannan-Quinn criter.	-0.308461	
F-statistic	17.56816	Durbin-Watson stat	1.880585	
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent test results do not account for model selection.

LAG LENGTH

Dependent Variable: LNGDP

Method: ARDL

Date: 12/14/23 Time: 07:32

Sample: 2010Q1 2022Q4

Included observations: 52

Dependent lags: 4 (Automatic)

Automatic-lag linear regressors (4 max. lags): LNCAPEX CORR FDI
LNTRADE CORRCAP

Deterministics: Unrestricted constant and no trend (Case 3)

Model selection method: Akaike info criterion (AIC)

Number of models evaluated: 12500

Selected model: ARDL(3,0,0,4,0,0)

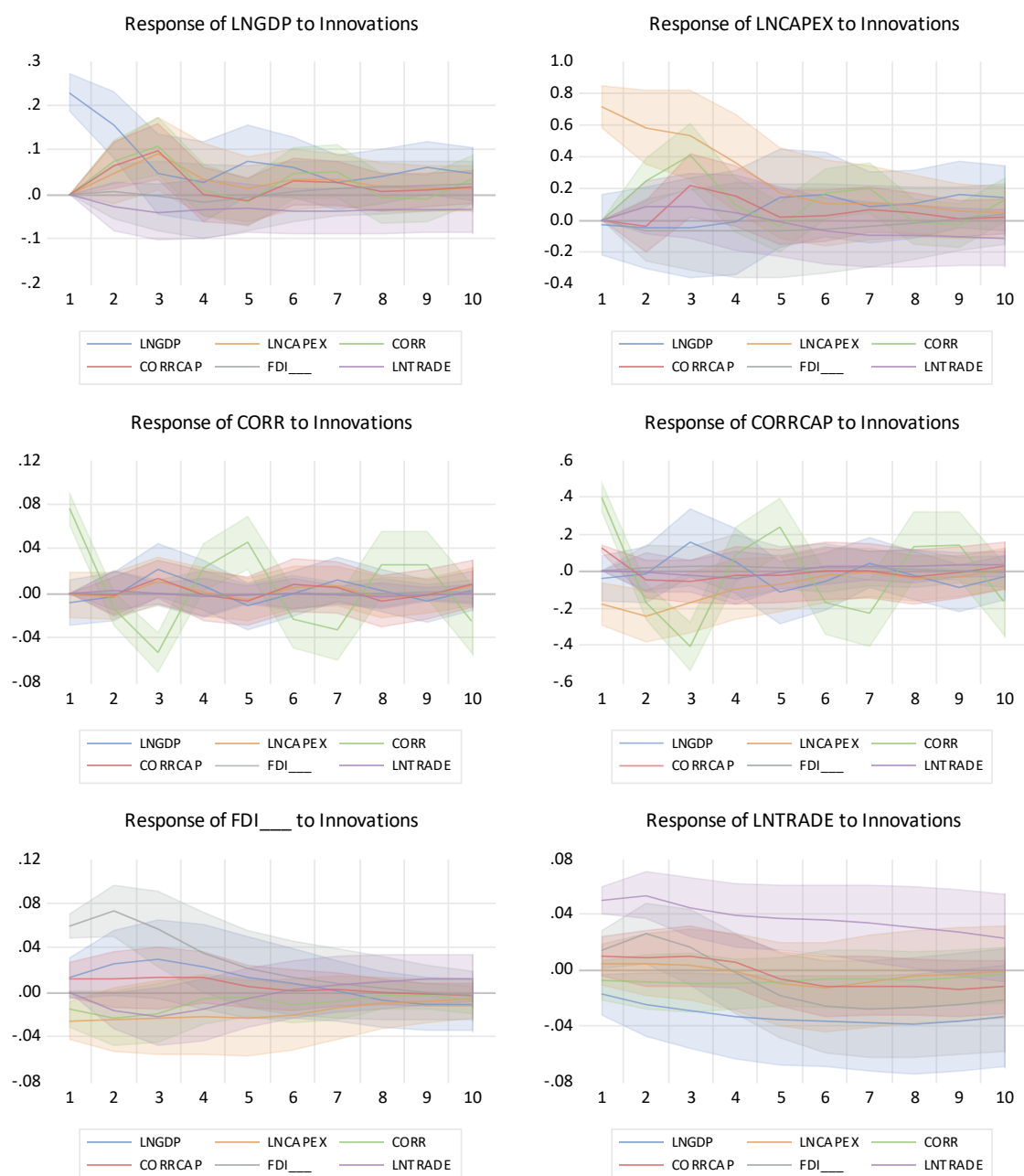
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNGDP(-1)	0.499122	0.115584	4.318274	0.0001
LNGDP(-2)	-0.578482	0.122362	-4.727623	0.0000
LNGDP(-3)	0.496894	0.111521	4.455602	0.0001
LNCAPEX	-0.049245	0.061977	-0.794566	0.4317
CORR	1.747193	0.818975	2.133389	0.0392
FDI	1.329191	0.425581	3.123236	0.0034
FDI____(-1)	-1.089103	0.624643	-1.743560	0.0891
FDI____(-2)	0.754099	0.700925	1.075862	0.2886
FDI____(-3)	-0.224176	0.671550	-0.333819	0.7403
FDI____(-4)	-0.718036	0.432062	-1.661881	0.1046
LNTRADE	-0.702538	0.249053	-2.820839	0.0075
CORRCAP	-0.396788	0.163199	-2.431312	0.0197
C	3.042262	0.866237	3.512041	0.0011
R-squared	0.843886	Mean dependent var	1.681335	
Adjusted R-squared	0.795851	S.D. dependent var	0.375919	
S.E. of regression	0.169851	Akaike info criterion	-0.495476	
Sum squared resid	1.125121	Schwarz criterion	-0.007665	
Log likelihood	25.88238	Hannan-Quinn criter.	-0.308461	
F-statistic	17.56816	Durbin-Watson stat	1.880585	
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent test results do not account for model selection.

IMPULSE RESPONSE FUNCTIONS

Response to Cholesky One S.D. (d.f. adjusted) Innovations

95% CI using analytic asymptotic S.E.s



Dependent Variable: LNGDP
Method: Fully Modified Least Squares (FMOLS)
Date: 12/14/23 Time: 12:23
Sample (adjusted): 2009Q2 2022Q4
Included observations: 55 after adjustments
Cointegrating equation deterministics: C
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNCAPEX	0.002488	0.103561	0.024021	0.9809
CORR	2.565662	1.431141	1.792738	0.0792
LNTRADE	-1.090209	0.270719	-4.027084	0.0002
FDI	0.808279	0.364596	2.216920	0.0313
CORRCAP	-0.571366	0.281938	-2.026567	0.0482
C	4.189728	0.923769	4.535469	0.0000
R-squared	0.607497	Mean dependent var		1.637168
Adjusted R-squared	0.567446	S.D. dependent var		0.410264
S.E. of regression	0.269826	Sum squared resid		3.567501
Long-run variance	0.116569			

Dependent Variable: LNGDP
Method: Dynamic Least Squares (DOLS)
Date: 12/14/23 Time: 12:52
Sample (adjusted): 2009Q3 2022Q3
Included observations: 53 after adjustments
Cointegrating equation deterministics: C
Fixed leads and lags specification (lead=1, lag=1)
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNCAPEX	1.151443	0.646222	1.781807	0.0843
CORR	-7.819959	8.999909	-0.868893	0.3914
LNTRADE	-1.105598	0.284590	-3.884887	0.0005
FDI	0.315492	0.451125	0.699345	0.4894
CORRCAP	3.238194	2.007192	1.613295	0.1165
C	1.631584	2.693076	0.605844	0.5489
R-squared	0.755224	Mean dependent var		1.649197
Adjusted R-squared	0.602239	S.D. dependent var		0.400310
S.E. of regression	0.252469	Sum squared resid		2.039701
Long-run variance	0.072707			

Dependent Variable: LNGDP
 Method: Canonical Cointegrating Regression (CCR)
 Date: 12/14/23 Time: 13:05
 Sample (adjusted): 2009Q2 2022Q4
 Included observations: 55 after adjustments
 Cointegrating equation deterministics: C
 Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth
 = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNCAPEX	0.019513	0.151159	0.129091	0.8978
CORR	2.296138	2.112416	1.086973	0.2824
LNTRADE	-1.082476	0.268076	-4.037944	0.0002
FDI_____	0.805129	0.349845	2.301390	0.0257
CORRCAP	-0.517262	0.428867	-1.206111	0.2336
C	4.086822	1.073310	3.807679	0.0004
R-squared	0.606993	Mean dependent var		1.637168
Adjusted R-squared	0.566890	S.D. dependent var		0.410264
S.E. of regression	0.269999	Sum squared resid		3.572082
Long-run variance	0.116569			