The University of Zambia

INWARD FOREIGN DIRECT INVESTMENT (FDI) AND ECONOMIC GROWTH IN ZAMBIA - A BIVARIATE CAUSALITY LINK BETWEEN FDI AND GDP

STUDENT NAME : PATRICE NAMBAYO AONGOLA

COMPUTER NUMBER: 718000327

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Approval

This dissertation has been approved as partial fulfillment of the requirements for the award of the degree of Master of Business Administration (MBA) of the Zimbabwe Open University in collaboration with University of Zambia.

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Course Coordinator	Date	Head of Department	Date

Declaration

I, PATRICE NAMBAYO AONGOLA, as the principle researcher hereby declare that this dissertation is the result of my own independent work/investigation, except where otherwise stated. Other sources are acknowledged by giving references.

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidate for any degree.

Signed: (Candidate)

Date: 29/03/2022

Dedications

For my daughter Thapelo Patrice Aongola! You are the miracle – prayer of our lives, the one that defied all odds and brought happiness to this world.

For my son Joshua Aongola, my wife Lupupa Ntasuwila Sampa, these two experienced my emotional, and at times physical absence during my study period.

For my surviving siblings Lungowe, Sepiso, Gladys, Mwangala and Jedrick. For my mother Edith Wakung'uma Mukelabai.

For my nieces, nephews, cousins and brothers in law, I know I was absent for a while. It is because juggling school and a career in the middle of a pandemic as well as being a father and husband is not easy.

For those that went before me, siblings Mutafela, Patrick Aongola and Jimmy Mukelabai. For my late father, Godwin Aongola Nambayo, you are always missed. You have been gone for so many years now and all these years haven't been easy.

To my children Joshua and Thapelo, this is a challenge for you to write as many papers as possible. The way has always been open.

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Abstract

This study was conceived to investigate the impact of foreign direct investment on economic growth in Zambia. Although it may seem natural to argue that foreign direct investment (FDI) can evince great advantages to host countries among which is GDP growth, technological transfer, knowledge transfer and sustainable benefits such as employment creation, empirical investigations are all the more necessary to ascertain any such relationships.

The paper attempts to fill the knowledge gap in the area of foreign direct investment (FDI) research in Zambia. Since the early 1990's, the relationship between FDI and economic growth has been extensively discussed in both economic literature and political spheres. This has led to Pro-FDI policies becoming a pillar of the development convention in Zambia and the developing and emerging nations at large.

Data for the study was obtained from the World Bank's world development indicators for the period 1980 to 2020, COMESA statistics, Zambia statistic agency, UNCTAD and Zambia Development Agency. Linear regression analysis was used to examine the relationships between FDI inflows and GDP growth.

The paper employs linear regression analysis, Granger causality test, Johansen cointegration technique and vector autoregression (VAR). A unit root test was used to determine whether the data was stationary. Linear regression was used to model the relationship between the independent variable and the response of the dependent explanatory variable. The Johansen cointegration test was used to test for cointegration. Then, the Granger causality procedure was used to test the direction of causality between FDI and GDP.

Empirical results derived in this study suggests a relationship between inward FDI and GDP. The practical implications of this is that the study sheds light on the relationship between FDI and GDP growth for Zambia, a nation that has been actively pursuing policies and strategies aimed at attracting FDI inflows to spur economic growth.

CHAPTER 1
INTRODUCTION

1.0. Overview

The purpose of this research is to analyze the impact of foreign direct investment (FDI) inflows on economic growth, industrialization, and technological transfer, in Zambia. The focus is on the cause and effect relationship of inward FDI on economic growth, based on macroeconomic data observed for the period 1994 to 2020. The term FDI accordingly, refers to investment that is made to acquire a lasting interest in an enterprise operating abroad.

The phenomenon of FDI has long been a topic of interest in Zambia. The reasoning attracting curiosity is that, FDI contributes to economic growth through provision of capital, foreign exchange, access to foreign markets and rousing sustainable growth in the form of employment creation, knowledge transfer, technology transfer as well as productivity spillovers to local firms, as theory predicts. Pro-FDI policies have been a mainstay of Zambia's growth agenda since the early 1990's with policy makers providing numerous incentives to attract entry of capital through fiscal privileges, regulation distortions, tax exemptions, subsidies etc.

The researcher employed causality tests to examine whether a causal relationship exists between economic growth and FDI inflow to Zambia. Empirical data on inward FDI and GDP growth for each year between 1970 and 2020. The FDI data for the period 1994 and 2020 was then subjected to statistic examination and correlated with annual economic growth of GDP for the same period. The researcher also carried out an investigation on the extent of the contribution of FDI to sustainable growth in Zambia by analyzing the level of technology transfer, knowledge transfer and employment creation.

1.1. Background

Having gained independence from Britain in 1964, Zambia inherited a private sector driven economy dominated by the foreign-owned mining sector contributing about 50% of GDP. By 1973, most enterprises had transferred ownership and control to the state. The initial post-independence period was largely successful for the former Northern Rhodesia with specifically a

thriving mining sector which ensured Zambia's economic prosperity with trade surpluses year to year between 1964 and 1980 (Chirwa & Odhiambo, 2016), (Fagernäs & Roberts, 2004), (Liebenthal & Cheelo, 2018).

In 1969 Zambia was the largest copper producer in the developing world and the world's third-largest producer of copper after the United States and USSR, producing 12.2% of world copper output (Bostock & Harvey, 1972). With the global recession of the 1970s, copper incomes fell dramatically, and the economy was affected. This was in addition to disruptions by liberation wars in the surrounding countries of Angola, Mozambique, Namibia, South Africa, and Zimbabwe. Zambia, under the political leadership of then-president Kenneth Kaunda, was a frontline state with regional independence fighters given refuge in the country. This put Zambia under constant state of war with infrastructure such as roads and bridges destroyed continuously, and this had a toll on economic growth.

Real GDP per capita declined over time to K290 in 1987, and then to an all-time low of K202 in 1989 (Kalinda & Floro, 1992). The balance of payments situation also worsened with rising real total external debt and inflation. The Consumer Price Index (CPI) for the low-income group, a proxy for the rate of inflation, rose by 4000 percent between 1980 and 1990.

In 1991, with the change from a one-party state and a return to multiparty democracy, the new government embarked on liberalization of the economy, privatization of state-owned enterprises and other structural adjustment programs. With these programs in place, there was an emphasis on private ownership of business entities as opposed to the ownership by the state advanced in the early 1970s. Private ownership of enterprises was believed to bring about more efficiencies, consequently bring about an economic boom like was the case at independence when the economy was private sector driven. With this shift in the economic dispensation also came the narrative propagating foreign direct investment (FDI) as the panacea for the much sought after economic growth as stagnation had worsened in the mid to late 1980s.

(Liebenthal & Cheelo, 2018), break down Zambia's economic performance into three main phases. Shortly after independence between 1964 and 1973, when Zambia's economy grew on average by 6% each year as mining output and copper prices rose (Nash, 1997), (Ndulo & Mudenda, 2004). Then 1973 to 2000 when the economy stagnated. After 2000, economic growth recovered

averaging 6% until 2009 when internationally a financial global crunch slowed most economies, and Zambia's economic growth consequently slowed.

1.2. Statement of the problem

Zambia is a nation that has undergone different phases of economic dispensation. From foreign owned enterprises at independence, to nationalization, then privatization which lead to private ownership of enterprises more of which was foreign ownership of the major enterprises especially mines thus increasing FDI inflow. Successive governments since 1991 have also been emphasizing on the need for more FDI. However, despite increasing flows of, and government emphasis on FDI, the FDI-Economic growth nexus in Zambia has not yet been intensively investigated.

Having inherited an economy of foreign owned enterprises at independence, the period also coincided with strong economic growth until around 1974 when full nationalization happened. However, the 1970s were also a period of general global recession, so economic stagnation of the 70's cannot be solely pinned on nationalization and reduced FDI inflows. Suffice to mention, there is not much literature available to spell out to what extent nationalization contributed to economic downturn.

With the privatization movement of the 1990's there followed immediate GDP growth between 1995 and 1996 before a shrink in 1998 and growth again picking up in 1999. By 2001, GDP was growing at 5.2% and averaging at 6% between 2000 and 2008.

However, again there is very little empirical research out there to explain the contribution of FDI during the periods of considerable economic growth. This is despite politicians and government officials' perpetual insistence that foreign ventures come and invest in Zambia. Since 1991, the government of the republic of Zambia has employed several strategies to ensure increased flow of FDI into Zambia because of its perceived benefits as extolled by some theoretical literature as the remedy for economic underdevelopment.

Correspondingly, Zambia has received a fair share of FDI inflow into its economy. For instance, specifically in 2012, 14% of China's FDI to southern Africa flowed to just Zambia and Zimbabwe. This translated to, US$292m for Zambia and US$287m for Zimbabwe (Doku, et al., 2017).

However, another school of thought exists that having an open economy and attracting foreign investments are not guarantees for economic sustainability to the host economies (Albassam, 2015). According to (Nunnenkamp, 2001), the bulk of FDI into the developing world and the least developed nations (LDC's) is motivated by the availability of natural resources in host countries.

Does the Zambian economy benefit from foreign investments? Are the regulations in place and the agencies created by the Zambian government to propel FDI achieving what they were intended to, such as job creation for Zambians, promotion of technology and skills transfer and diversification of the national revenue?

While there may be studies conducted to investigate the relationship between FDI and economic growth in other regions; BRICS nations (Gupta & Singh, 2016), SADC countries (Mahembe & Odhiambo, 2016), SAARC nations (Srinivasan, et al., 2011), South America (Owusu-Nantwi & Erickson, 2019), Maghreb countries (Ali & Mna, 2019), Nigeria (Adegbite & Ayadi, 2011), Pakistan (Rehman, 2016), Saudi Arabia (Albassam, 2015), Sub Saharan Africa (Zhang, et al., 2014), Southern Africa or Africa in general (Mowlaei, 2018), (Doku, et al., 2017), there is very little research or available material specific to Zambia.

1.3. Purpose of the study

The purpose of this research is to determine the cause and effect relationship between Foreign Direct Investment (FDI) and economic growth (GDP) in Zambia. The study will blandly cover over two decades of Zambia's inward FDI data, between 1994-2020. Historical references to the entire timeline of Zambia's economic history since independence in 1964 will also be made.

This study will, therefore, seek to bridge the gaps and ambiguities that exist regarding the causal linkage between FDI and GDP. It will seek to contribute to the literature available on the effect of inward FDI on Zambia's economic growth tested using an econometric method. The period of study 1994 to 2020, which is a relatively long period was selected because that is when there was a significant rise in FDI flows to Zambia. The study will have significant implications for policy makers, investors and managers.

Policy makers will be able to understand the extent to which FDI affects economic growth and thus be able to take steps to formulate informed policies in relation to FDI and its contribution to economic growth. Such measures could include developing market size, making regulations more 'international trade friendly' to attract Multinational enterprises (MNE) and investing in the nation's human capital. The government as the chief policy maker, could also take steps to keep interest rates and inflation rates under control as these factors have been found to influence FDI (Kumari & Sharma, 2017).

The period 1994-2020 is selected for study because this is the period when the government of the Republic of Zambia undertook broad macroeconomic and market liberalization programs which also resulted in massive privatization of state-owned enterprises whose ownership moved to private hands mostly foreign interests. This was certainly followed by an increase in FDI inflows to Zambia.

This study will seek to contribute to the existing literature by scrutinizing the different empirical methods to assess the relationship between FDI and economic growth. The proposed research is aimed at probing into the ontological assumptions that FDI is the cure for economic stagnation, low unemployment, technological advancement, and skills transfer for local people in developing nations such as Zambia.

In the wide sphere of developing nations, FDI inflow is viewed as an essential source for achieving greater and faster economic growth. However, there are still ambiguities that exist as several studies highlight that there are benefits as well as negatives from FDI for a host economy (Christiansen, et al., 2002), (Muchie, et al., 2011), (Nguyen & To, 2017), (Wei, 2005), (Chakraborty & Basu, 2002).

Various researchers have examined the relationship between FDI and GDP in the context of various developing or developed nations. This reveals a gap in the existing literature pertaining to this causal linkage in the context of Zambia specifically. Thus, this study seeks to contribute in filling up this gap by analyzing not just this relationship with VECM and Granger causality techniques but also linear regression to determine the extent of the strong/weak/no link country-specific variables influencing this causation.

1.4. Study objectives

The general objective of the study is to examine the causal relationship between economic growth and inward foreign direct investment (FDI) in context of Zambia.

Specific objectives

1.4.1 To establish the effect of inward FDI on economic growth.

1.4.2 To determine the causal linkage between FDI inflow and knowledge / technology transfer into Zambia.

1.4.3 To ascertain whether FDI inflow influences sustainable growth in Zambia in the form of employment creation.

1.5. Research Questions

1.5.1 What is the effect of inward FDI on economic (GDP) growth in Zambia?

1.5.2 What is the impact of FDI inflow on the development of local firms, technology transfer and skills transfer?

1.5.3 Does FDI inflow influences sustainable growth in Zambia in the form of employment creation?

1.6. Hypothesis

1.6.1 To establish the effect of FDI on economic growth in Zambia.

- **H_0:** There is a correlation between inward FDI and positive economic growth (GDP).
- **H_1:** There is no correlation between inward FDI and economic growth (GDP).

1.6.2 To determine the causal linkage between FDI and development of local technology and skills transfer.

- **H_0:** There is no impact of FDI on the development of local firms' technology, and skills in Zambia.
- **H_1:** There is an impact of FDI on the development of local firms' technology, and skills in Zambia.

1.6.3 To ascertain whether FDI influences sustainable growth in the form of employment creation, industrialization and productivity in Zambia.

- **H_0:** There is no link between the level of FDI and employment creation, industrialization & productivity in Zambia.
- **H_1:** There is a link between the level of FDI and employment creation, industrialization & productivity in Zambia.

1.7. Significance of Study

The study is very important because it will reveal some empirical facts on causal effect of FDI on economic growth in Zambia. This study will attempt to fill the knowledge gaps in foreign direct investment (FDI) research in Zambia. Various dimensions of FDI will be analyzed from a

comparative perspective drawing on selected case studies of inward foreign direct investment to Zambia, the rest of Africa and other emerging nations.

This study was chosen as there is need to have individual country level study specific to Zambia in order to overcome the assumption of homogeneity as the earlier studies are based on other regions.

1.8. Delimitation of Study (Scope)

The present study is an attempt to understand the crucial relationship between FDI and economic growth in Zambia for the period of 1994 to 2020 by considering the FDI net flows as an indicator for GDP growth.

The objective of this study is to analyze the impact of foreign direct investment (FDI) inflows towards Zambia on economic growth, industrialization, and technological transfer. Analyses aiming at studying the nexuses FDI-economic growth and FDI-industrialization are based on macroeconomic data observed during the period from 1994 to 2020; and analyses on FDI related technological spillovers are based on Zambian firm-level data observed in the sector.

1.9. Limitation of the study

Like most research, this work also has some limitations. The major limitation of this study is that there are many variables that contribute to GDP other than just FDI which are not looked at in this study. For instance, periods of low copper prices on the international market can have a significant causal effect on the GDP growth of Zambia which is highly dependent on Copper production and exports. A comprehensive study can be done to explore other determinants of GDP.

In addition, people's behavior towards researchers is unpredictable, some officers at government agencies where data was collected were not very cooperative. The researcher neither works nor has ever worked at these government and international sources of data. This was a major source of delays in the turnaround time for data availability.

Furthermore, because of the non-availability of usable data, the researcher was compelled to limit the focus and the span of research to a lot of desk analysis of data.

From a methodological aspect, Bivariate framework used in this study may be subject to omission of variable bias, (Odhiambo, 2008), (Odhiambo, 2011), (Mahembe & Odhiambo, 2016).

Additionally, the Granger causality analysis used normally only investigates the direction of causality and whether each variable can be used to explain another but does not directly test for the mechanisms through which FDI leads to economic growth and economic growth leads to FDI (Mahembe & Odhiambo, 2016).

It can also be added as a limitation that the results of this research will specifically be related to Zambia and cannot be generalized to other countries and may be substantially different from the hypothesis developed theoretically and empirically from studies in other geographical and political environments.

1.10. Theoretical framework

The theoretical framework of this study is based on the neoclassical growth model pioneered by (Solow, 1957). In this approach, FDI is incorporated as an additional variable in the production function, which includes labor and capital. Consider this aggregate production function for an economy:

$$Y=A\Phi (K,L,H)$$

where Y denotes output, K, L, H represents physical capital, labor, and human capital, respectively, and A captures all other factors that influence the production other than L, K and H (refers to as total factor productivity).

1.11. Conceptual framework

According to (Miles & Huberman, 1994), a conceptual framework explains, either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them.

This study will contribute to the literature available on the effect of inward FDI on Zambia's economic growth tested using an econometric method.

1.12. Operational Definitions

Abbreviations:

BRICS:	Brazil, Russia, India, China & South Africa
COMESA:	Common Market for Eastern and Southern Africa
FCI:	Foreign Capital Inflow
FDI:	Foreign Direct Investment
GDP:	Gross Domestic Product
IMF:	International Monetary Fund
LDC:	Least Developed Countries
LLDC:	Landlocked Developing Countries
MNE:	Multinational Enterprise
OECD:	Organization for Economic Co-operation and Development
SAARC:	South Asian Association for Regional Cooperation
SADC:	Southern African Development Community
UN:	United Nations
UNCTAD:	United Nations Conference on Trade and Development
USSR:	Union of Soviet Socialist Republics
VECM:	Vector Error Correction Model
ZDA:	Zambia Development Agency
ZamStats:	Zambia Statistics Agency

1.13. Ethical considerations

Quantitative methods are typified by stringent requirements for structure (Creswell, 2012), thus the researcher ensured that all ten (10) ethical principles according to (Bryman & Bell, 2007) are adhered to;

1.14.1 Informed consent:

Persons participating in the study were fully informed about the evaluation being conducted. Full consent was obtained from the participants prior to the study.

1.14.2 Voluntary participation:

Participants in the study were free from coercion and were free to withdraw their participation at any time.

1.14.3 Do no harm:

Research participants were not subjected to harm in any ways whatsoever.

1.14.4 Confidentiality:

Adequate level of confidentiality of the research data will prevail. The data and information collected from different people and organizations will be well secured and protected and used for the purpose of academic research only.

1.14.5 Anonymity:

Anonymity of individuals and organizations participating in the research will be ensured where necessary.

1.14.6 Only assess relevant components:

No deception or exaggeration about the aims and objectives will be included and such will strictly be avoided.

1.14.7 Misleading information:

Any type of misleading information, as well as representation of primary data findings in a biased way is strictly avoided.

1.14.8 Honesty:

Any type of communication in relation to the research is done with honesty and transparency.

1.14.9 Affiliations and conflict of interest:

Affiliations in any forms, permission letter from The University of Zambia for research proposal was obtained.

1.14.10 Copyright Infringement:

Ensure adherence to professional code of conduct and avoid copyright infringement.

1.14.11 Academic Values:

The research seeks to provide new body of knowledge and objective explanations of all phenomena. The investigation is not governed by prevailing opinion but search for true knowledge with no concern for other interests.

CHAPTER 2

LITERATURE REVIEW

2.0. Historical overview of area of study

The extent to which FDI inflow influences GDP growth, largely remains an empirical question that ever requires further research. However, this study will draw lessons from similar studies done in the past to draw extensive insight into the subject.

Market size hypothesis indicates that FDI is a positive function of the market size of the host country. The market size is usually measured by the GDP of the host country. (Reuber, 1973) observed that flows of per capita FDI into the least developed countries (LDCs) were positively correlated with their GDP.

There have been several empirical studies on the relationship between FDI and economic growth, and the results of these studies have been mixed. (Bhagwati, 1978) and (Balasubramanyam, et al., 1996) found that whether FDI would positively impact economic growth in a recipient or host country or not, depends on certain conditionalities. (Nobakht & Madani, 2014) contended that the effect of FDI inflows on economic growth of host countries is conditional on the abilities of those countries in absorbing and accumulating external knowledge.

(Dauda, 2007), (Ayanwale, 2007) and (Dutse, 2008) found a positive relationship between FDI and economic growth in Nigeria. (Dauda, 2007) further stated that whether FDI would promote economic growth through trade depends on whether a country is adopting an Import Substituting Strategy of Industrialization (ISI) or an Export Promotion Strategy (EPS).

On the other hand, (Durham, 2004) could not identify any positive relationship between FDI and economic growth, he however provided evidence that the positive effects of FDI are dependent on the absorptive capability of host countries. (Dauda, 2007) further endorsed the school of thought that foreign capital investment increases the gross domestic product and generates a stream of real incomes in the host country, which consequently expands employment, raises wages and salaries, lower commodity prices, increase tax revenue accruable to the government.

This study will look at the previous studies from three perspectives;

i) Global perspective:

This will review several studies done outside of Zambia and Africa, on the relationship between FDI inflow and economic growth. Findings will be evaluated and any identified gaps in the respective studies consequently reviewed and cogitated.

ii) Regional perspective:

The regional perspective will look at selected studies done on the relationship between FDI inflows and economic growth in the regions of SADC, COMESA and around Africa as a whole. The findings will be reviewed as well as all the identified gaps discussed.

iii) Local perspective:

The local perspective will discuss a few studies in Zambia on the causal nexus that exists between FDI inflow and local economic growth. Findings will be discussed and any gaps.

2.1. Global Perspective

Outside of Zambia and Africa, there exists numerous studies emphasizing that FDI triggers among other things, technology spillovers, knowledge spillovers, create competitive business environment and capital formation of host country.

Author/Year	Findings	Gap/Review
Owusu-Nantwi & Erickson, 2019	FDI inflows matter to economic growth.	Based their finding mainly on the assumed greater opportunities for job creation
Bang Vu & Noy, 2009	FDI has a significant and positive effect on economic growth	The positive effect of FDI on economic growth was not equally distributed across countries and sectors
Carkovic & Levine, 2002	Positive impact of FDI on economic growth	Finding premised mainly on the fact that there was capital accumulation
(Balasubramanyam, et al., 1996)	FDI can promote economic growth in the presence of a liberal trade regime	Study largely based on the nexus between economic growth promoted by FDI in export promoting countries Vs import substituting countries
(Durmaz, 2017	FDI inflows have spillover effects in Turkey's economy	This study largely focused on the aspects of the democracy and FDI inflows link
(Mottaleb, 2008)	FDI plays an important role in industrial advancement and economic growth in the developing countries	Although this study shows the relationship between FDI and economic growth, it is largely focused on the determinants of FDI in the recepient countries.
Cambazoglu & Karaalp, 2014	Positive relationship between economic growth and FDI	Level of relationship increased as as the number of periods increased. But the case study Turkey had insufficient inward FDI flows to fully determine the level of elasticity.
Gunaydin & Tatoglu, 2005	FDI and economic growth relationship was positive and statistically significant.	Although overall various hypothesis showed positive relationship, there were odd years in the study sample (1968-2002) that did not show relationship.
(Rehman, 2016),	1. FDI is dependent on the economic growth but economic growth is not dependent on the FDI. 2. FDI benefits the domestic economy by demonstration and imitation of knowledge spillovers from MNEs to local firms.	Study results heavily focused on the bi-directional causality between FDI inflow and economic growth with growth seen as a major determinant of FDI the other way.
Durham, 2004	No positive relationship between FDI and economic growth.	Still found Positive effects of FDI, contingent on the absorptive capability of host countries.

Table 2.1.1: Summarized literature review for global perspective

Table 2.1.1 summarizes some of the studies reviewed. (Bang Vu & Noy, 2009) concluded that FDI has a positive effect on growth directly. But they further argued that the effect is different across countries and economic sectors. (Carkovic & Levine, 2002) found no strong positive impact of FDI on the GDP growth rate, although they did state that FDI had a growth effect in countries with sufficiently developed financial markets. This was the same conclusion reached by (Kang, et al., 2005) in their analysis of the relationship between FDI and economic growth pertaining to twenty (20) OECD countries. (Kang, et al., 2005) found no significant effect of FDI on growth for the period 1981-2000. (De Mello Jr, 1999) using panel data analysis for thirty-two (32) OECD and non-OECD countries found that FDI contributes to capital accumulation and growth in the recipient country. (Balasubramanyam, et al., 1996) provides that FDI plays a greater role in economic growth of export promoting countries rather than import substituting countries. (Mottaleb, 2008) found that top FDI recipient countries in 2005 have large domestic market and high GDP growth rate.

From studies done in turkey, (Durmaz, 2017) deduced that, in the long run, FDI inflows have spillover effects in Turkey's economy although real growth is only achieved if there is improved freedom and political rights as well as more civil liberties structure, a stable government with better policies and institutions. (Cambazoglu & Karaalp, 2014) examined the effect of inward FDI flows to Turkey and international trade on economic growth for the post liberalization period (1980-2010) and results showed a relationship between economic growth and inward FDI and exports. (Gunaydin & Tatoglu, 2005) also investigated the causal relationship between FDI and economic growth in Turkey between 1968-2002. The various hypothesis tests they employed all showed that FDI and economic growth relationship was positive and statistically significant.

Among the studies in South America, (Owusu-Nantwi & Erickson, 2019) concluded that FDI inflows matter to economic growth, and therefore, countries should continue to pursue policies that will create a conducive investment climate to attract FDI. Whereas (Owusu-Nantwi, 2019), established that inward FDI provides greater opportunities by promoting growth in the various sectors of the host economy, and creating job opportunities which often lead to economic prosperity. Another study in Latin America, (Bruhn, et al., 2019), corroborated the foundations of spillover effects theory and although also stating that the intensity of the effect of the FDI on the on the performance of the host economy depends on the absorption capacity.

(Masso, et al., 2013) showed through results of their econometric tests that, although foreign companies were found to be more innovative in several respects there by driving the agenda of innovation, many of the results did not hold for Estonia, after various other factors had been considered.

As per the conclusion and empirical evidence examined, (Rehman, 2016), stated that FDI is an important determinant for economic growth also benefitting the domestic economy through demonstration and imitation of knowledge spillovers from MNEs to local firms. (Rehman, 2016) further concluded that FDI is dependent on the economic growth but economic growth is not dependent on the FDI to indicate that stable economic growth would attract more FDI for Pakistan investigation also validated that FDI, human capital and exports determined the economic growth of Pakistan.

In a study done to investigate if Saudi Arabia's economy benefits from FDI, (Albassam, 2015) concludes that FDI boosts an economy, although does not guarantee economic sustainability to host economies.

2.2. Regional Perspective

There equally exist profuse studies across Africa and even within the regions of the Southern African Development Community (SADC) and Common Market for Eastern and Southern Africa (COMESA), that investigate the role of FDI in economic development, technology transfer, knowledge spillovers and sustainable development in host countries.

Table 2.2.1 summarizes some of the studies reviewed.

Author/Year	Findings	Gap/Review
(Dauda, 2007)	Positive relationship between FDI and economic growth in Nigeria in the era of liberal trade policy and export promotion.	Based the positive relationship dependent through trade, whether a country adopts an Import or an Export Strategy.
(Dube, 2009)	No positive relationship between FDI and economic growth.	Still found Positive effects of FDI, contingent on the absorptive capability of host countries.
(Doku, et al., 2017)	1 per cent increase in China's FDI stock in Africa significantly increases Africa's gross domestic product (GDP) growth by 0.607 per cent	FDI contributes to economic growth in those countries that have well developed financial markets.
(Dauda & Abdul, 2012)	There is a positive relationship between FDI and GDP for the	Only FDI to mainly extractive (oil) sector studied
(Mahembe & Odhiambo, 2016)	FDI-led growth hypothesis does not apply to SADC countries	Study results heavily focused on the bi-directional causality between FDI inflow and economic growth with growth seen as a major determinant of FDI the other way.
(Ayanwale, 2007)	1. FDI contributes positively to Nigeria's economic growth. 2. The FDI in the communication sector currently has the highest potential to grow the economy, especially the non-oil sector.	Although overally various hypothesis showed positive relationship, sector growth showed mixed results with other sectors showing no relationship.
(Adegbite & Ayadi, 2011	FDI has contributed significantly to output growth in Nigeria	Study focused so much on the other required macroeconomic and institutional environment that assist in promoting economic growth.
(Mowlaei, 2018)	Found a positive relationship between FDI and economic growth	Based finding mostly on the findings of previous studies.
(Magnus & Fosu, 2008)	No causal link between FDI and growth in Ghana for the total sample period from 1970 to 2002	Period between 1984-2002 showed link as FDI caused GDP growth.

Table 2.2.1: Summarized literature review African perspective

(Mahembe & Odhiambo, 2016) in their study for SADC countries concluded that FDI-led growth hypothesis does not apply to SADC countries. They contend that it is economic growth that drives FDI inflows into the SADC region, and not vice versa. Their position is that the high economic growth rates in the respective middle-income countries of the region has been attracting FDI.

(Magnus & Fosu, 2008), found no causal link between FDI and growth in Ghana for the total sample period from 1970 to 2002. Nonetheless, in the period after Ghana had liberalized It's economy post structural adjustment program in the period 1984-2002 FDI caused GDP growth.

(Doku, et al., 2017) presented their findings stating that a 1 per cent increase in China's FDI stock in Africa significantly increases Africa's gross domestic product (GDP) growth by 0.607 per cent, all things being equal. Furthermore, the study finds that a causal link exists between GDP growth in Africa and China's FDI and the nature of causality is unidirectional. (Alfaro, et al., 2004) argues that FDI contributes to economic growth in those countries that have well developed financial markets.

On the other hand, (Dube, 2009) contends that FDI does not always have positive effects on growth in the host country as it causes outflows in the form of dividends, profits and interest. This can be cemented by among others, a study done a year earlier, where (Magnus & Fosu, 2008) found no causal link between FDI and growth in Ghana for the total sample period from 1970 to 2002. However, FDI caused GDP growth in post-structural adjustment period, i.e. 1984-2002.

(Dauda & Abdul, 2012), also concluded that there is a positive relationship between FDI and GDP. They further recommend that efforts be made to attract FDI to other sectors that also contribute to GDP in Nigeria, other than the extractive (oil) sector. Whereas, (Ayanwale, 2007) found that FDI contributes positively to Nigeria's economic growth. The FDI in the communication sector currently has the highest potential to grow the economy, especially the non-oil sector. The FDI in the manufacturing sector has a negative relationship with economic growth, suggesting that the business climate is not healthy enough for the manufacturing sector to thrive and contribute to positive economic growth. (Adegbite & Ayadi, 2011), advanced after empirical research, that FDI had contributed significantly to output growth in Nigeria. They further postulated that the efficacy of FDI in generating the desired growth may be limited by the level of infrastructural development in Nigeria.

(Mowlaei, 2018) found a positive relationship between FDI and economic growth, thus confirming the earlier studies such as (De Mello Jr, 1999), (De Mello, 1997), (Tiwari, 2011), (Shakar & Aslam, 2015), (Adusah-Poku, 2016), (Adedokum, 2017), (Ali & Mingque, 2018).

2.3. Zambian Perspective

According to (Zhan, et al., 2020) UNCTAD's 2020 World Investment Report, FDI inflows in Zambia increased from USD 408 million in 2018 to USD 753 million in 2019. FDI inflow to 33 African LDCs rose by 17% to $12 billion, although 16 African LLDCs collectively FDI inflows declined by 5% in 2019, although Zambia and Uganda registered a substantial increase (Zambia up by $345 million and Uganda up by $211 million to reach a record high of $1.3 billion). Zambia, renewable energy and food processing attracted large new projects. With all this significant FDI inflows into the country, it becomes the more important to have empirical studies on the impact of FDI flows into Zambia.

Table 2.3.1 summarizes some of the studies reviewed.

Author/Year	Findings	Gap/Review
(Sinkala & Zhou, 2014)	The more Zambia receives FDI from China, the more jobs are created for the local people, other benefits technology transfer, industrial upgrading and GDP increase	Didn't bring out the negative aspects of outflows in the form of dividends, profits and interest.
(Maliwa & Nyambe, 2015)	No causal relationship between FDI and Economic growth	Sample chosen (1980-2012) was misleading as the 1980 were a period of the least FDI inflows hence has the posibility of skewing the results.
(Ndaba, 2015)	FDI has had a positive effect on economic growth prior to 2000 when it was not concentrated in the mining sector.	Study was based on individual sectors of the economy in the context of a natural resource dependent economy such as mining hence can largely
(Chirwa, T. & Odhiambo, N., 2016)		Macroeconomic Policy Reform and Economic Growth in Zambia
(Libanda, et al., 2017)	Zambia does not have what it takes to actually make FDI beneficial for its economic situation as FDI favors more the well off and stable economies.	FDI Benefits did exist for Zambia and other developing nations as a bloc, the benefits depend on recipient.
(Bwalya, 2006)	Little evidence in support of productivity spillovers from foreign firms to local firms	This paper examines the nature of productivity spillovers from foreign to local firms using firm-level data on manufacturing firms in Zambia, hencse does not investigate other sectors other than maufacturing firms.

Table 2.3.1: Summarized literature review Zambian studies

(Libanda, et al., 2017) from their findings, concluded that Zambia does not have what it takes to actually make FDI beneficial for its economic situation as FDI favors more, the well off and stable economies. Although the major conclusion from their findings for Zambia and other developing nations was that FDI benefits do exist, only that these benefits do not accumulate routinely and consistently throughout all the nations. The benefits depend on the recipient nations.

(Sinkala & Zhou, 2014) in their study of Chinese FDI and Employment in Zambia concluded that the more the country receives FDI the more the jobs are created for the local people. The study further added that FDI brings in so many benefits to the host country in form of technology transfer and industrial upgrading which in turn increases exports for the country and improve the country's Gross Domestic Product. The study though did not adequately discuss the flipside or negative effects of FDI such as aspects of outflows in the form of dividends, profits and interest.

Studying the period 1980-2012 in investigating the impact of FDI on economic growth in Zambia, (Maliwa & Nyambe, 2015) used among others the Granger causality test to examine causal relationships and the results indicated that there is no causal relationship between FDI and

economic growth. Thus, they concluded that the Zambian economy has not benefited from the inflow of foreign investment into the country during the period under consideration. However, the sample chosen (1980-2012) may have had a huge impact in skewing the results. The period 1974 to 1994 was the period of the least FDI inflow to Zambia an era that characterized nationalization of enterprises.

(Bwalya, 2006) finds little evidence in support of productivity spillovers from foreign firms to local firms. Results indicate that productivity of local firms decreases as foreign presence in the sector increases, which may be an indication of adverse competition effects of inward FDI. The results also indicate that significant knowledge spillovers occur through backward linkages from foreign firms in upstream sectors to local firms in downstream sectors.

(Ndaba, 2015) studying the impact of FDI on economic growth in Zambia presented results showing that FDI has had a positive effect on economic growth prior to 2000 when it was not concentrated in the mining sector. There was an average percentage change of 62.7% in terms of FDI flows contribution to GDP from 1991 to 2000. Conversely, there was an average percentage change of 4.6% in terms of FDI flows contribution to GDP from 2001 to 2010. From 2001 onwards, the impact of FDI on growth became less predictable with some years having low growth despite increased flows of FDI and vice versa. This is attributed to the difficulty in establishing causal links when FDI is concentrated in natural resource sector (Nunnenkamp, 2001). The study by (Ndaba, 2015), is largely based on individual sectors of the economy focusing mostly on natural resource sectors such as mining and agriculture. The fact that sector FDI and level of growth can be different can highly skew the results.

2.4. Comparative studies

The review of literature generally points to positive relationship between FDI and GDP growth. However, very few studies attempt to test the direction of relationship between the variables. Apart from this, most of the existing studies cover time span of not more than 20 years. This study will capture a time span of 25 years, giving the study a big enough sample to draw conclusions.

However, there aren't enough studies specifically for Zambia, thus not enough material available for comparison. Studies for other countries and regions can not necessarily be used to draw major comparisons, as the dynamics may not be the same when compared to Zambia.

Nonetheless, this study will provide a comprehensive and unique review of the literature available and based on the evidence, develop a novel conceptual framework that may guide policy makers in attracting FDI or not or maybe in giving out incentives to multinational companies willing to invest in Zambia. In a nutshell, the study will help fill a gap in the existence of literature by providing an empirical evidence specific to Zambia. This perspective as mentioned should form basis to guide investment policies and help policy makers to pursue policies that would enhance growth and development in Zambia.

CHAPTER 3

METHODOLOGY

3.0. Overview

The main purpose of this paper is to underscore the relationship, if any, between FDI and economic growth. Analysis of the relationship between FDI and growth has been a popular area of study for many years, but the conclusions from these papers has remained non-conclusive and unclear. Part of the reason for the lack of clarity is that growth depends on many factors whose effects are challenging to dissociate, and since FDI itself affects several of these factors. This paper focuses on the two variables of FDI and GDP, ignoring several commonly analyzed economic variables. However, other independent variables often used in the literature to explain FDI inflows, with different interpretations for some of the variables, are included. The choice of variables was constrained by data availability. As is usual in the literature, the dependent variable is the ratio of net FDI flows to GDP.

FDI is net inflow of foreign direct investment as a percentage of GDP and represents acquisition of lasting management interest in an enterprise operating in an economy other than the home country of the investor. The measurement of FDI is the sum of equity capital, reinvestment of earnings, other long-term and short-term capital as recorded in the balance of payments account. Private portfolio investment is not included in FDI.

This research uses both secondary and primary data. The secondary datasets were obtained from the Zambia Statistics Agency (ZAMStats), Zambia Development Agency (ZDA), UNCTAD, Common Market for Eastern and Southern Africa (COMESA), The world bank database and World Development Indicators (WDI). as well as UNCTAD Statistics.

This paper takes the conventional neoclassical production function that considers FDI as a factor input along with other important growth driving factors in the investigation of the relationship between economic growth and FDI. Considering the insights gained from the literature review section, a conventional neoclassical model for the aggregate production function for Zambia is looked at as follows;

$$Y = A \cdot f(K, L, H)$$

Where;

Y = Income

A = total factor productivity

K = physical capital

L = Labor force

H = human capital

There are several noted variables that are typically correlated with economic growth, among them being FDI, trade openness and financial development (Carkovic & Levine, 2002).

Economic growth will be approximated using change in GDP, real GDP as a proxy of economic growth is suggested by (Ehigiamusoe, et al., 2018) and (Shahbaz, et al., 2015). The relationship between real FDI stock and real GDP is examined relying on annual time series data for the period of 1994-2020. Although the real GDP is used to measure economic performance, FDI stock instead of FDI inflows seems to be the more appropriate variable in relation to GDP (Dees, 1998), (Zhang, 2001a), (Zhang, 2001b), (Liu, et al., 2001).

FDI stock to GDP is widely accepted as a proxy of foreign capital inflows (Pegkas, 2015) and (Satrovic & Muslija, 2018). Hence, it is adopted in this paper as appropriate proxy of FDI. Prior to selecting the appropriate estimation technique, the time series property of each variable is investigated. Panel unit root test is performed to determine the stationarity of each variable. The stationarity test is relevant as most times, series data tends to be non-stationary, and if this is not checked, running regression with such data may yield spurious regression. The study applied panel unit root tests developed by (Levin, et al., 2002), (Im, et al., 2003).

3.1. Research Design

This study uses non-experimental causal research design.

The target population is 56 years between 1964 and 2020, whereas the sample size is 26years between 1994 and 2020. The sampling technique used is purposive sampling. Purposive sampling

is used in order to target the specific periods when FDI flow to Zambia started to exponentially increase following the liberalization of the economy and consequently the privatization of state-owned enterprises.

The research design used is causal research. This method of analysis allows for the understanding of phenomenon in terms of conditional statements in this case determine the relationship between variables of inward FDI and economic growth. This technique is essential as it presents the relationship of variables, so this study will basically look at the FDI inflows as well as economic growth in Zambia from the period 1994 to 2020.

In terms of econometric methodology, this paper will first employ panel unit root test. Moreover, linear static and dynamic panel data estimators will be employed to explore the sign and size of the relationship between variables. The stationary properties having been tested, this test assumes the fixed number of time periods. An additional assumption of this test is infinite number of panels. In terms of the panel data methodology, the author has employed fixed and random effects models together with the Hausman test (Šatrović, 2018).

3.2. Study area/Site/Population

The target population of study is 56 years for the period 1964 – 2020. This is the period since the birth of the nation Zambia.

The study is purely descriptive and causal in nature, analyzing secondary data statistics. Zambia Statistics Agency (ZamStats), Common Market for Eastern and Southern Africa (COMESA), World Development Indicators (WDI), UNCTAD Statistics and Zambia Development Agency (ZDA)

3.3. Study sample

The study sample is a 26 years period between 1994 and 2020. The period covers the era after the liberalization of the economy FDI became a major focus for the government

3.4. Sampling techniques

Purposive sampling technique has been used. This researcher selected the purposive sampling technique knowledge of the events around 1974 and 1994 when Zambia received very little FDI due to nationalization policies that were implemented after 1974.

3.5. Data collection instruments

This study uses Secondary data collection, collected by principle researcher who is not the original user. It is the process of collecting data that is already existing, be it already published books, journals, and/or online portals. In terms of ease, it is much less expensive and easier to collect.

Quantitative methods are presented in numbers and require a mathematical calculation to deduce. This study uses correlation and regression, Granger causality test, Vector autoregression (VAR) and Johansen cointegration technique.

3.6. Data collection procedure and time line

This Study uses time series secondary data and the researcher personally collected data from institutions like ZamStats, ZDA and COMESA. The other information was obtained online from UNCTAD statistics.

3.7. Data analysis instruments and procedures

This paper takes the conventional neoclassical production function that considers FDI as a factor input along with other important growth driving factors in the investigation of the relationship between economic growth and FDI. Considering the insights gained from the literature review section, a conventional neoclassical model for the aggregate production function for Zambia can be looked at as follows;

$$Y = A \cdot f(K, L, H)$$

Where;

Y = Income

A = total factor productivity

K = physical capital

L = Labor force

H = human capital

Following previous empirical studies on FDI and economic growth, this paper considers a bivariate model of the form (Hansen & Rand, 2005), (Herzer, et al., 2006):

$$\log(GDP)_{it} = a_1 + \delta_i t + \beta(\frac{FDI}{GDP})_{it} + \varepsilon_{it}$$

Granger causality tests have been used to examine the causality between FDI and GDP growth. The standard F-test of causality gives unauthentic results if the data is not stationary, hence the use of vector auto regressive (VAR) framework for this study. The VAR test gives a stationarity for null distribution in VAR framework irrespective of the presence or absence of cointegration properties of the data.

Mathematically, to test the null hypothesis, firstly proper lagged values of Y are included in a univariate autoregression of Y as:

$$Y_t = a_0 + a_1 Y_{t-1} + a_2 Y_{t-2} + \ldots\ldots + a_m Y_{t-m} + \text{Re}\, sidual_t \ldots\ldots\ldots\ldots\ldots$$

Here Y_{t-j} is retained in the regression if and only if it has a significant t-statistic; m is the greatest lag length for which the lagged dependent variable is significant. Next, the autoregression is augmented by including lagged values of X as:

$$Y_t = a_0 + a_1 Y_{t-1} + a_2 Y_{t-2} + \ldots\ldots + a_m Y_{t-m} + b_p X_{t-p} + \ldots\ldots + b_q X_{t-q} + \text{Re}\, sidual_t$$

One retains in this regression all lagged values of X that are individually significant according to their t-statistics, provided that collectively they add explanatory power to the regression according to an F-test (whose null hypothesis is no explanatory power jointly added by the X's). In the notation of the above augmented regression, p is the shortest, and q is the longest, lag length for which the lagged value of X is significant. The null hypothesis that X does not Granger-cause Y is accepted if and only if no lagged values of X are retained in the regression.

CHAPTER 4

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

4..0 Theoretical Framework

The theoretical literature identifies several channels through which FDI contributes to economic growth. From the viewpoint of the neoclassical growth theory FDI inflows increase the stock of capital in host countries thereby allowing higher rates of growth than would be possible from reliance on domestic savings. Endogenous growth theory postulates that technological advancement stimulates economic growth by creating externalities that compensate for diminishing returns to capital (Romer, 1990), (Mankiw, et al., 1992).

Further theoretical literature suggests that FDI can further boost growth by allowing host countries access to advanced technologies not available domestically (Blonigen, 2005). Note also that domestic investors can adopt this advanced technology. In short, FDI should exert positive effects on economic growth, particularly in developing countries which suffer from low productivity and capital stock deficiencies (Johnson, 2006).

4.1 Linear regression analysis

Regression analysis, in this study, was used to examine the relationships between FDI and economic growth in Zambia. According to (Weisberg, 2005), regression is the study of dependence. It is an analysis that answers questions about the dependence of a response variable on one or more predictors. In the case of the study of the relationship between inward FDI and GDP growth in Zambia, only two variables are under study. Regression analysis is best used to measure bivariate data.

The *table 4.1.1* below shows annual FDI inflow to Zambia and current GDP between 1994 and 2020. Data from the table is used to generate a scatter plot of FDI vs GDP and the regression analysis results showing the regression statistics, the ANOVA and the Coefficients.

Year	FDI Inflows (US$ million)	GDP, Current US$ (US$ million)	Population (million people)
1994	40.000	3,657.000	8.870
1995	107.000	3,807.000	9.097
1996	127.100	3,597.000	9.340
1997	217.000	4,303.000	9.598
1998	238.000	3,538.000	9.866
1999	85.961	3,404.000	10.141
2000	121.700	3,601.000	10.416
2001	145.000	4,094.000	10.692
2002	298.360	4,194.000	10.972
2003	346.620	4,902.000	11.257
2004	364.000	6,221.000	11.551
2005	356.940	8,332.000	11.856
2006	615.790	12,757.000	12.174
2007	1,323.900	14,057.000	12.503
2008	938.620	17,911.000	12.849
2009	694.800	15,328.000	13.213
2010	1,729.300	20,265.000	13.606
2011	1,108.500	24,488.000	14.023
2012	1,731.500	24,848.000	14.465
2013	2,099.800	26,585.000	14.927
2014	1,488.700	26,693.000	15.400
2015	1,304.900	20,859.000	15.879
2016	662.900	21,453.000	16.364
2017	1,107.500	25,868.000	16.854
2018	408.438	27,005.000	17.352
2019	547.968	23,085.000	17.900
2020	234.032	18,471.000	18.400

Table 4.1.1 FDI inflows and current GDP (1994-2020) – [Source: COMESA statistics]

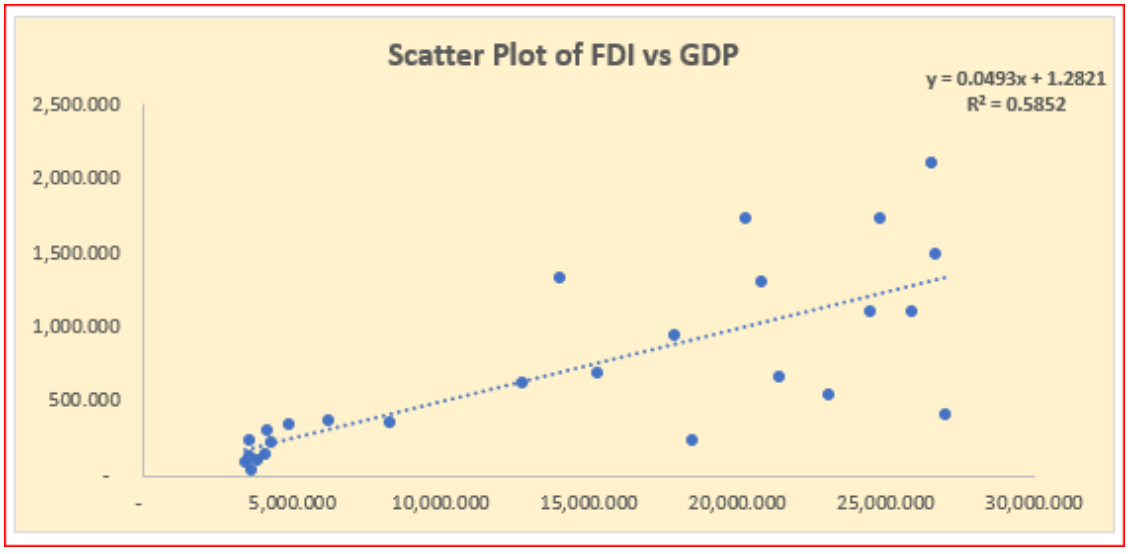

Fig. 4.1.2. scatter plot of FDI vs GDP [Source: Author's own]

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.50731636
R Square	0.25736989
Adjusted R Square	0.22766468
Standard Error	2.17634023
Observations	27

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	41.03729859	41.0372986	8.66413447	0.006913334
Residual	25	118.4114199	4.7364568		
Total	26	159.4487185			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.86396816	1.009439903	1.84653703	0.07668602	-0.21501224	3.94294856	-0.21501224	3.94294856
FDI %ge of GDP	0.56462136	0.191820363	2.94349018	0.00691333	0.169559923	0.95968279	0.169559923	0.95968279

Fig. 4.1.3. Regression analysis results (Source: author's own using data from COMESA)

From the regression analysis results above in *fig.4.1.3.* we can deduce the below;

- R Square is 0.25736989 or 25% which is a measure of how much change is driven by the change in the independent variable. In short, we can infer that there is a 25% change in GDP when the independent X variable change in FDI.
- Significance F on the ANOVA is 0.006913334 is smaller than 0.05 so this is a very strong regression.
- Coefficients is Y intercept which is a slope of FDI which is a positive number thus an upward slope.
- P-value a test of the coefficients is smaller than 0.05 then it influences FDI.

∴ There is a significant positive relationship between economic growth (GDP) and the net inward FDI into Zambia.

4.2 Granger Causality tests

This study observed the causality link between FDI inflow and economic growth in GDP terms using the Granger causality technique. The Granger causality model is a technique to determine the causal relations between series in a model (Zhang, 2001a), (Zhang, 2001b).

When two series are cointegrated, then there is a likelihood of experiencing at least one directional causation.

There is no theoretical evidence that can conclusively give a bidirectional link between FDI and growth. Most of the series reported a one-directional causality. Therefore, if not in all directions, promoting of FDI inflows has a catalytic effect on growth in Zambia.

Similarly, the Granger causality results found no bidirectional causality between unemployment and growth. Unemployment is a leakage in economic development, government has to use available resources via social intervention to support their welfare. Low unemployment promotes effective growth and helps improve the standard of living. To raise the level of employment in the nation, demand directing investment into areas that create more labor-intensive activities like manufacturing industries and service sector activities. Recently, lot of the investment are directed toward capital-intensive activities mining, which has less labor employability.

4.3 Johansen cointegration technique

Johansen test for co-integration was used to test long term relationships between FDI and GDP. It is necessary to define appropriate time lag length within this test. Here, an Akaike criterion was used while determining the appropriate lag length, which was applied for the non-differentiated VAR model estimation. Two periods with an appropriate lag length was proved. Long term relationships test between FDI, GDP and EXP was performed based on the following equation;

$$LGDP\_sa = \alpha + \beta_1 LFDI + \mu$$

The dependent variable is GDP and independent variable being FDI. Long term relationships between variables in Johansen test are examined based on two tests, and that is a Trace test and Max-eigenvalue test. Cointegration test results are shown in Table 4.3.1. The existence of long-term relationship was established between the variables and the cointegration link was found.

Null Hypothesis	Trace Statistic	Critical Values 0.05	Max-Eigen Statistic	Critical Values 0.05
r=0	38.65633	35.19275	22.70358	22.29962
r<=1	15.95274	20.26184	11.13284	15.89210
r<=2	4.819906	9.164546	4.819906	9.164546

Table 4.3.1.; Johansen co-integration test [Source: author's analysis]

Cointegration equation has the following form:

$$LGDP\_sa \underset{(0.063)}{0.074} LFDI\_sa \underset{(0.201)}{2.047}$$

The above equation shows that if the FDI increases by 1 % then there is a growth in gross domestic products of 0.074 %.

4.4 Vector Autoregression (VAR) and Causality

(Greene, 1993) suggests that the VAR model is the most suitable and effective model to investigate the dynamic relationship between variables. Accordingly, the effect of inward FDI on economic growth is tested using a VAR model. The empirical relationship between FDI and growth can be examined through a statistical technique for causality, in the sense of precedence, as developed by (Granger, 1981). The method can detect unidirectional or bidirectional relationship between economic growth and FDI. Two variables are used where "ifdi" denotes real inward FDI and "gdpg" denotes real GDP growth. The data employed for this study are annual, covering the period from 1994 to 2020.

In order to obtain consistent results derived from the Granger causality procedure three steps will be followed. The first step is to test whether there is a unit root in the variables and if yes, how many unit roots are there or, in other words, what is the order of integration of the variables. The Augmented Dickey Fuller (ADF) test can be used for this purpose. If the time series contains a unit root, the data may follow a random walk model. If a series is nonstationary (for example, in the case of a random walk), then we cannot rely on the test statistics from the regular OLS such as t-statistic, F-statistic and so forth, and must resort to such tests as the ADF test.

The second step is to run a reduced form VAR (p) model for per capita growth and FDI. A reduced form VAR expresses each variable as a linear function of its own past values, the past values of all other variables being considered, and a serially uncorrelated error term.

The third and final step is to carry out the Granger causality tests. The appropriate formulation of this test, applicable only to stationary series, is, with or without the intercept term.

A rejection of the null hypothesis that FDI does not Granger-cause economic growth requires that (a) estimated coefficients on the lagged FDI in (10) are statistically different from zero (i.e., $bj \neq 0$ for one or more j) and (b) the set of estimated coefficients on the lagged FDI in (11) is not statistically different from zero (i.e., $cj = 0$ for all j). Similarly, rejection of null hypothesis that FDI inflow does not Granger cause economic growth requires that (a) the estimated coefficients on the lagged GDP growth in (10) are not statistically different from zero (i.e., bj = 0 for all j) and the set of estimated coefficients on the lagged FDI in (11) is not statistically different from zero (i.e., $cj \neq 0$ for one or more j).

The variance decomposition method was used to overcome the obstacles in the interpretation of the parameters in the VAR model and to determine the source of the changes in the variable. In this context, according to the Table VI results of variance decomposition for 24 periods obtained from a 1-lag VAR model, the main source of the "gdpg" variable's variance is explained by its own shocks.

The main source of changes in economic growth was found by the "ifdi" variable. As the number of time period increases, the share of the "gdpg" variable originating from inward FDI increased from 0 in the first period to 10 percent in the second period, 14% in the third period and 15% in the fifth period and maintained this increase until the end of the 24th period. In the same context, it is observed that as the share of inward FDI in Zambia increases so too did GDP increase when the number of periods increased.

On the other hand, the inward FDI flows to Zambia have been mostly directed toward the service sectors or the mining industry. This situation has prevented the flow of inward FDI to more value-added sectoral areas. Accordingly, the "ifdi" variable explains 15% of the "gdpg" variable. In other words, this result causes inward FDI that does not create a broader effect on economic growth.

The response of the "gdpg" variable to one standard deviation of "ifdi" shock in the 1-lag VAR model for 36 periods is significant. The first response of the "ifdi" variable to its own shock was downward from the beginning period to the end of the second period. The "ifdi" variable fluctuated after this period. The response of the "gdpg" variable to one standard deviation of the "ifdi" variable shock lagged. In other words, the response of the "gdpg" variable to the shock was downward in the second period, and then, after this period both variables moved together at the same time.

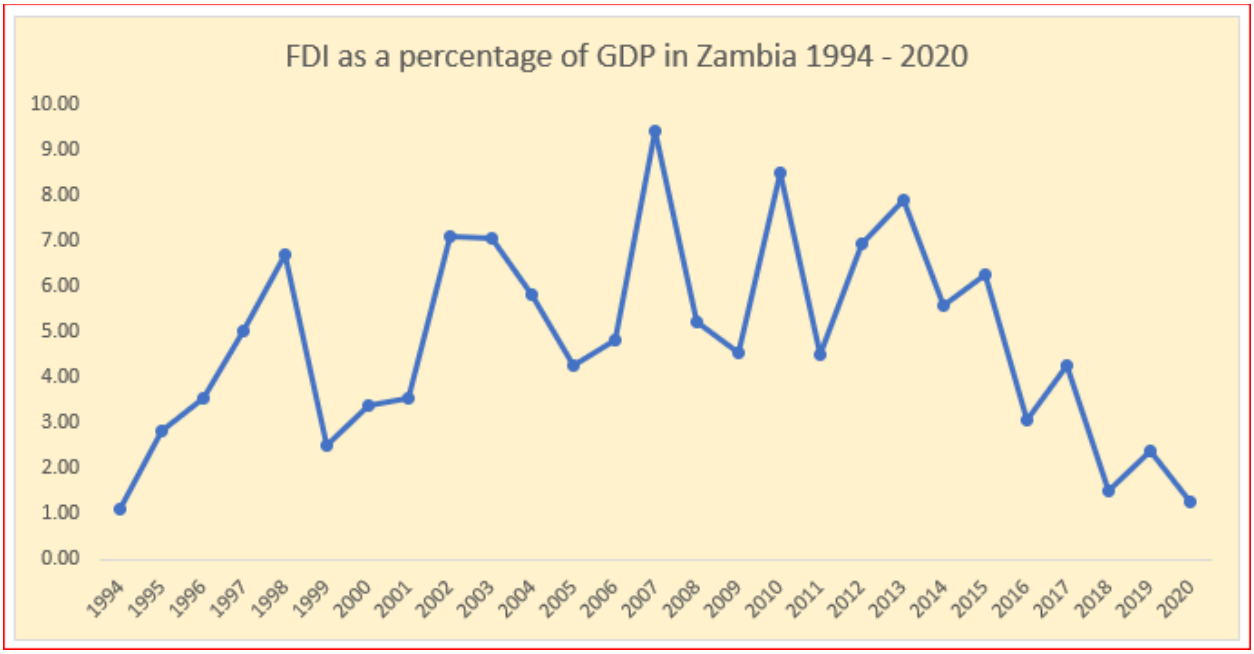

Fig. 4.4.1: FDI as a percentage of GDP in Zambia 1994-2020

Fig 4.4.1., shows that FDI inflows have been on an upward trend between 1994 and 2014. The highest FDI inflows first experienced in 2007 at $1.3 billion from $615.8 million the previous year. The FDI inflows reduced to $938.6 million and $694.8million for 2008 and 2009 respectively. This reduction coincided with global financial crisis. 2010 also saw a rise in FDI inflow to $1.7billion, and this rise is attributed to the rise in investments in line with the global upsurge of FDI with the global recovery that followed.

Zambia continued to receive substantial investments from emerging economies specifically India and China with the bulk of the investment channeled to the mining sector. However, it fell again

to $1.1 billion in 2011. This was due to loss of investor confidence because of the uncertainty of the 2011 general elections. With the smooth transition into the new regime, investor confidence was reinstated and FDI inflows rose to $1.7 billion in 2012.

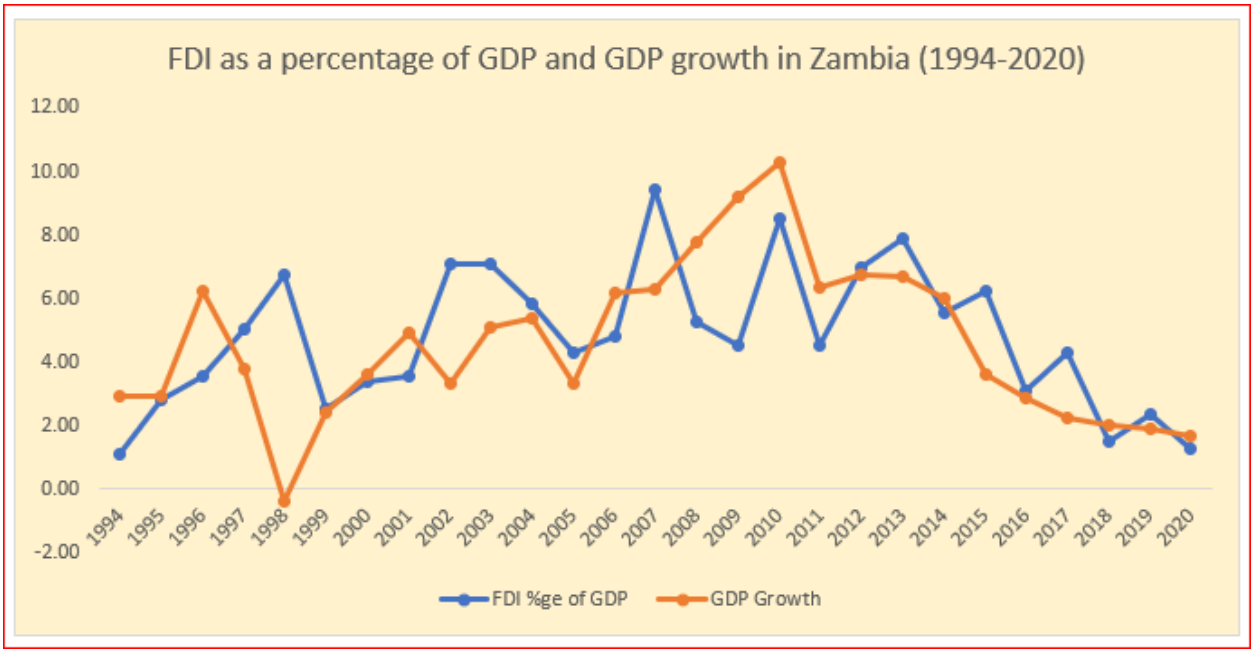

Fig. 4.4.2: FDI as a percentage of GDP and GDP growth in Zambia 1994-2020

Fig 4.4.2. shows an obvious relationship between FDI and economic growth prior to 2000. A drop in the percentage contribution of FDI to GDP would also indicate a drop in GDP and the same with an upsurge. The only exception was 1999 and 2000 which was attributed to the Asian crisis. From 2001, the pattern becomes less predictable. In certain years a rise in GDP is accompanied by a fall in the contribution of FDI to GDP. In other years, when FDI rises, the GDP growth falls. Another factor occurs with the decline of FDI in 2008 and 2009 of 44% and 13% respectively, the GDP rises from 7.7 to 9.2%. These results suggest that FDI obviously has a positive impact on economic growth. The same results were shown by (Nunnenkamp, 2001) who argued that causal links are hard to establish when FDI is natural resource based.

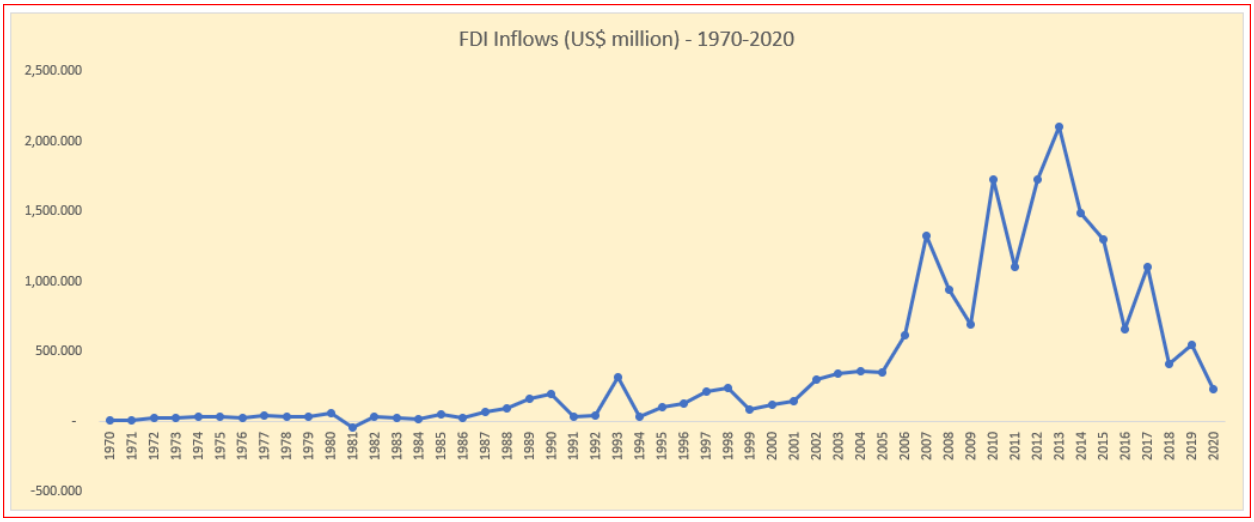

Fig. 4.4.3: FDI inflow in Zambia 1994-2020

Fig 4.4.3. also shows some outliers which are important for understanding this study's objectives. In 1993, FDI contributed its greatest to GDP. This was due to the high inflow of capital during privatization.

	FDI Inflows (US$ million)	*GDP, Current US$ (US$ million)*	*Population (million people)*
FDI Inflows (US$ million)	1		
GDP, Current US$ (US$ million)	0.765007821	1	
Population (million people)	0.501491172	0.889947766	1

Fig 4.4.4. Correlation analysis of FDI inflow, population and GDP current

Fig 4.4.4. above, shows a very strong positive correlation of 0.765007821. This indicates that for every change in FDI inflow, there is a very strong change in GDP. This is also confirmed by the fig. 4.4.5. below, which shows the scatter plot of the correlation of FDI and GDP.

$\Rightarrow r^2 = 0.585 \qquad r = 0.764984$

∴ There is a significant positive relationship between GDP economic growth and the net inward FDI into Zambia.

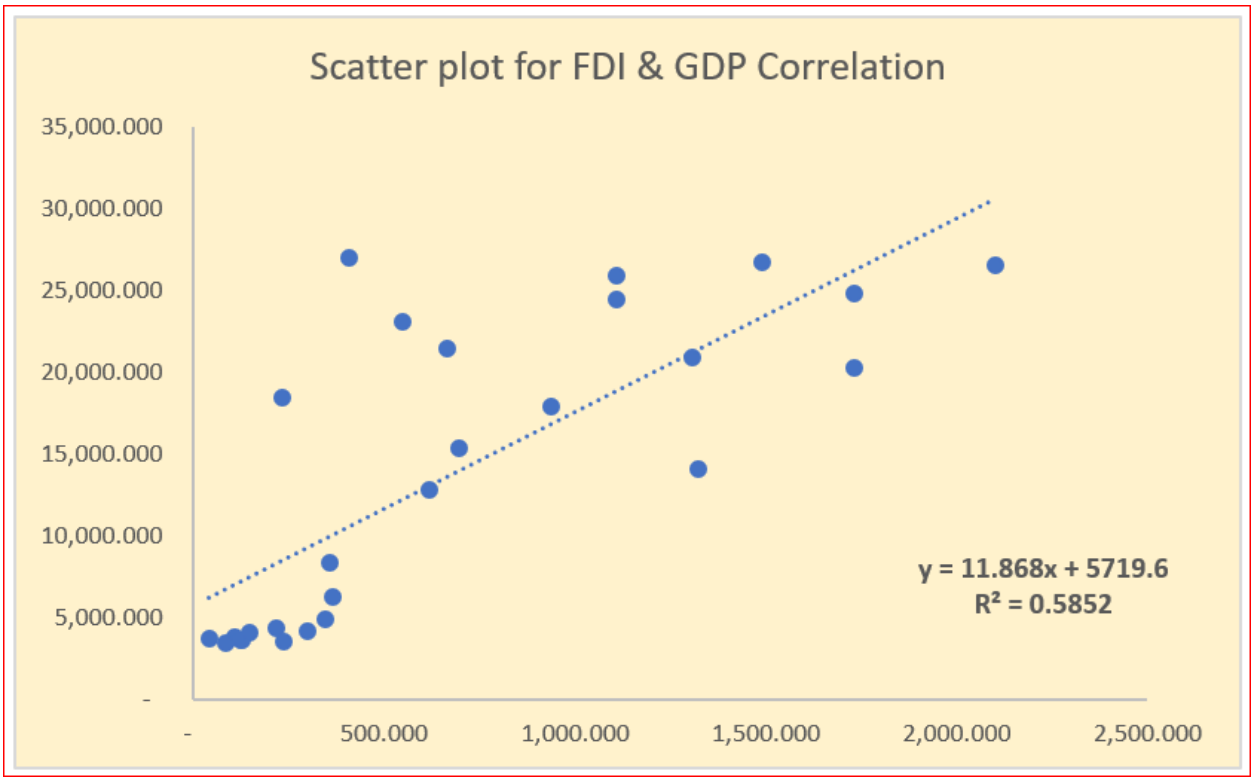

Fig. 4.4.5. Scatter plot of Correlation analysis of FDI inflow, and GDP current

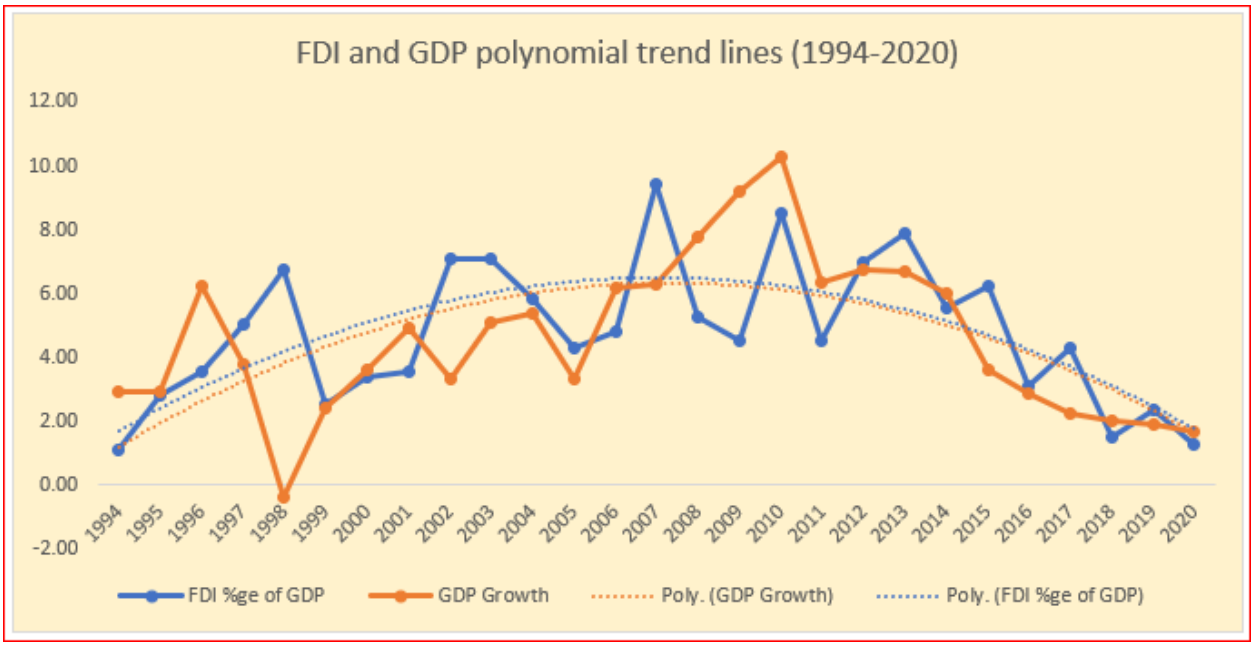

Fig. 4.4.6. FDI and GDP polynomial trend lines

CHAPTER 5

CONCLUSION, RECOMMENDATIONS AND FURTHER SUGGESTIONS

5..0 SUMMARY

This study investigated three aspects of the cause and effect relationship of inward FDI on GDP in Zambia:

a) To establish the effect of inward FDI on economic growth,
b) To determine the causal linkage between FDI inflow and knowledge / technology transfer into Zambia,
c) To ascertain whether FDI inflow influences sustainable growth in Zambia in the form of employment creation.

5.1 Discussion

The research used annual data of the period 1994 – 2020. First, the data was adjusted for the calculations where GDP was adjusted to reflect uniform annual period values. Subsequently, this data was used for initial testing and testing for stationarity. Test results showed that all three-time series are stationary up to its first difference.

This result enabled a continuance with further research and after finding the time lag the cointegration Johansen test was carried. The test has demonstrated positive long-term relationship between the two variables of FDI and GDP growth. Cointegration equation had shown a positive relationship between FDI and GDP too, there by agreeing with the null hypothesis, 1.6.1, Ho: there is a correlation between inward FDI and positive economic growth (GDP).

Results also show that foreign firms with more capital are more likely to be productive than domestic firms with limited capital investments, thus indicating the existence of a strong direct effect of firm-level foreign investment on the productivity of individual firms. This is supported by the neoclassical growth model (Solow, 1957), which states that three factors necessary for a growing economy are labour, capital & technology. The neoclassical growth model also emphasizes that accumulation of capital is key to economic growth, and that accumulation of capital can be fully realized when foreign direct investments come into The

direct effect is positive and large in magnitude suggesting that the channels through which foreign investment can benefit a country are due more to the direct effects of investment than to potential spillover benefits resulting from technology transfer. This agrees with the alternate hypothesis H1: 1.6.2, that there is an impact of FDI on the development of local firms' technology and skills in Zambia.

The study results also solidified the alternative hypothesis H1: 1.6.3, finding that there is a link between FDI and employment creation, industrialization & productivity in Zambia. Existent literature on FDI and the relationship to employment creation, industrialization and productivity in Zambia is scant. The present study, therefore, contributes to a large extent to FDI and GDP nexus research in Zambia, there by filling the knowledge gap that may exist.

5.2 Conclusion

It is evident that Zambia has witnessed a surge in the level of FDI flow in to its economy since the early 90's when the push for FDI became government policy. Empirical evidence from this study has also indicated that with increased FDI, subsequently GDP level has also increased considerably. The study further explored the crucial role of FDI in technology transfer to which the results point to positive correlation where technology transfer is achieved more where FDI inflow is increasing.

However, for the country to effectively reap the benefits, the policy makers and implementers need to constantly create a healthy and enabling business environment that encourages both foreign and local investors, provides incentives for innovation and skills improvement, and contributes to competitive corporate climate.

As pointed out in the literature, positive effects of FDI are anything but guaranteed. The absence of positive effects of FDI on economic growth in Zambia by some studies, could be caused by the absence of certain conditions to ensure successful use of FDI as outlined in the literature (Libanda, et al., 2017).

The policy inferences arising from the general results of this study submit that foreign capital inflows should be the bedrock policy variable for accelerating economic growth in Zambia. In order to increase the efficiency and the effectiveness of the foreign capital usage, there is a need to develop financial systems. The findings also provide robust evidence of short-run

causation that runs from FDI inflows to primary industries in manufacturing employment and in turn, employment linkage is running from primary manufacturing to services, which supports the view that as the manufacturing industries move up the value chain, they tend to generate employment spill-over effects to the services sector. However, caution is necessary in interpreting the results of this study because only two variables were studied, when in fact GDP growth can be affected by multiple variables.

5.3 Recommendations

In order to benefit positively from foreign investment, this paper recommends that the Zambian government implements policies that create a stable economic and political environment to instill confidence in foreign investors. Such policies could be implemented through good governance with fiscal and monetary accountability as well as transparency and reducing corruption.

For the country to benefit most from FDI inflows, an approach that targets promoting FDI in more productive sectors such as agriculture and manufacturing, and further cooperation with multinational enterprises is needed.

Finally, government regulations and procurement policies may deter some forms of FDI, particularly where they affect ownership. The Zambian Governments and other policy makers need to weigh the benefits of such microlevel interventions against the costs of erecting perceived impediments to FDI, which reduce the ability of the country to compete with other developing countries for foreign investments.

Many of the motivations influencing the investment decisions of multinational companies apply equally to domestic investors. Addressing the problems identified by foreign investors already committed to Zambia should not only in the long run make the red metal mining nation more attractive to new FDI but should in the shorter term encourage increased domestic investment.

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7.0 APPENDICES

7.1 Appendix 1 - Ethical clearance

7.2 Appendix 2 – Supervisor Clearance letter

7.3 Appendix 3 - Confirmation of study

7.4 Appendix 4 – Letter for data gathering and collection request