**BINDURA UNIVERSITY OF SCIENCE**

**FACULTY OF COMMERCE**

**DEPARTMENT OF ECONOMICS**

****

**THE IMPACT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC**

**GROWTH AND DEVELOPMENT IN ZIMBABWE.**

**(2000-2022)**

**BY**

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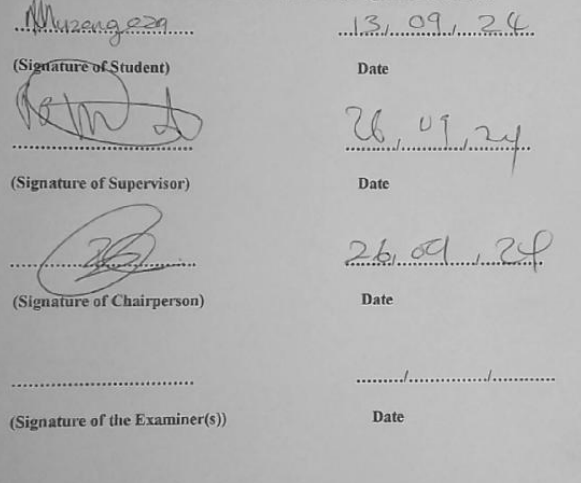
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# **APPROVAL FORM**

The undersigned certify that they have supervised, read and recommend to the Bindura University of Science Education for acceptance of a research project entitled: THE IMPACT OF FOREIGN DIRECT INVESTMENTS ON ECONOMIC GROWTH AND DEVELOPMENT IN ZIMBABWE (2000-2022). Submitted by Nigel Muzengeza, in partial fulfilment of the requirements for the Bachelor of Science (Honours) Degree in Economics**.**



# **DEDICATION**

I humbly dedicate this project to my beloved parents, Mr and Mrs Muzengeza, as well as my brother Lloyd, my sister Varaidzo and my good friend Hillary Muchechemera, for motivating me to work hard and prioritize my studies. I appreciate the love, support, guidance, assistance and encouragements. I am grateful for it contributed immensely. May God bless you and hopefully give me strength to make you proud in the future.

# **ABSTRACT**

The study investigates the impact of Foreign Direct Investment on economic growth and development in Zimbabwe. It was for the period 2000 to 2022 using secondary data through regressing it with the ordinary least square (OLS) and analysing the findings. The regression analysis was used to estimate the relationship between FDI and GDP, and other variables, trade, inflation, unemployment and government expenditure. Research results indicated that FDI and GDP has positive relationship, this suggests that FDI inflows into the country cause economic growth through capital accumulation, technology transfer and market development. This indicates a positive relationship between FDI and GDP.

Inflation has a negative impact on GDP in Zimbabwe. The inflation coefficient of -0.014392 shows that there is an inverse relationship between GDP and inflation. This implies that a 1% increase in inflation will cause a 0.014392% decrease in GDP. Increase in inflation reduces purchasing power of consumers leading to erosion of real income, uncertainty and adverse effects on investment and financial markets. Government expenditure has a positive effect on GDP, this suggests that government spending increases economic growth through multiplier effects, increased productivity and overall well-being of people. Unemployment has a positive relationship on GDP, this may be as a result of high mechanisation in the country in which people are being substituted for machines. Trade has a positive relationship on GDP, this suggests that Zimbabwe imports more than exporting which shows that business environment in the country was not favourable for investors. It signified an inverse relationship that FDI inflows increases GDP in Zimbabwe.

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**List of Tables**

[**APPROVAL FORM** ii](#_Toc168270786)

[**DEDICATION** iii](#_Toc168270787)

[**ABSTRACT** iv](#_Toc168270788)

[**ACKNOWLEDGEMENTS** v](#_Toc168270789)

[**CHAPTER I** 1](#_Toc168270790)

[**INTRODUCTION** 1](#_Toc168270791)

[**1.0 Introduction** 1](#_Toc168270792)

[**1.1 Background of the study** 1](#_Toc168270793)

[**1.2 Statement of problem** 2](#_Toc168270794)

[**1.3 Purpose of the Study** 3](#_Toc168270795)

[**1.4 Research questions** 3](#_Toc168270796)

[**1.5 Statement of the hypothesis** 3](#_Toc168270797)

[**1.6 Significance of the study** 3](#_Toc168270798)

[**1.7 Assumptions** 4](#_Toc168270799)

[**1.8 Delimitations** 5](#_Toc168270800)

[**1.9 Limitations** 5](#_Toc168270801)

[**1.10 Definition of terms** 6](#_Toc168270802)

[**1.11 Summary** 6](#_Toc168270803)

[**CHAPTER TWO** 7](#_Toc168270804)

[**LITERATURE REVIEW** 7](#_Toc168270805)

[**2.0 Introduction** 7](#_Toc168270806)

[**2.1 Theoretical Framework** 7](#_Toc168270807)

[**2.1.1 Dependency Theory** 7](#_Toc168270808)

[**2.1.2 Modernization Theory** 8](#_Toc168270809)

[**2.1.3 Endogenous Growth Theory** 9](#_Toc168270810)

[**2.2.4 Neoclassical growth Model** 9](#_Toc168270811)

[**2.2.5 Harrod-Domar Model** 10](#_Toc168270812)

[**2.2.6 Institutional Theory** 10](#_Toc168270813)

[**2.2 Benefits of FDI to the economy** 10](#_Toc168270814)

[**2.3 Empirical Literature** 11](#_Toc168270815)

[**2.3.1 Studies that showed a positive relationship** 11](#_Toc168270816)

[**2.3.2 Studies with negative relationship or no significant results.** 12](#_Toc168270817)

[**2.4 Summary** 14](#_Toc168270818)

[**CHAPTER 111** 15](#_Toc168270819)

[**RESEARCH METHODOLOGY** 15](#_Toc168270820)

[**3.1** **Introduction** 15](#_Toc168270821)

[**3.2** **Research design** 15](#_Toc168270822)

[**3.4** **Model specification** 16](#_Toc168270823)

[**3.5** **Justification of variables** 18](#_Toc168270824)

[**3.5.1 Gross Domestic Product** 18](#_Toc168270825)

[**3.5.2 Foreign direct investment** 18](#_Toc168270826)

[**3.4.3 Trade** 19](#_Toc168270827)

[**3.4.4 Inflation** 19](#_Toc168270828)

[**3.4.5 Unemployment** 19](#_Toc168270829)

[**3.4.6 Government expenditure** 20](#_Toc168270830)

[**3.6** **Data Collection procedures** 20](#_Toc168270831)

[**3.7** **Estimation techniques** 20](#_Toc168270832)

[**3.7.1** **Diagnostic checking** 21](#_Toc168270833)

[**3.7.2** **Multicollinearity test** 21](#_Toc168270834)

[**3.7.3** **Normality test** 21](#_Toc168270835)

[**3.7.4** **Heteroscedasticity test** 22](#_Toc168270836)

[**3.7.5** **Autocorrelation test** 22](#_Toc168270837)

[**3.7.6** **Stability test** 22](#_Toc168270838)

[**3.7.7** **Goodness of fit** 22](#_Toc168270839)

[**3.8 Summary** 23](#_Toc168270840)

[**CHAPTER IV** 24](#_Toc168270841)

[**DATA PRESENTATION, ANALYSIS AND DISCUSSION** 24](#_Toc168270842)

[**4.0 Introduction** 24](#_Toc168270843)

[**Descriptive statistics** 24](#_Toc168270844)

[**4.2 Model diagnostic tests** 26](#_Toc168270845)

[**4.2.1 Multicollinearity test** 26](#_Toc168270846)

[**4.2.2 Heteroscedasticity** 26](#_Toc168270847)

[**Table 4: Estimated Ordinary Least Squares regression results** 27](#_Toc168270848)

[**4.2.3 Stability Test. Ramsey RESET test** 28](#_Toc168270849)

[**Table 5 : Stability test. Ramsey RESET test** 28](#_Toc168270850)

[**4.3 Diagnostic test results** 28](#_Toc168270851)

[**4.4 Interpretation of results and analysis** 29](#_Toc168270852)

[**4.5 Summary** 30](#_Toc168270853)

[**CHAPTER V** 31](#_Toc168270854)

[**SUMMARY, CONCLUSIONS AND RECOMMENDATIONS** 31](#_Toc168270855)

[**5.0 Introduction** 31](#_Toc168270856)

[**5.2 Summary** 31](#_Toc168270857)

[**5.3 Conclusion** 32](#_Toc168270858)

[**5.4 Recommendations** 32](#_Toc168270859)

[**. 5.5 Suggestions for Future Studies** 33](#_Toc168270860)

[**REFERENCES** 34](#_Toc168270861)

[**APPNDIXES** 37](#_Toc168270862)

[**APPENDIX 1: Descriptive Statistics** 37](#_Toc168270863)

[**APPENDIX 2: Estimated Ordinary Least Squares.** 38](#_Toc168270864)

[**APPENDIX 3: Heteroskedasticity Test: Breusch-Pagan-Godfrey** 39](#_Toc168270865)

[**APPENDIX 4: Correlation matrix** 40](#_Toc168270866)

[**APPENDIX 5: Stability diagnostics** 41](#_Toc168270867)

[**APPENDIX 6: Turnitin Original Report** 42](#_Toc168270868)

#### **List of Tables**

#### **Table 1 Descriptive Statistics for Dependent variable and Independent variables………25**

**Table 2: Correlation Matrix…………………………………………………………………27**

**Table 3 Heteroscedasticity Test: Breusch-Pagan-Godfrey………………………………..27**

**Table 4: Estimated Ordinary Least Squares regression ………………………………….28**

**Table 5 : Stability test. Ramsey RESET test……………………………………………………….28**

**Table 6: Results of the model diagnostic test……………………………………………...29**

# **CHAPTER I**

# **INTRODUCTION**

# **1.0 Introduction**

Zimbabwe has grappled with economic challenges that impacts the country in different ways. These challenges are impacting the economy. Foreign Direct Investment (FDI) has emerged as a vital pillar for economic growth and development in emerging and developing nations. Investments from foreign entities contributes to economic globalisation and the development of stable relations between economies. Foreign Direct Investments promotes provision of modern technology which results to increased productivity on capital and labour, this could then act as a catalyst on creation of employment and overall economic performance. The effects of FDI on economic growth and development has been a contentious issue which is subject to debates with conflicting views. In various studies, they have found a positive relationship between FDI and economic growth, others have found negative effects on the relationship. Given the conflicting arguments in the literature regarding the role of foreign direct investments on economic growth and development. The study aims to examine the impact of FDI on economic growth and development in Zimbabwe. This study will use time series data as from 2000 to 2022, the study will provide empirical evidence on the effect of FDI in promoting economic growth and development in Zimbabwe.

# **1.1 Background of the study**

The correlation that emanates between foreign direct investment (FDI) and economic growth in the country has been a subject of debate in finance and economics by various authors with divergent and convergent ideas. Foreign direct investment is regarded to be low in Zimbabwe, resulting in low growth and standards of living and has hindered efforts to promote economic prosperity and sustainable development for the country according to Chingarande, 2012. Zimbabwe has over the years impacted by foreign currency shortage, high price volatility, high unemployment, BOP deficits, industries collapse, underproduction and underutilization of resources, this arises from shortage of capital and technology surpassed production which resulted to instability and contributed immensely on low economic growth in the country.

Foreign direct investment inflows are vital catalysts towards the increment on GDP growth. This highlighted the significance of FDIs towards economic expansion. Herzer et al. (2008) highlighted that FDI plays an important role in the host country’s economic growth by increasing the amount of investable capital, and by way of technological spill-overs. It indicated how impactful FDI is towards promoting stability and sustainability. FDI increases possibilities for strategic growth and development, the major strengths are the abilities to assist in the formation of human capital and development. It also integrates into global economic trade integration through the creation of a more competitive business environment which enhance enterprise development. The locational in specific locations where FDI occur benefit and the nation at large will also benefit. There are advantages that make the country more attractive for FDI. Its advantages are improved living standards, infrastructure development, well-educated population, macroeconomic stability and employment creation. The research focuses on the significance of FDI on economic growth and development in Zimbabwe.

# **1.2 Statement of problem**

Foreign Direct Investment (FDI) has played a pivotal role towards attaining economic growth and development in many developing countries. It has been highly classified as a major generator of capital, advanced technology and skills that can foster economic growth and development. In Zimbabwe they are low FDI inflows, these inflows have not been recognized much to stimulate economic growth and development in the country. The economy is experiencing economic instability with low economic growth and development, decline in productivity and the industries continuing to collapse. Zimbabwe was affected by inconsistencies when it comes to policy implementations, instability of the political environment and other factors that also resulted to low FDI inflows. Instabilities cause affect investor confidence and influence the decision making. Investors tends to invest in countries with environmental stability. The policy implementations in the country are limited in scope to lure FDI inflows and the business environment as well. In Zimbabwe it is not clear whether FDI can leads to economic growth and promotes development. In light of these challenges, the research explores the effects of FDI towards economic growth and development in Zimbabwe.

# **1.3 Purpose of the Study**

* To examine the significance of FDI on economic growth and development.
* To assess sustainable ways of attracting FDI inflows.
* To provide policy recommendations for attracting FDI inflows.

# **1.4 Research questions**

* What are the impacts of foreign direct investment towards economic growth and development in Zimbabwe?
* What are the effective strategies that promote the inflow of FDI in Zimbabwe?
* What are the sustainable recommendations that should the study give to policymakers to foster FDI in Zimbabwe towards attaining economic growth and development?

# **1.5 Statement of the hypothesis**

: There is a positive relationship between FDI and economic growth and development in Zimbabwe.

: There is no positive relationship between FDI and economic growth and development in Zimbabwe.

# **1.6 Significance of the study**

This study has significant implications for various stakeholders, including Government or Policymakers, the Public, Investors, University and Researchers.

**To Government**

The research is significant for policy making on economic strategy in Zimbabwe through examining the significance foreign investment inflows that promote GDP growth.This research can then be used on development of policies that boost the inflow of FDI and sustainable decision making. This solidifies the need to promote foreign direct investment towards accelerating GDP growth and development in Zimbabwe.

**The Public**

This research is significant to general public as, FDI can lead introduction of new goods and services as well as existing ones, this benefits the general public by providing variety of choices and potentially lower prices. The study can be a useful tool for formulation of business decisions and on investment decisions that can attract FDI inflows. FDI inflows promotes employment creation to the general public.

**To Investors**

The study is significant to investors as it provides insights that can guide investors in making investment decisions in Zimbabwe. It allows investors to expand their footprint, acquire sources of materials to develop a multinational presence and provide access to new markets and resources.

**To the University**

This research is significant to students on research and innovation when they want to conduct similar studies in future years. It allows the university to potentially attract FDI to fund its projects and to make technological advancements.

**To Researchers**

The study is significant to me and other researchers as will have literature on foreign direct investment and economic growth in country. Research results are useful to guide in developing new hypotheses and research questions.

# **1.7 Assumptions**

The assumptions on the research study are as follows:

* 1. FDIs are a source of capital and technology that promotes growth and increase development in Zimbabwe.
  2. Creating a conducive policy environment attracts FDI inflows.
  3. The study assumes that secondary data sources used in the study are reliable and accurate show how FDI affects economic growth and development.
  4. The methodology application and variables chosen for the study are relevantly acceptable.

# **1.8 Delimitations**

The delimitations that exist in the research carried out are as follows:

1. Research will comprehensively focus on the significance of FDI towards GDP growth and development in Zimbabwe and that it is limited on that base.

2. It will use time series data from 2000 to 2022 for twenty-two years.

3. The study will use quantitative research methodology and econometric techniques to assess the relationship between FDI and economic growth and development

# **1.9 Limitations**

The limitations of the research are as follows:

**1. Data limitations and quality**: This study will rely on secondary data. The quality and coverage of the data may be limited due to measurement errors, missing data and data inconsistencies.

**2**. **Endogeneity**: The study can be can be affected by endogeneity, it is complicated to establish a clear causal relationship amongst FDI and growth of the economy and development in the country. This leads to difficulties in indicators whether FDI is promoting economic growth and development or economic conditions are influencing the inflows.

**3**. **Causuality**: The study results may not establish causality between FDI inflows, GDP growth and development. Variables that are correlated may not be included in the analysis. The use econometric techniques to control for potential confounding factors can be useful, the results may still be affected by unobserved or omitted variables.

**4**. **Heterogeneity**: The research can be affected by heterogeneity, the diverse nature of FDI and its implications are evident in institutional and macroeconomic factors. These influence FDI in Zimbabwe as the property rights is significant for inflows. The heterogeneity of FDI and its interactions with various institutional and macroeconomic variables in shaping its impacts on GDP and development in Zimbabwe, this can be affected by unobserved heterogeneity.

**5**. **Multicollinearity**: The research can be affected by multicollinearity, its significance can affect estimations, influencing variable significance and impact the formulation on policy recommendations although it can be captured through statistical techniques and model diagnostics.

**6**. **Generalizability**: The study's findings may not be generalizable to other different levels of economic growth and development.

# **1.10 Definitions of terms in the study**

**Foreign Direct Investment**

This is investment from a foreign corporation or government, into a company or entity in another country. It is considered FDI when the foreign entity has a significant stake in the ownership or management of the company.

**Economic Growth**

This is an increase in the total output of goods and services produced by a country over time. It is typically measured by the growth rate of Gross Domestic Product (GDP).

**Economic Development**

Nath, H. (2005) economic development as the process of change and growth which takes place in societies and countries. It usually improves the quality of life of the people.

# **1.11 Summary**

The chapter has unfolded overview of the research's background, highlighting the importance of FDI inflows as an indicator of economic growth and promotion of development. Statement of the problem was also displayed. Limitations and delimitations were also outlined. The research's significance has been discussed, and its underlying assumptions have been identified. Next chapter will present the theoretical and empirical literature.

# **CHAPTER TWO**

# **LITERATURE REVIEW**

# **2.0 Introduction**

This chapter unfolds the core theoretical and empirical literature in a way that examine the significance of FDI on GDP and promotion of development. Literature will be obtained from various sources including journals, summaries of thesis and dissertations. Reports as well as research articles on the internet and scholarly research papers are to be used.

# **2.1 Theoretical Framework**

Numerous models and theories were crafted by various authors in order to explain this study area. There are various theories that were developed, some of the them are the dependency theory, modernization theory, the endogenous theory, neoclassical growth model, Harrod-Domar model and institutional theories.

# **2.1.1 Dependency Theory**

It was developed by Raul Prebisch with other scholars in the late years of 1950s. In this theory Raul postulated that developed economies tend to continue on exploiting poor countries under the patronage of help. The theory states that many in developing countries around the world are opulent in raw material. Lack of the technology on efficient extraction in order to utilise the available resources and add value in order to benefit from them. Developing countries lack expertise on adding value which leads resource endowed nations to export minerals before value addition. Poor counties receive limited amounts of benefits as compared to the actual benefit that is received through exportation of finished goods. The benefits are taken by investor that come to inject invests in these poor countries but in the end they plunder valuable raw materials living the developing countries in extreme poverty. Some Africans are still poor with redundant growth of economy and development associated from all FDIs that are injected in the country. Democratic Republic of Congo is an of the African countries that received FDIs but is still struggling with high levels of poverty, high mortality and unemployment rates. Suggestions reveal that FDI is not an economic growth and development stimulator but causes more challenges after the resources are wiped away to developed countries. Bornschier, (1985) stipulated that foreign investment impacts economic growth and development negatively or in other words it has an adverse impact on growth. These two postulated that FDI is not an effective full utilizer of available labour in a country. They also said FDI may only develop certain specific sectors which creates monopoly industries in the process and causes sector imbalance. Ac FDI could improve the welfare of developing economies through increased output and income. Capital investments differentiated sectors of the economy does not boost the amount of production which stimulates growth and expansion in business. This creates employment which improves the living through increased spending. This will result in economic development. Foreign Direct investment promotes technology transfer which stimulates productivity and increases in industry output. This theory proved that increase in FDI results to growth of an economy and development in a country.

# **2.1.2 Modernization Theory**

This theory opens understanding of the process of modernization including the variables conducive development to societies. The theory propounded in the 1960s to understand problems of social and economic development in formulation of policies which foster economic and social transitions in developing countries. Theory argues that to promote development in a nation it is simply a matter of knowledge and technological advancements. According to Calvo and Sanchez-Robles (2002), the theory qualifies an economy as modern when it embraces modern and advanced technology. It encourages transition from traditional to modern ways of production, capital investments and technological advancements to improve infrastructure in the host country. Kumar and Pradhan (2002) highlighted the need for other factors such as managerial skills, marketing techniques and how accessible the market is. They are a belief that many developing countries experience stunted growth as lack of capital reflection. This theory shows proportionate increase on FDI tend to increase GDP growth and development in a country.

# **2.1.3 Endogenous Growth Theory**

This theory was developed by Paul Romer (1986), who stated the significance of internal factors towards driving economic growth as compared to the sources outside. Endogenous growth theories encourage internal process improvement through human capital advancement which results to economic improvements. New forms of technologies are viewed as a way that stimulated the performance of the economy as they provide solutions to problem that arises in the economy or that are already affecting economies. Skilled workers are also required in order to explore the production of the economy and for local developments. Introductions of new technology offers sufficient solution development in economies. Lucas (1988) sighted that FDI is very beneficial to economic growth. A more educated labour force adopts and learns new technology faster and is generally more productive, (Noorbakhs, Paloni and Youssef, 2001). Liu (2008) explained that the level and rate of effects of spill-overs or externalities can go in opposite directions. The statements above indicate various ways that can be implemented in form of FDI to encounter underutilisation of resources and promotion of sustainable ideas towards economic boost. It shows that a proportion of increase in the FDI inflows in a country results to boost of the economy which also fosters development.

# **2.2.4 Neoclassical growth Model**

This model was developed by Solow and Swan. The main idea that to boost economic growth is through factors of production. Factors of production that are viewed as economic growth drivers are capital, technology and labour. Promotion of new technology increases the production capacity of a country. Increase in capital is an economic driver. This model shows that FDI can promote GDP growth by through increase in the capital stock and technology advancements in a nation. On the other hand, the model also postulated that FDI has diminishing returns and that economic growth converges to a steady state in the long run. Therefore, FDI alone cannot sustain economic growth without other factors such as human capital and institutional quality. Some empirical studies that support this model are Borensztein et al. (1998), who found that FDI has a positive impact on economic growth only when the host country has a minimum threshold of human capital, and Alfaro et al. (2006), who found that FDI has a positive impact on economic growth only when the host country has well-developed financial markets. Host countries should have stable financial markets in order to witness the effect of FDI as a way that boosts economic growth and development.

# **2.2.5 Harrod-Domar Model**

The model was brain child of Harrod and Domar, it states that economic growth is a effect of two factors which are savings rate and the capital-output ratio. According to this model, FDI can boost economic growth by boosting rate of savings for people and reducing the capital-output ratio in in any country that receives inflows of investments. The savings rate measures the proportion of income that is saved and invested, while the ratio of capital-output measures all the capital that are required to produce a unit of output. This implies that FDI can increase the investment rate and the efficiency use of capital. Some empirical studies that support this model are Chenery and Strout (1967), who found that foreign aid can augment domestic savings and investment in developing countries, and Easterly (1999), who found that high investment rates are associated with high economic growth rates.

# **2.2.6 Institutional Theory**

Institutional theory highlights the significance of quality of institutions in order to attract foreign investments. Governance in the host country is an important factor in determining the effect of FDI on economic growth. All the countries with better institutional quality have an upper hand of attraction of FDI, which can promote economic growth through knowledge and technology spillovers, increased investment, and job creation. Empirical studies using institutional theory have found a positive relationship between FDI and economic growth in 15 SSA, particularly in countries with better institutional quality. For instance, Blomström et al. (1996) found that FDI had a positive impact on economic growth in African countries with good governance. Similarly, Globerman and Shapiro (2002) found that FDI had a positive impact on economic growth in African countries with better institutional quality

# **2.2 Benefits of FDI to the economy**

Abundant benefits are shown from FDI to the host countries. Moura and Forte (2010) state that the entry of FDI into the local economy creates competition. The MNCs bring in new capital and production methods, which tend to lower the cost of capital and the general cost of production. Host country receives a wide range of benefits from foreign investment. Improvement of roads, schools, clinic and modes of communication are benefits associated with receiving foreign investments. Installations of modern networking facilities is also an advantage that is gained from inflows of foreign direct investments. Financing of local companies in order to expand their business operations is also benefited Linkages of sectors will also improve as the local sectors depends on each other as a result of foreign investment inflows. Jordaan (2012) argues that local firms might react to this new competition by improving their productivity, improving performance, reducing prices, and moving to a more efficient resource-allocation mechanism. Machines of high quality will be produced locally. This increase in competition might cause local firms to increase R&D spending and to an improvement in the quality of products, as the local firms position themselves to become MNCs suppliers or sub-contractors, Moura and Forte, (2010). Through FDI developing countries will benefit through job creation, increased productivity, stimulates exports and technological advancements. Foreign Direct Investments are crucial for economic growth and development of the developing countries.

# **2.3 Empirical Literature**

Several theories have presented significance of FDI as an instrument that can stimulate growth in developing economies. The relationship varies across economies and regions as a result of unique characteristic features in countries and regions. This remains questionable whether FDI helpful on explaining the growth of an economy as it is two sided given characteristics of each economy, its either positive or negative.

# **2.3.1 Studies that showed a positive relationship**

Some studies have shown a positive relation in different countries that were under study using different data and methods.

Mohd and Muse (2021) used time series data for Ethiopia over the period 1974-2018, they applied the autoregressive distributed lag (ARDL) method to assess the effects of FDI on economic growth in Ethiopia. The study found significant or positive effect in Ethiopia, this significant was in both short and long run. They postulated that Ethiopia should adopt sound macroeconomic policies and improve its business environment which result in promotion of more FDI inflows to the country. Moyo (2013) carried out a research on the impact of FDI on economic growth in Zimbabwe over the period 2009 to 2012. His objective was to out whether an economy can grow and develop on its own without the interference of foreign parties. Applied a multiple regression model in this research. It indicated a positive significance in Zimbabwe. The research was also similar to that carried out by Jacob et al. (2012) over the period 1995-2016. Study findings indicated, FDI positively affects growth of an economy.

Nguyen and Nguyen (2007) employed the time series data for Vietnam over the period 1986- 2018. The research applied various time series techniques, these were in form of cointegration tests, vector error corrections, unit root tests, and variance decomposition analysis, to assess the signifance of FDI on GDP growth in Vietnam. It obtained a positive and significant effect of FDI on economic growth in Vietnam in both the long run and short run. Suggestion were postulated that Vietnam should continue with integration policies and economic reforms to boost its competitiveness and attractiveness for foreign investors. Borensztein, et al. (1998) state that FDI is an essential channel for the transfer of technology, and that it contributes comparatively more to economic growth than does domestic investment. He used panel data for 69 developing countries, including 18 Sub Saharan Africa countries, over the period 1970-1990. They used ordinary least squares (OLS) and instrumental variables (IV) estimations and obtained a positive relationship between FDI impact on GDP. This positive relationship relies on the amount of human capital and institutional quality in the host country. The study found that FDI has higher marginal productivity as compared to domestic investment, this only applied in countries with a low incomes and institutional quality.

Makiela and Ouattara (2018) employed panel data for 80 developing and developed countries over the period 1970-2014. The research applied panel data techniques in the form of panel unit root tests, panel causality tests, panel cointegration tests and error correction model. The research to assess the effects of FDI on economic growth including developing and developed nations. Outcome results obtained a positive relationship between FDI on economic growth. This was in both developed and developing countries. Obtainment of bidirectional causality between FDI and economic growth was also found in this research.

# **2.3.2 Studies with negative relationship or no significant results.**

However, some studies examined the effects of FDI on GDP growth using different data and methods and found no significant results or negative relationship.

Katerina et al. (2004) applied panel data from the period 1970-1998 for 21 developing and developed countries. The panel data estimation was employed to testing the hypothesis that FDI has a positive significance on GDP growth. Research focused on increasing genuine savings, which is viewed as an of measure of weak sustainability. It proved that there is no statistical significant on the relationship of FDI on economic growth in developing and developed countries.

Klasen et al. (2007) employed the panel data for 28 developing countries, this was from 1970-2000. They applied panel data techniques in the form of panel error correction model, panel cointegration tests, panel unit roots, and panel casuality test to assess the significance of FDI on growth of economies in developing countries. The study reviewed that they are no significant effects which is a negative relation. Alexio and Tsaliki (2007) also conducted study on this area in Greece. The results indicated long run relationship between FDI and economic growth using Granger-Casualty test. Hypothesis that FDI boosts economic growth was rejected showing that there is no evidence that there is a relation.

Hansen and Rand (2006) employed panel data using 31 SSA countries from period 1970-2000. The research used many panel data techniques in form of panel cointegration tests, panel error correction models and panel unit root test. The aim of the research was to assess the relationship between FDI and GDP growth in SSA. Research founding indicated that there is no significant influence of FDI towards economic growth in SSA.

Adam (2009b) also carried out a study on the significance of FDI on stimulating economic growth. Research aimed to examine the significance of increment FDI to the overall contribution of GDP growth. Findings proved that FDI increases to a country does not indicate the exact change that is associated with the inflows to the growth of an economy. It reduces competitiveness of domestic firms as they will be trading their produces at low prices than the actual that they were supposed to receive, this causes collapse of local firms. Foreign producer tends to exploit domestic produces a cause reduction locally. Also Asiedu (2002) used cross-sectional data for 71 developing countries over the period 1988-1997. She used the ordinary least squares (OLS) estimation to assess the determinants of FDI inflows to developing countries, including SSA. The results showed no significant relationship between FDI inflows and the growth of the economy in SSA.

# **2.4 Summary**

The chapter presented significant theoretical and empirical literature. Data presentation and analysis will be the major dominance of the next chapter as it indicates obtainment of data and methods to test the validity associated in it.

# **CHAPTER 111**

# **RESEARCH METHODOLOGY**

# **Introduction**

The chapter unfolds an overview of the research methodology and the research design. It covers the research design, data collection procedures, model specification, variable justification and estimation techniques and the chapter summary. The implementation of the linear regression model is being employed to assess the effect of FDI, and other variables on overall performance of the economy.

# **Research design**

The study applied a quantitative descriptive type of research design. An e-views 10 economic statistical package was employed in order to regress the data. It covered the period from 2000 stretching up to 2022.

1. **Theoretical model**

This theoretical framework dwells on established literature that assesses the effect of FDI on economic growth. The neoclassical theory was employed to develop theoretical framework which incorporates concepts that FDI inflows can promote economic growth. This theory is commonly used to analyse performance of the economy of many countries for long run determination. It emphasizes on the significance of technological progress, increased capital accumulation and the allocation of recourses as drivers of economic growth and development. Use of the Cobb-Douglas production function is mostly used to analyse the relationship between FDI and economic growth. It assumes this allows for easy understanding of how FDI contributes to economic growth.

…………………………………………………………………. eq (3.2)

Where:

Y represents output

K represents capital

L represents labour

A is the total factor productivity

and are the parameters that reflect the elasticity of output concerning capital and labour inputs.

Time series regression model

Where:

= Economic Growth

Foreign Direct Investment

Trade

Unemployment

Inflation rate

Government Expenditure

Error term

# **Model specification**

The major aim of the model is to examine the significance of FDI and other macroeconomic factors towards the attainment of economic growth in the country. This model shows economic growth (dependent variable). Implementation of the multiple linear regression model was employed to explore the research objectives. This model shows economic growth as the dependent variable of a function of FDI, trade, inflation, inflation, unemployment and government expenditure as independent factors (independent variables) as a function of FDI, trade, government expenditure, inflation, and unemployment as independent variable.

The mode specification is as follows

Where:

= Gross Domestic Product per capita growth,

Foreign Direct Investment net inflows,

Trade,

Unemployment rate,

Inflation rate,

General government final consumption expenditure,

Error term

Natural logarithms were introduced to stabilise variance, linearize relationships and facilitating the interpretation of percentage changes in the dependant variable. The natural logarithms equation is as follows:

This study is based on null hypothesis that FDI poses a positive effect on economic growth and development. The magnitude of , which is the coefficient of FDI will indicate the direction of the effect on economic growth, neither positive nor negative. The magnitude of all other 𝛽s shall signifies the effect of each variable on GDP growth in Zimbabwe.

# **Justification of variables**

From the above, economic growth (GDP) denotes dependent variable whilst foreign direct investment, trade, inflation, employment and government expenditure are the independent variables.

# **3.5.1 Gross Domestic Product**

This is the predictor variable on the empirical analysis. It is a vital measure that provides information about size and performance in an economy. The variable signifies the total market value in which all goods and services produced within a year for a year. Cevis et al (2007) postulated that FDI and GDP have a positive relationship. It shows that increased economic growth contributes to an increase in income. It promotes a large market for the products that are produced. Foreign direct investment inflows are considered to flow to countries with increasing economic growth and leads to enhancement on economic activities which stimulates recipient economy. The research seeks to explore the magnitude at which GDP is affected by FDI in Zimbabwe.

# **3.5.2 Foreign direct investment**

FDI is the core explanatory variable for this research, it is an important variable to consider when examining GDP growth and development in a country. It is an injection of funds or equipment made by a group of people or an individual in one country in business interests in another country. This is mostly through establishing business operations and acquiring assets to obtain interests. Foreign direct investment are the net inflows of investment to acquire a lasting management interest in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows in the reporting economy from foreign investors. According to a study by Gertler and Karadi (2011), FDI inflows can increase investment levels in the recipient country, thus contributing to economic growth. This shows a positive relationship between FDI and economic growth. growing. Globalisation improves performances of economies through trading and ease of obtaining resources from one country to another. Increases in employment will be also as a result of FDI increases which is a driver toward growth. FDI is the major independent variable in the study.

# **3.4.3 Trade**

Trade is the sum of exports and imports of goods and services of a country. It is an important variable to consider when examining the relationship between foreign direct investments and economic growth and development. Excess exports over imports results to a positive balance of trade, trade surplus is beneficial and signifies a strong export performance. Trade have a positive relationship on economic growth of a country which leads to market expansion, increased productivity and enhanced consumer choice, contributing to the overall growth and development of a country.

# **3.4.4 Inflation**

Inflation is an important variable to consider when examining the relationship between foreign direct investments and economic growth and development. It is measured by price change in the economy. Economic stability is affected by the level of inflation within a country. Disturbances of stability arises as inflation escalates to massive volumes. Investors lose confidence in an economy that experiences high fluctuations in terms of inflation and as a results they may decide to shift their investments to a stable economy. Inflation have a negative effect towards economic growth and development in a country. According to Cevis et.al (200), explains that countries with low inflation rates attract more foreign direct investments as compared to those with high inflation. It indicates the magnitude on investment that flows in a country, this means high inflation low investment and low inflation high investment inflows.

# **3.4.5 Unemployment**

Unemployment means that the share of the labour force that is without work but available seeking employment is not employed. It is an important variable to consider when examining the relationship between foreign direct investments and economic growth and development. The link between unemployment and economic growth is characterized by inverse correlation, when unemployment decreases it leads to increase in economic growth.

# **3.4.6 Government expenditure**

Government expenditure includes all government current expenditures for purchases of goods and services which also include compensation of employees. It is an important variable to consider when examining the relationship between foreign direct investments and economic growth and development. The relationship between unemployment and economic growth is not universally positive or negative and varies based on the specific type of expenditure. It is complex and context dependent, different types of government expenditure such as capital expenditures, health, education and military can have varying impacts on economic growth.

# **Data Collection procedures**

Time series data for Zimbabwe from the year 2000 up to the year 2022 was used in this research. The data used in this study was sourced from the World Development Indicators (WDI) and OECD National Accounts, International Labour Organization and International Monetary Fund. These sources are widely recognized as a dependable and comprehensive source of standardised data on social and economic development indicators. The time series dataset facilitates an in-depth analysis of the variables of interest over time and enables a robust foundation for drawing accurate conclusions. The study focused on pertinent variables that directly impact GDP and foreign direct investment (FDI). The variables are trade, unemployment, government expenditure and inflation. These variables were selected based on their observed impact on economic growth and their importance to research objectives.

# **Estimation techniques**

The research applied the Ordinary Least Method (OLS) for exploring out the effect of inflows of FDI with relation to other explanatory variables of GDP. This method is widely acceptable on estimating the relationship between economic variables in order to find the best linear unbiased estimates (BLUE) on a model. Imploration of classical linear regression model holds the OLS method indicates that minimisation of sum of squared differences between observed and predicted variables through the maximisation of the coefficient of determination. It allows to perform some diagnostic tests.

# **Diagnostic checking**

These tests are employed to check the model problems that are mostly associated with the time series data. They are vital before any econometric model fitting for testing the validity of the data available. Diagnostic tests indicate that all estimators of ordinal least squares are will not be inconsistent and biased over time. All variables that follow a normal distribution will be further processed whereas those with values that are not appearing must be removed. If they are missing values, the regression results will be affected. They are need for multiple imputations in order to replace all the missing values with a plausible value.

# **Multicollinearity test**

According to (Xin et al, 2012) in some instances, multicollinearity can cause the regression coefficients to have a sign opposite that of the actual relationship (Xin et al, 2012). This implies that working with data that is highly correlated can cause biased results. All the values that are obtained from correlation matrix values ranges from zero ending up to one. If there is multicollenearity amongst variables, the correlation value ranges above 0.8. In order to correct this problem to avoid misleading information, there is need to increase variables in a model or removal of other variables.

# **Normality test**

It is vital to include the assumption of normality on the data in order to provide unbiased and reliable conclusions. This test is of significance as the non-normality of model will result to misleading or biased results. Non-normality causes biased hypothesis interval estimation; the normality errors are normally distributed when the p-value is greater than 0.05 significance level. If it is below the significant level, we reject the null hypothesis.

# **Heteroscedasticity test**

It is detected by the Breusch-Pegan test. When the constant variance is violated heteroscedasticity occurs. They are consequences that are associated with it, all of them leads to biased estimators of variance and the standard deviation. This will result to a wrong t-statistic.

# **Autocorrelation test**

It is detected by the Durbin Watson test. The problem of autocorelation occurs if the error terms are correlated with each other in a model. This is highly experienced in the time series data were observations follow natural ordering over time. When it is present the variance will no longer efficient, this will eventually result to misleading or wrong results. The hypothesis testing on parameters will result in biased results. The Durbin Watson statistic should be closer to 2 for acceptance.

# **Stability test**

The Ramsey RESET test shows stationarity test inform of stability. It ensures that the statistical properties such as mean and variance remain constant over time to avoid autocorrelation. By confirming the constancy of statistical properties, stability testing supports development of robust and accurate models which are essential for making reliable forecasts and inferences.

# **Goodness of fit**

It is measured by the R-squared statistic. The test explains the variations of the dependent variable in a regression model. A proportion of variation indicates the ability of a model to measure the significance of fit. Regression statistic ranges from zero to one, when close to zero a weak relationship.

# **3.8 Summary**

This chapter provided a description of research design. Mathematical and econometric models were presented using equations. Time series regression model was used with GDP per capita as the dependent variable and FDI, trade, unemployment, inflation and government expenditure as independent variables on the model. This chapter also highlighted the data sources, model specification, variable justification and lastly the estimation techniques to be used. The next chapter will be presentation of the data which leads analysis.

# **CHAPTER IV**

# **DATA PRESENTATION, ANALYSIS AND DISCUSSION**

# **4.0 Introduction**

The chapter consists of data presentation, analysis and interpretation of the data obtained from chapter three. The presentation of data will be in line with the impact of FDI on economic growth. It used E-views 10 statistical package in order to estimate the results and present the outcomes of the study. Presentation of the data will be in tabular form and quantitative in nature. Descriptions will be written below every table. Information obtained through analysis will also be presented in this chapter.

# **Descriptive statistics**

It indicates the mean. Minimum, maximum and standard deviation. These are statistical properties in this data shows minimum values and the maximum values in order to view the presence outliers that occurs in the data.

Table 1 below shows GDP growth is the dependent variable and others are independent variables.

#### **Table 1 Descriptive Statistics for Dependent variable and Independent variables**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **GDPPC** | **FDI** | **TRD** | **INFL** | **UNEMP** | **GOVE** |
| **Mean** | 0.763593 | 1.238113 | 67.87582 | 67.52774 | 5.900174 | 14.93608 |
| **Median** | 1.439615 | 1.168557 | 66.80735 | 3.056905 | 5.412000 | 17.69269 |
| **Maximum** | 21.45206 | 2.441511 | 109.5216 | 604.9459 | 9.540000 | 24.26535 |
| **Minimum** | -17.66895 | 0.056069 | 47.31337 | -2.017679 | 4.390000 | 2.047121 |
| **Std. Dev.** | 9.794859 | 0.747387 | 15.37717 | 142.1304 | 1.466334 | 6.136926 |
| **Skewness** | 0.126453 | -0.045094 | 0.796521 | 2.665374 | 1.438611 | -0.719735 |
| **Kurtosis** | 2.724323 | 1.883205 | 3.365941 | 10.03392 | 3.908207 | 2.421603 |
|  |  |  |  |  |  |  |
| **Jarque-Bera** | 0.134128 | 1.203059 | 2.560375 | 74.64735 | 8.723939 | 2.306343 |
| **Probability** | 0.935136 | 0.547973 | 0.277985 | 0.000000 | 0.012753 | 0.315634 |
|  |  |  |  |  |  |  |
| **Sum** | 17.56265 | 28.47660 | 1561.144 | 1553.138 | 135.7040 | 343.5299 |
| **Sum Sq. Dev.** | 2110.664 | 12.28893 | 5202.061 | 444422.8 | 47.30296 | 828.5610 |
|  |  |  |  |  |  |  |
| **Observations** | 23 | 23 | 23 | 23 | 23 | 23 |

**The above table results of summary statistics result above and below are the explanations of the results**.

The FDIs minimum value on the dataset is 0.056069, with the maximum value is 2.441511. This indicates that the FDI in Zimbabwe for the study period was low this suggests challenges in attracting external capital. This is also shown by the mean of 1.238113 inflows.

The minimum inflation in the country was -2.017679 and maximum of 604.9459. This suggests a significant amount of variability or dispersion in the inflation rates within the dataset. It indicates that individual inflation rate values deviates from the mean. Large difference between the mean and standard deviation suggests that the inflation rate data have a wide range of values with a minimum -2.017679 of and maximum of 604.9459 with some outliers that are pulling the standard deviation upwards. It indicates high volatility and instability of the inflation rates during the period of study.

The minimum trade is 47.31337 and the maximum is 109.5216. This implies that the country was experiencing high trade levels during the study period. This indicates a level of stability and predictability of the trade values.

The minimum unemployment rate is 4.390000 and maximum of 9.540000. This shows stability of unemployment in the country for the study period. This implies low fluctuations of unemployment rate.

The maximum government expenditure is 24.26535 and a minimum of 2.047121. This implies that the rate of expenditure in the was high in the country which shows that in the country the government provides more to the population.

# **4.2 Model diagnostic tests**

**4.2.1 Multicollinearity test`**

**Table 2: Correlation Matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **GDPPC** | **FDI** | **TRD** | **INFL** | **UNEMP** | **GOVE** |
| **GDPPC** | 1.000000 | 0.448469 | -0.144277 | -0.083867 | 0.145937 | 0.288625 |
| **FDI** | 0.448469 | 1.000000 | -0.130819 | -0.097909 | -0.042777 | 0.059812 |
| **TRD** | -0.144277 | -0.130819 | 1.000000 | -0.436971 | -0.459512 | -0.304759 |
| **INFL** | -0.083867 | -0.097909 | -0.436971 | 1.000000 | 0.741426 | -0.322502 |
| **UNEMP** | 0.145937 | -0.042777 | -0.459512 | 0.741426 | 1.000000 | -0.169849 |
| **GOVE** | 0.288625 | 0.059812 | -0.304759 | -0.322502 | -0.169849 | 1.000000 |

The above table, it presents correlation values of all independent variables on a explanatory variable GDP. The table displays all the independent variables values with the highest value 0.741 which is below the rejection value of 0.8. It signifies the absence of correlation amongst the independent variables and dependent variable. Conclusion that can be drawn shows that, in this model there is no multicollinearity.

# **4.2.2 Heteroscedasticity**

**Table 3 Heteroscedasticity Test: Breusch-Pagan-Godfrey**

|  |  |
| --- | --- |
|  | **p-value** |
| **F-statistic** | **0.731949** |

From the table 4.3 above, the f-static is 0.74. The p-value is greater than 5% level of significance. P-value is also greater than 10% level of significance which shows that the p-value is greater than significance level. This shows that there is no heteroscedasticity.

### **Table 4: Estimated Ordinary Least Squares regression results**

**Dependent variable: Economic growth (GDP).**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C | -33.61785 | 21.55444 | -1.559672 | 0.1373 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FDI | 5.791602 | 2.639251 | 2.194411 | 0.0424 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TRD | 0.067278 | 0.169704 | 0.396441 | 0.6967 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| INFL | -0.014392 | 0.022669 | -0.634868 | 0.5340 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UNEMP | 2.797882 | 2.001210 | 1.398095 | 0.1801 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GOVE | 0.475902 | 0.389103 | 1.223075 | 0.2380 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *R-squared* | *0.347652* |
| *Adjusted R-squared* | *0.155785* |

*F-statistic 1.811941*

*Durbin-Watson stat 1.683800*

|  |  |
| --- | --- |
| *Prob (F-statistic)* | *0.164133* |

**Significance of the model**

From the table above, the R-Squared 0.347652. This shows that about 0.35% is being explained by the independent variables. It indicates that FDI has a positive moderate predictive power on explaining the variability. The remaining 0.65% are variations are being explained by the residuals in the model. Adjusted R-Squared is 0.16%. In the model about 0.18% of the variations in GDP were indicated by explanatory variables. All the regression parameters are non-zeros which signifies valid model. This data therefore fits which signifies that the model is reliable.

# **4.2.3 Stability Test. Ramsey RESET test**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 5 : Stability test. Ramsey RESET test** | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Value | df | Probability |  |
| t-statistic | 0.111396 | 16 | 0.9127 |  |
| F-statistic | 0.012409 | (1, 16) | 0.9127 |  |
| Likelihood ratio | 0.017831 | 1 | 0.8938 |  |
|  |  |  |  |  |
|  |  |  |  |  |

The Ramsey RESET test shows stationarity test inform of stability. It shows statistical properties of mean, standard deviation and variance. The table above shows the f-statistic is 0.012409 which is below the significant magnitude of 0.05. The null hypothesis will not be rejected. By confirming the constancy of statistical properties, stability testing supports development of robust and accurate models which are essential for making reliable forecasts and inferences.

# **4.3 Diagnostic test results**

Table shows the model diagnostic test results obtained.

**Table 6: Results of the model diagnostic test**

|  |  |  |
| --- | --- | --- |
|  | **P-value** | **Decision at 5% level** |
| **Autocorrelation** | **1.683800** | **No autocorrelation** |
| **Heteroscedasticity** | **0.731949** | **No heteroscedasticity** |
| **Multicolinearity** | **0.74** | **No multicolinearity** |

1. **Autocorrelation**

The Durbin-Watson statistic is 1.683800 which is near to the acceptance region. From this, there no autocorrelation as the value is near or close to 2. When the statistic is away from 2 whether negative or positive indicates that there is available autocorrelation in the test results. This shows validity of the model entirety.

1. **Heteroscedasticity**

The table, the probability value obtained from the data which was 0.731949. It indicated no heteroscedasticity at 5%. The data can produce reliable results.

1. **Multicolinearity**

This showed correlation in the values of the independent variables and the dependent variable. The threshold of below 0.8 is the region of acceptance on multicollinearity. From above the highest being 0.74 which is less than rejection value. The table the absence of correlation between the independent variables, it indicates that the model is not affected by multicollinearity.

# **4.4 Interpretation of results and analysis**

1. **FDI**

From the regression results above, the probability value is 0.0424. This shows FDI to be statistically significant at the 5% level of significance with a coefficient value of 5.791602. It indicates that FDI had a favourable positive association and growth in the Zimbabwean economy for the period under study. This means that an increase in FDI inflows by 1%, it will lead to increase in economic growth by 5.79%.

1. **Inflation**

Inflation had a negative coefficient of -0.014392, represented in its relationship between GDP and inflation. This implies that a 1% increase in inflation will cause a 0.014392% decrease in GDP. In Zimbabwe inflation rate was high for most of the time of the study. High inflation indicated symptoms of economic mismanagement indicated by budget deficits, industry instability, lack of transparency in policy implementation and other factors of political instability which reduces economic growth rate.

1. **Trade**

The trade the coefficient of the variable is 0.067278 value, shows that there is a positive relationship between economic growth. This implies that a 1% increase in trade leads to 0.07% increase on economic growth. Trade increased economic growth by expanding markets, enhancing efficiency and productivity and promotion of innovation in Zimbabwe.

1. **Government expenditure**

The government expenditure variable has a coefficient value of 0.475902, it indicates a positive relationship between economic growth and government expenditure. Therefore, an increase in government expenditure by 1% will causes a 0.48% increase on economic growth in Zimbabwe. It increased GDP through multiplier effect, public investment, counter cyclical policies and supporting of public sector employment.

1. **Unemployment**

The unemployment has a coefficient value of 2.797882 which signifies that there is a positive relationship between economic growth and unemployment during the time under review. Therefore, this indicates that a 1% increase in unemployment causes an increase in economic growth by 2.80%. This was due to substitution of people for machines in the country for example in the banking sector introduction of ATM machines led to reduction in labour required in the sector.

# **4.5 Summary**

This chapter showed the presentation of data of the data that was gathered which act as a base for the analysis of the data. Interpretation of the research findings were also presented. After this chapter, conclusions of the study and recommendations in line with results from this chapter.

# **CHAPTER V**

# **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

# **5.0 Introduction**

The chapter the summarizes of the research, conclusions that were developed and recommendations formulated. This shall be on the basis of results obtained. It lastly presents the suggestions for any other future research on this research area.

# **5.2 Summary**

Regression analysis was employed to explore the relationship between FDI and GDP, trade, inflation, unemployment and government expenditure. It was for the period 2000 to 2022 using secondary data through regressing it with the ordinary least square (OLS) and analysing the findings. The E-views 10 economic statistical package was used and analysis of findings was developed. The results were presented in chapter four using tables, quantitative descriptive and written descriptions.

The research indicated that FDI has a positive relationship on GDP, this implies that FDI inflows into Zimbabwe cause economic growth in forms of capital accumulation, technology transfer and market development. It indicates the significance of FDI as a stimulator of economic growth. Inflation has impacted negatively on GDP in Zimbabwe. Increase in inflation reduces purchasing power of consumers leading to erosion of real income, uncertainty and adverse effects on investment and financial markets. This affect the relationship between FDI and GDP negatively. Government expenditure indicated a positive impact on GDP, it suggests that government spending increases economic growth through multiplier effects, increased productivity and overall well-being of people. Unemployment has a positive relationship on GDP, this may be as a result of high mechanisation in the country in which people are being substituted for machines. Trade has a positive relationship on GDP, this suggests that Zimbabwe imports more than exporting which shows that business environment in the country was not favourable for investors and affect the relationship negatively in Zimbabwe.

# **5.3 Conclusion**

Research results showed that FDI has a positive moderate predictive power effect on GDP. Variability in economic growth and development in Zimbabwe can be explained by the variation in FDI inflows. This shows that FDI has a discernible but not overwhelmingly strong impact on economic growth and development in Zimbabwe.

Inflation has affected FDI inflows as shown by the study. It was an influential factor beyond FDI that immensely boost growth of the economy and development in the country. Some major factors that affected economic growth and development include domestic policies, political stability, global economic conditions, infrastructure development and human capital.

# **5.4 Recommendations**

On the basis of the finding against objectives that were set, FDI inflows are drivers of economic growth and development in Zimbabwe and other strategic ways that can contribute to increase GDP in the country.

* **Inflation reduction measures:** inflation rates should be controlled as they the reduce purchasing power and erode value of money which affect investor confidence. The policymakers should implement policies that combat inflation which will boost investor confidence and attract more FDI inflows. Policymakers could implement monetary policy adjustments and fiscal policy changes which targets interventions to address inflationary pressures
* **Address corruption and improve business climate:** the government should continue to implement anti-corruption measures, this will lead to more efficiency and effective allocation of resources which will stimulate economic growth and development in Zimbabwe.
* **Collaboration with international organisations:** government should collaborate with international organisation and leverage expertise can help in implementing new innovative methods in production and resource allocation. This will create employment which leads to increment in economic growth and development.
* **Sector diversification and investment opportunities:** thepolicymakers should increase sources of investment and finance through enabling the private sector to expansion, creation of productive jobs, increase exports through subsidising companies that export and adoption of new technologies.
* **Promote Investment-Friendly Policies:** Policymakers should design and implement policies which attract foreign investment in the country. It can be achieved through streamlining bureaucratic procedures, protecting property rights and provision of incentives for investors.

# **. 5.5 Suggestions for Future Studies**

The research results may produce significant information towards crafting economic and investment policies, they are some factors which can be put into consideration. In Zimbabwe, development of meaningful linkage policies between Gross Domestic Product and other economic growth of behavioral variables like trade openness, corruption index, political stability and external debt needs to be addressed.

Basing on the research topic, the suggestions are:

* Data collection measures should be improved for future studies; this can produce results for further policy developments.
* Other estimation methods with error correction should in order to reconcile errors and behavior of an economic variable in both short and long run. It can be done through comparisons of these results with the findings in the future.
* The research period should be relatively longer in future in order to identify the linkage amongst GDP and the surrounding determinants.
* There is need for immense analysis of the effect of FDI in various sectors of the economy for example in the mining, agricultural, health, banking and other sectors.

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# **APPNDIXES**

## **APPENDIX 1: Descriptive Statistics**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  | GDPPC | FDI | TRD | INFL | UNEMP | GOVE |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Mean | 0.763593 | 1.238113 | 67.87582 | 67.52774 | 5.900174 | 14.93608 |
| Median | 1.439615 | 1.168557 | 66.80735 | 3.056905 | 5.412000 | 17.69269 |
| Maximum | 21.45206 | 2.441511 | 109.5216 | 604.9459 | 9.540000 | 24.26535 |
| Minimum | -17.66895 | 0.056069 | 47.31337 | -2.017679 | 4.390000 | 2.047121 |
| Std. Dev. | 9.794859 | 0.747387 | 15.37717 | 142.1304 | 1.466334 | 6.136926 |
| Skewness | 0.126453 | -0.045094 | 0.796521 | 2.665374 | 1.438611 | -0.719735 |
| Kurtosis | 2.724323 | 1.883205 | 3.365941 | 10.03392 | 3.908207 | 2.421603 |
|  |  |  |  |  |  |  |
| Jarque-Bera | 0.134128 | 1.203059 | 2.560375 | 74.64735 | 8.723939 | 2.306343 |
| Probability | 0.935136 | 0.547973 | 0.277985 | 0.000000 | 0.012753 | 0.315634 |
|  |  |  |  |  |  |  |
| Sum | 17.56265 | 28.47660 | 1561.144 | 1553.138 | 135.7040 | 343.5299 |
| Sum Sq. Dev. | 2110.664 | 12.28893 | 5202.061 | 444422.8 | 47.30296 | 828.5610 |
|  |  |  |  |  |  |  |
| Observations | 23 | 23 | 23 | 23 | 23 | 23 |

## **APPENDIX 2: Estimated Ordinary Least Squares.**

**Dependent variable: Economic growth (GDP).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -33.61785 | 21.55444 | -1.559672 | 0.1373 |
| FDI | 5.791602 | 2.639251 | 2.194411 | 0.0424 |
| TRD | 0.067278 | 0.169704 | 0.396441 | 0.6967 |
| INFL | -0.014392 | 0.022669 | -0.634868 | 0.5340 |
| UNEMP | 2.797882 | 2.001210 | 1.398095 | 0.1801 |
| GOVE | 0.475902 | 0.389103 | 1.223075 | 0.2380 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.347652 | Mean dependent var | | 0.763593 |
| Adjusted R-squared | 0.155785 | S.D. dependent var | | 9.794859 |
| S.E. of regression | 8.999633 | Akaike info criterion | | 7.451703 |
| Sum squared resid | 1376.888 | Schwarz criterion | | 7.747919 |
| Log likelihood | -79.69458 | Hannan-Quinn criter. | | 7.526200 |
| F-statistic | 1.811941 | Durbin-Watson stat | | 1.683800 |
| Prob(F-statistic) | 0.164133 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

## **APPENDIX 3: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| F-statistic | 0.731949 | Prob. F(5,17) | | 0.6094 |  |  |
| Obs\*R-squared | 4.074306 | Prob. Chi-Square(5) | | 0.5388 |  |  |
| Scaled explained SS | 3.367947 | Prob. Chi-Square(5) | | 0.6435 |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## **APPENDIX 4: Correlation matrix**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | GDPPC | FDI | TRD | INFL | UNEMP | GOVE |
| GDPPC | 1.000000 | 0.448469 | -0.144277 | -0.083867 | 0.145937 | 0.288625 |
| FDI | 0.448469 | 1.000000 | -0.130819 | -0.097909 | -0.042777 | 0.059812 |
| TRD | -0.144277 | -0.130819 | 1.000000 | -0.436971 | -0.459512 | -0.304759 |
| INFL | -0.083867 | -0.097909 | -0.436971 | 1.000000 | 0.741426 | -0.322502 |
| UNEMP | 0.145937 | -0.042777 | -0.459512 | 0.741426 | 1.000000 | -0.169849 |
| GOVE | 0.288625 | 0.059812 | -0.304759 | -0.322502 | -0.169849 | 1.000000 |

## **APPENDIX 5: Stability diagnostics**

**Ramsey RESET Test**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Value | df | Probability |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| t-statistic | 0.111396 | 16 | 0.9127 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F-statistic | 0.012409 | (1, 16) | 0.9127 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Likelihood ratio | 0.017831 | 1 | 0.8938 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F-test summary: | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Sum of Sq. | df | Mean Squares |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Test SSR | 1.067044 | 1 | 1.067044 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Restricted SSR | 1376.888 | 17 | 80.99339 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Unrestricted SSR | 1375.821 | 16 | 85.98879 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LR test summary: | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Value |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Restricted LogL | -79.69458 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Unrestricted LogL | -79.68567 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## **APPENDIX 6: Turnitin Original Report**

