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Analysing The Determinants Of Poverty In Zimbabwe.

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT OF THE BACHELOR OF SCIENCE HONOURS DEGREE IN STATISTICS AND FINANCIAL MATHEMATICS.
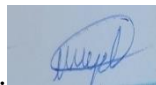
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2024

APPROVAL FORM

 I **MALVERN MAYEBE** declares that, with the acknowledgement of other people's work, this contribution is entirely my own original work. I hereby declare that no degree at this university has used this work, in whole or in part. The work is submitted in partial fulfilment of the requirements of the Bachelors of Science Honors Degree in Statistics and Financial Mathematics.

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DECLARATION

I declare that the aforementioned thesis is entirely original with full citations indicating and attributing to all sources cited or used

Signature: …

Date: …11/06/2024…..

DEDICATION

To my parents, brothers, sisters and my colleagues, whose unwavering support and encouragement made this journey possible.

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I am so grateful to the Almighty for giving me the gift of the Holy Spirit, who now illuminates and leads my way. I also want to express my gratitude to my brother, mother, and father for their unwavering support of my academic endeavours. I want to sincerely thank Mr. KANJODO, my supervisor for his constant advice, support, and knowledge. This dissertation could not have been finished without his unwavering support and commitment throughout the entire endeavour. I also want to express my gratitude to Bindura University of Science Education's Department of Mathematics for giving me access to priceless academic resources. To all of my colleagues, I would want to express my gratitude for your constant support and the great experiences we had together throughout this program.

ABSTRACT

The aim of this study was to analyse the aspects that contribute to poverty in Zimbabwe. In order to answer the research topic and achieve its goals, the researcher employed secondary data from the World Bank website. The explanatory factors include GDP, inflation, unemployment, and literacy levels; the outcome is poverty, which was quantified using the poverty datum line. With the overall goals of analysing the major determinants and risk factors causing high rates of poverty in Zimbabwe and investigating the connections and interdependencies among the identified determinants of poverty, this article expands Zimbabwe's poverty profiles into a model of poverty determinants. Throughout the procedure, the researcher employed logistic regression modelling to examine the association between the binary variable of poverty and its determinants. The model did not show the statistically significant drivers, but it is still unclear what precise investigation and approach will reveal additional information regarding Zimbabwean poverty. The results also demonstrate the relationship between literacy rates and unemployment rates. In Zimbabwe, unemployment, low household income, and the household head's low educational attainment are the major causes of poverty. To increase the robustness of the findings, the potential endogeneity of literacy levels was taken into account. This article makes several recommendations, including stepping up family planning initiatives, helping the underprivileged learn, redistributing land, and enacting investment-friendly laws to create jobs.

LIST OF ABBREVIATIONS AND ACRONYMS

OLS   Ordinary Least Square

DOGEV   Double-Hurdle Ordered Generalized Extreme Value

UN   United Nations

GDP   Gross Domestic Product

WDI   World Development Indicators

UNDP   United Nations Development Programme

US   United States

ZIMSTAT   Zimbabwe National Statistics Agency

ILO   International Labor Organization

BUSE   Bindura University of Science Education

PDR   People Democratic Republic

ARDL   Autoregressive Distributed Lag

MZF   Myeloid Zinc Finger

HICES   Household Income, Consumption and Expenditure Survey

WMS   Welfare Monitoring Survey

INF   Inflation

UMP   Unemployment

LTR   Literacy

BLS   Bureau of Labor Statistics

UNESCO   United Nations Educational, Scientific and Cultural Organization

VIF   Variance Inflation Factor

LR   Likelihood Ratio

RBZ   Reserve Bank of Zimbabwe

NGOs   Non-Governmental Organizations

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CHAPTER ONE

1   INTRODUCTION

1.1   BACKGROUND OF THE STUDY

Poverty is a widespread issue that affects people on an individual, family, and community level and has major socioeconomic repercussions. Zimbabwe, like many other developing nations, struggles to fight poverty. According to Chindoko (2011), poverty is a state of deprivation characterized by a shortage of necessities like food. A 2013 UN report defines poverty as not just not having enough money but also not having access to essential services including proper sanitation, clean drinking water, healthcare, and education. A great deal of attention is needed to combat poverty, which has become a major global concern.

The goal of the World Bank is to eradicate poverty. Tracking the development agenda's progress toward the Sustainable Development Goals and identifying areas that call for further policy actions depend on the monitoring of global poverty. According to estimates, 736 million people worldwide lived below the 2011 purchasing power parity international poverty threshold of one dollar ninety cents in 2015. Compared to 1990, there were one billion seven hundred thousand million fewer individuals.one billion one hundred thousand million individuals have raised their standard of life and fled poverty in the last 25 years. However, despite recent improvements, there are still far too many people living in poverty worldwide.

With barely $1.90 per day, one billion nine hundred million people, or a quarter of the world's population, were living in thrilling poverty in 1990. Nine of the 10 countries with the highest rates of poverty had low-income economies, and 90% of all destitute people lived in low-income countries, according to the World Bank. Of them, almost 50% were in East Asia and 28% were in South Asia. China and India dominated the global poverty picture, with 760 million people (65% of the population) and 406 million people (46% of the population), respectively, living on less than $1.90 a day. The top 10 countries by number of people living in poverty also included Indonesia, Pakistan, Bangladesh, Myanmar, and Vietnam. Because of the strong catch-up growth in developing countries, especially in Asia, the world's poverty rate has dropped significantly during the last 30 years. 729 million people, or ten percent of the population, were living below the $1.90 per day poverty line in 2015. The Millennium Development Goal of halving poverty

was greatly surpassed by this number. During the peak of the global poverty reduction initiative in 2012 and 2013, 130 million fewer people lived in poverty globally.

 Some parts of the world have heartbreakingly high rates of poverty. Despite a sharp decline in poverty at the beginning of the century, it has been rising since 2015, and by the end of this decade, no appreciable reduction is anticipated. Over the years, poverty has been steadily rising throughout Africa due to the continent's rapid population growth and slow economic development. By 2030, it's not anticipated that poverty in Africa, which has risen by 11% as a result of the pandemic, will have decreased. December 2020 saw China declare the eradication of extreme poverty. India's success is a more recent story. Due to strong economic growth in 2019, the number of people living in poverty fell to 77 million, or 6% of the total population. However, poverty in India will rise temporarily as a result of COVID-19 before declining sharply again. By 2030, it is anticipated that less than 5 million individuals in India will be surviving on less than $1.90 per day, having nearly abolished extreme poverty. Asian countries that are unlikely to succeed in eliminating extreme poverty by 2030 are Papua New Guinea, Afghanistan, and North Korea.

1.1.1   Global Poverty Trends

The most popular method of measuring poverty is via financial indicators like GDP or consumption per individual or family. The Millennium Development Goals' promise to end complete poverty by reducing the number of people who survive on less than $1.25 per day is the most well-known example of an income-focused plan to tackle poverty. This statistic indicates a dramatic drop over the past 20 years in the degree and intensity of very high poverty in developing countries. From a peak of one billion nine hundred million in 1981 to a low of one billion four hundred million in 2005, the number of people living on less than $1.25 cents per day has dramatically declined. There has been a notable decrease in extreme income poverty in absolute terms. Chen and Ravallion (2008) report that during this period, the percentage of people living in extremely high poverty fell from 52.0% to 25.7%.

The total number of individuals surviving in very high poverty levels has decreased despite the world's population continuing to rise, regardless of whether the daily income criterion for poverty is fixed at $1.25 or increased to $2 or $2.50. The world economy has been growing at the same time as this has happened, and both developed and developing nations' per capita incomes have increased as a result (Sachs, 2008; United Nations, 2005a). During the 1960s, the GDP of low-income nations has increased at a regular annual rate of 4.1%, while the GDPs of middle-class and high-income countries have grown at average annual rates of 4.2% and 3.2%, respectively (Soubbotina, 2004).

By 2015, most of the region's countries were expected to have cut their rates of poverty in half, according to World Bank predictions from 2005. This was mostly explained by the fact that, in 1990—the base year used to gauge nations' progress toward achieving the Millennium Development Goals—poverty levels had been extremely low. Despite weak economic performance over the past 20 years, the Middle East and Northern Africa area has achieved to lower the occurrence of poverty as well as the total number of individuals surviving in every high poverty levels. This region has the lowest rate of poverty among developing nations. The percentage decreased from 7.9% in 1981 to 3.6% in 2005. The quantity of impoverished individuals has decreased from thirteen million seven hundred thousand to eleven million in absolute terms. (Economic Commission for Latin America and the Caribbean, 2005).

In most of Africa, 65–70% of people reside in rural areas, despite the continent's rapid urbanization (Canning, Raja, and Yazbeck 2015). Even though rural poverty is higher than urban poverty, the gap between the two has narrowed (from 35% points in 1996 to 28% points in 2012 when updated information for all countries are taken into account). Only half as much poverty was seen in Western African cities as in the other four geographic zones. In Western and Southern Africa, the poverty rate among rural communities fell by almost forty percent. Growing rates of poverty contrast sharply with the abundance of natural resources and youthful labour force that characterize many African nations. The increasing demand for mining, forestry, and agricultural products both locally and globally has not produced a strong foundation for long-term poverty reduction. The revenues of Africa's natural wealth are all too frequently unequally distributed and/or invested in projects that generate little additional employment for the rising numbers of unemployed and underemployed people, despite improving conditions for sustained

economic growth and a durable improvement in living standards (World Bank, 2016). While there are some nations, like Botswana, where national wealth is managed fairly effectively and these instances inspire hope and optimism for the future, in other nations violent conflicts, corruption, and elite capture impede efforts to reduce mass poverty, (WDI).

1.1.2 **Poverty Trends in Africa**.
 This section uses GDP per capita to map and compare trends in poverty in Africa. It provides a comparison of Sub-Saharan Africa with other global regions as well as a showcase of several country cases illustrating the diversity seen in the area.

 The comparison of the various regions demonstrates the global development of Sub-Saharan Africa. Five nations were chosen for our analysis: Tanzania, Mozambique, Nigeria, Zimbabwe, and Morocco. These nations provide a good representation of the range of growth paths. Morocco's economy began to flourish in the middle of the 1980s and has since grown rather well. Zimbabwe's economy expanded during the 1970s and 1980s, but the political and economic unrest of the 1990s and 2000s caused it to deteriorate and stagnate. After 2008, Zimbabwe improved, but it's unclear how much the regime manipulated the growth rates—many African income statistics are acknowledged to have flaws in their credibility. Up until the 1990s, Mozambique was deeply embroiled in a protracted civil war. Although the country has made some progress toward peace since 2000, the country's rapid population increase has somewhat offset GDP growth. Although GDP growth in Tanzania has been more remarkable than in Mozambique, population growth in both countries has remained strong, resulting in a substantial disparity in per capita growth over the previous ten years (2005-2015).

 Although many African nations have experienced significant economic growth as a result of the commodities boom from the mid-1990s, this growth has not yet been sufficient to considerably lower the number of impoverished countries. The top 15 most impoverished African economies in 2016 are depicted in Figure 1.1. Burundi, the Central African Republic, Malawi, and Niger are at the bottom, with GDP per capita less than $400.

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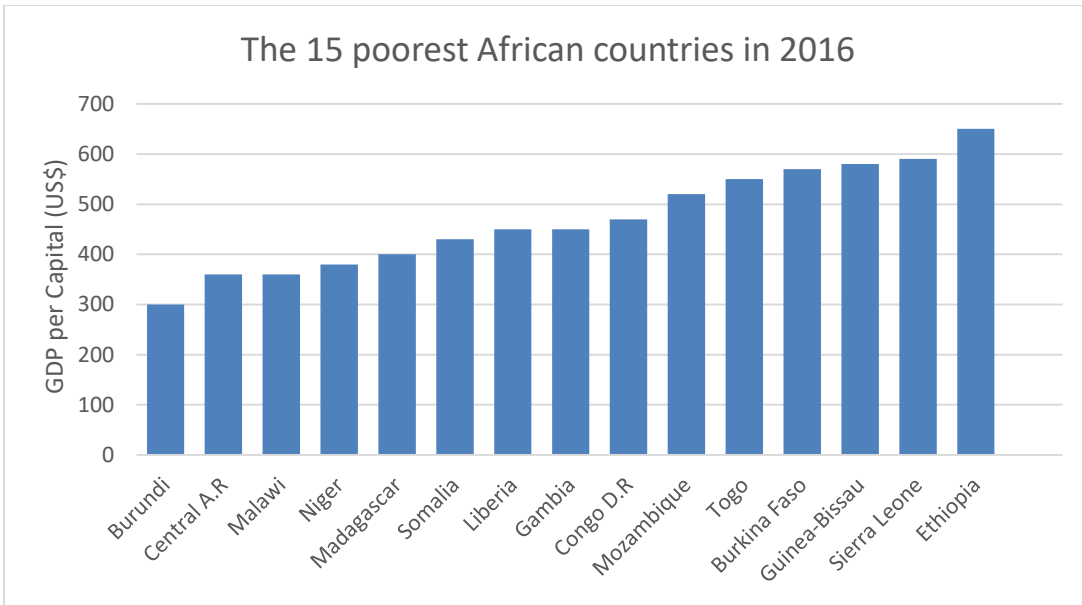
Figure 1.1: The 15 poorest African counties in 2016 (WDI, 2016)

1.1.3 Background of Zimbabwe.

Zimbabwe lies in Southern Africa, between the Zambezi and Limpopo rivers, and is completely encircled by land. The country is bounded to the east by Mozambique, to the southwest by Botswana, to the northwest by Zambia, and to the south by South Africa. The country is made up of 151 871 square kilometres (Ayad 2et al., 1997). It is located between the Cancer and Capricorn Tropics. Zimbabwe is well known for its breathtaking landscapes and diverse array of wildlife, much of which comes from parks, reserves, and safari areas. The Victoria Falls plummets 106 meters into the little Batoka Gorge on the Zambezi River, offering white-water rafting and bungee jumping to its guests. It was estimated that 165 million people called Zimbabwe home in 2017. Zimbabwe has been going through a social, political, and economic catastrophe for the past fifteen years. In 2004, eighty percent of Zimbabweans lived in poverty. As of January 2009, just 7% of people were working in the formal economy, according to the World Bank (2009). Based on World Bank data, 1.35 million more people live in poverty in Zimbabwe than in 2014, making it one of the poorest countries in Africa. The number of unemployed people in the nation has increased as well, approaching 11.7 million. A high unemployment rate is one of the main features that distinguishes poverty. Because there aren't

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enough opportunities in the economy to meet the needs of the work force, poverty rates are rising.

1.1.4   Main Causes of Poverty in Zimbabwe.

Bad governance: The administration of a nation's public and commercial resources for improvement is a function of civil societies, networks, and markets, not just the government. Countries with crooked officials, shoddy state institutions, and an absence of the rule of law are typically those with the highest rates of poverty.

Degradation of the environment: This can have an important effect on poverty levels and people's quality of life. The likelihood of poverty increases if resources are exhausted as a result of deforestation, natural disasters, and climate change. Lack of food, water, building materials, and other necessary resources can be caused by environmental issues. The impoverished will not only continue to be impoverished in the absence of these goods, but their risk of dying young will also rise (Teal, 2011).

Discrimination, racism and prejudice: Together, these make up one of the main causes of poverty. People who are treated unfairly due to their skin colour and religion are a global issue, as evidenced even in the United States. People who have experienced discrimination frequently do not enjoy the same chances and privileges as other citizens of the nation.

Lack of work opportunities: The main cause of poverty globally is the high rate of unemployment (Teal, 2011).

Numerous theories have been proposed to explain the causes of poverty. Theoretical literature posits that poverty can be caused by a variety of factors, such as cultural beliefs, personal flaws, economic, social, and political misrepresentations, geographical variations, and cyclical and cumulative mutuality (Bradshaw, 2007). According to individual scarcity theories, the underprivileged are the cause of their own poverty since they are not productive enough (Bradshaw, 2007).

1.1.5   Poverty Trends in Zimbabwe.

Poverty in Zimbabwe is defined as not just not having enough money but also not having access to basic amenities including clean drinking water, good sanitation, healthcare, and education (UN Report 2013). High structural unemployment and economic instability are the primary drivers of

poverty in Zimbabwe. These factors have led to high capital prices, interest rates, cash shortages, hyperinflation, and the loss of savings as a result of the dollarization and abandoning of the Zimbabwean dollar.

With 72.3% of the people surviving below the poverty line and 62.6% of households being categorized as poor in 2011, a sizeable number of Zimbabweans were deemed impoverished. Approximately 76% of rural households and 38.2% of urban households, respectively, were affected by poverty in 2015, according to studies conducted by the United Nations. After the economy began to recover, the proportion of rural households experiencing food insecurity fell from 15 percent in 2010 and 2011 to 12 percent in 2011 and 2012 (United Nations, 2015).

 According to a World Food Programme (WFP) summary, 72% of Zimbabweans made less than US$1.25 per day, placing them below the national poverty threshold. Furthermore, about thirty percent of the impoverished in rural areas were classified as "food poor" or "extremely poor." In the (UNDP, 2013), Zimbabwe was graded 156th out of 187 nations, making it a low-income and food-insecure nation. Many people in rural areas failed to satisfy their daily food needs, according to a WFP report (Zhangazha, 2014).

 Zimbabwe's poverty is represented in low levels of educational attainment, poor health, high death rates, restricted economic prospects, and insufficient access to capital, according to a 2000 World Bank study. According to ZIMSTATS (2011), the poverty gap shows the population as a percentage of the poverty line. Zimbabwe has made efforts to reduce poverty, but the country has not yet reached the targeted level. As a result, new strategies, tactics, and approaches are needed to address the country's chronically high poverty rates. Understanding the causes, patterns, and degrees of poverty as well as the efforts being made to reduce it is essential. This understanding serves as a fundamental basis for this research, as it plays a vital role in guiding our actions towards achieving the goal of reducing poverty in Zimbabwe.

1.2   STATEMENT OF PROBLEM

Over the years, Zimbabwe has faced recurrent economic crises, political unrest, and insufficient access to basic amenities. The nation's high rates of poverty and income inequality are partly attributable to these issues. It is essential to recognize and examine the unique factors that contribute to poverty in Zimbabwe in order to create long-term solutions for its alleviation. This study aims to identify the underlying causes of poverty, investigate the connections between these

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variables, and suggest specific treatments to reduce poverty. Because of its extreme inequality, Zimbabwe has some of the maximum poverty levels in the world. Zimbabwe's 2019 Gini coefficient, according to the World Bank, was 0.52. This means that the income inequality in Zimbabwe is relatively high as compare to other counties like United States, the Gini coefficient for United States was 0.41 in 2019. The unemployment rate in Zimbabwe was estimated to be 14.9% in 2020(International Labour Organization).

1.3 RESEARCH OBJECTIVES

To come up with a clear statistical analysis and model of poverty alleviation.

The following are the precise goals of this study:

1. To find the key determinants and risk factors contributing to high poverty rates in Zimbabwe, that is (Unemployment rates, inflation rates, GDP, literate rates)
2. To explore the interconnectedness and interdependencies among these determinants.
3. To provide evidence-based recommendation for comprehensive poverty reduction strategies in Zimbabwe.

1.4 RESEARCH QUESTIONS

To solve the major problem, several sub-problems needed to be investigated and answered.

1. Does poverty alleviation depend on any of the factors (unemployment rates, inflation rates, GDP and levels of education)
2. What is the nature and extent of interconnectedness and interdependencies among the identified determinants of poverty?
3. What evidence-based recommendations can be made to reduce poverty and improve the living standards of the Zimbabwean population?

1.5 SIGNIFICANCE OF STUDY

According to Malaba (2013), various poverty profiles have been developed in Zimbabwe to classify the poor based on factors such as education level, consumption levels, employment status, and household size. While these profiles are valuable in summarizing poverty information and offering insights into potential determinants of poverty, their explanatory power is limited due to their bivariate nature (Datt and Jolliffe, 1999). To provide policy makers and donors with

direction on expanding outreach and combating poverty, there is a need for a more comprehensive understanding.

The University's (BUSE) research will build on its current body of knowledge and lay the groundwork for more in-depth investigation into the subject in the future. Additionally, it might draw interest from the industry under study, enhancing the institution's reputation as a hub of academic achievement. Statistical agencies may also use the research findings to, if needed, align their practices and protocols with the study's recommendations.

Furthermore, the government, particularly the Ministry of Finance, can benefit from the research by developing enhanced policies for poverty alleviation. Improved policies would enable the wider population to access.

1.6   SCOPE OF THE STUDY/ DELIMITATION

With a major focus on Zimbabwe, the study attempts to investigate if the rates of inflation, GDP, unemployment, and literacy have an effect on the poverty rate. Data from the World Bank Data Information will be used in the inquiry. The data used for the research will cover a precise six-year period, from 2017 to 2022.

1.7   LIMITATIONS OF THE STUDY

The investigator faced many obstacles throughout the study that hindered them from achieving the intended degree of conclusiveness. Because of the following constraints, readers are urged to use caution when reading this document:

Time restraint: In order to complete the study, the researcher had to work long hours both during the day and at night due to time constraints.

Access to necessary information is not perfect: Due to the sensitive nature of some of the material, the researcher encountered access issues that made it difficult to gather the information needed for the study. The researcher strives to make the most of the information and resources at hand despite these constraints.

1.8   ASSUMPTIONS OF THE STUDY.

The researcher will work under the following presumptions to guarantee the validity of this study's progression:

Accuracy and impartiality of data sources: It is assumed that all sources of information utilized in this study will provide accurate and unbiased data, free from any form of prejudice.

Representative nature of the selected sample: The researcher assumes that the selected sample will adequately and fairly represent the opinions and perspectives of the World Bank Data information that is, reflecting the broader population accurately.

1.9   SUMMARY

The preceding chapter has provided insights into the key focus of the study, which involves analyzing the factors that causes poverty in Zimbabwe and examining potential interconnectedness and interdependencies among these factors. However, the upcoming chapter will delve into a critical analysis of the foundational concepts related to the research topic. This analysis will draw on literature from diverse sources to enhance the understanding of the subject matter.

CHARPTER TWO

2 LITERATURE REVIEW

2.1 INTRODUCTION

An overview of the most recent research on the causes of poverty is provided in this chapter. The following studies, theoretical frameworks, and empirical data are critically examined in order to lay the groundwork for the investigation, pinpoint research gaps, and highlight the significance of the findings.

2.2 THEORETICAL LITERATURE

The causes of poverty can be broadly categorized as follows, despite their diversity: individual factors, structural factors, cultural aspects, political issues, social factors, geographical factors, cyclical interdependencies, economic considerations, and so forth. Despite the fact that there are numerous theories to explain poverty, Bradshaw's (2006) claim is used in this research to categorize them all. These include ideas of personal inadequacies, theories of cultural belief systems that sustain poverty subcultures, theories of geographic interdependencies, and theories of economic, political, and social distortions or prejudice.

2.2.1 The theory of individual deficiencies

This definition of poverty holds that every individual is responsible for their own financial situation. Human capital, welfare involvement, and personal attitude are a few of the individual factors that either generate or exacerbate poverty, according to Gans (1995) and Sameti et al. (2012). Bradshaw, (2006) argues that those living in poverty are to fault for their own problems, which they could have avoided or managed with more diligence and better judgment. He continued by saying that poverty results from a lack of inherited attributes like intelligence that are hard to repair.

This worldview is based on American values and the idea that everyone should have equal access to opportunities through the free market. As per Rank (2004), cited by Sameti et al. (2012), the individualist viewpoint highlights an individual's effort and accountability to fulfil basic needs including sustenance, housing, and healthcare. The philosophy, which is based on American ideals and ideas, also highlights that poverty is a personal failing brought on by a lack

of drive and that success can be attained via skill, ethics, and hard work. Critics of the individual theory of poverty point out that once the idea of inherited intelligence surfaced in the nineteenth century, the eugenics movement legitimized poverty and even went so far as to carry out the sterilization of people who appeared to have limited capacities (Bradshaw, 2006). Second, people who are impoverished bear the mark of Cain and must suffer for their moral crimes, according to Rainwater (1970) and Bradshaw (2006).

2.2.2 The Theory of Cultural Belief System that Supports Sub-Cultures of Poverty

This theory emphases on the idea that a set of socially generated yet privately held attitudes, values, and abilities are passed down through generations and either cause or contribute to poverty (Bradshaw, 2006). Bradshaw (2006) goes on to say that while people are victims of their dysfunctional society or subculture, they are ultimately to blame. It should be mentioned that the "Culture of Poverty" is the source of this theory. Frameworks for understanding how poverty is generated and sustained in particular neighbourhoods or among certain populations are provided by the notions of social isolation or exclusion and culture of poverty. The impact of a person's living environment, which tends to shape prosperity or poverty, is related to cultural and environmental influences. Lewis (1966) developed the notion of the culture of poverty, which is predicated on the idea that the rich and the poor adhere to distinct sets of standards regarding conduct, attitudes, and beliefs. According to this idea, those who are impoverished acquire particular psychological traits linked to poverty. Lewis (1966) believed that people in poverty do not learn to work hard in school, make plans for the future, engage in protected sex, or manage their money

The criticism of this idea is that it blames the impoverished for their circumstances rather than the social factors that contribute to poverty. According to Rank (2004), politicians frequently employ the blame-the-victim philosophy, which places more emphasis on the character flaws of the impoverished than on the underlying causes of their situation. Accordingly, Rank (2004) and Darling (2002) contend that people with greater levels of human capital are more likely to be competitive in the labour market than people with lower levels.

It is widely known that the impoverished have distinct subcultures that may be harmful, which is why the theory of poverty based on the preservation of cultural norms is questioned once more.

Instead, what needs to be addressed are the causes and elements of the subculture of poverty (Bradshaw, 2006).

The following arguments are also used to challenge the idea, according to Davis and Sanchez-Martinez (2014):

Interpretations of shared attitudes and behaviours among impoverished populations are biased. This is perhaps the main criticism levelled at this viewpoint, and it is based on the claim that many of the standards typically employed to identify the poverty culture are developed in terms of middle-class, western ideals. unstructured, person-centred research approach. The impact of institutions, values, and beliefs on individuals is rarely, if ever, explored or noted in empirical research.

Impreciseness: Generally speaking, the lines separating the sub culturally impoverished from the general impoverished are not clearly defined, much less quantifiable.

2.2.3   The Theory of Economic, Political, and Social Distortions or Discrimination.

According to Abdulai and Shirmshiry (2014), the structural theorist, poverty results from the wider socioeconomic order's structure. Advocates of this theory contend that people's limited possibilities and resources for achieving income and well-being are caused by economic, political, and social systems (Bradshaw, 2006). The belief that poverty is a result of broader economic and social processes is shared by Samati et al. (2012). They contend that capitalism fosters poverty and that the nature of particular economies, such as the US economy, guarantees that millions of people live in poverty despite the efforts of individuals (hard work, skills, and competences). Put another way, a growing body of research indicates that the economic system is set up so that the impoverished, irrespective of their level of competence, fall behind (Bradshaw, 2006). According to Davis and Sanchez-Martinez (2014), the theory further contends that poverty results from unequal beginning endowments of talents, skills, and capital that define an individual's productivity within a market-based competitive economic system.

The neoclassical labour-market theory makes the assumption that there is a comparatively free and open market where people can compete for jobs, with the success of such jobs depending on an individual's skill, effort, and education. Neoclassical labour-market theorists contend that

rewards are commensurate with an individual's contributions to society, as stated by Grusky (2001) and referenced by Sameti et al. (2012). Furthermore, they contended that a person's education, experience, knowledge, and talent are all extremely important factors in determining productivity in a free-market society and that an individual will benefit more from a free-market system if they offer more. The dual labour-market theory has critiqued the neoclassical labour-market theory. The free market does not operate flawlessly as suggested by neoclassical theorists, according to the dual labour-market theorists. The proponents of dual-market theory noted that individual standing and income levels in a competitive society are typically determined by other considerations. They make the point that policies aimed at reducing poverty and inequality frequently fall short in terms of education and training. Moreover, there is a contention that prejudice towards minorities in the workforce hinders the efficient functioning of the free market. The claim made by proponents of dual market theory is that a high degree of worker alienation implies that the free-market model is ineffective.

Furthermore, a variety of demographic characteristics, including age, gender, race, and work-related disabilities, as well as family size and composition, residence, and size, can either increase or decrease the chance of poverty. In general, the rates of poverty are higher among women, families, households with a large number of children, and single-parent households (Rank, 2004).

2.2.4 The Theory of Geographical Disparities

Geographical disparities are the cause of this poverty. Attempts to analyse poverty in terms of regional disparities gave rise to the geography of poverty (Abdulai and Shamshiry, 2014). According to Bradshaw (2006), this cause of poverty is indicative of poverty that doesn't stem from other theories, such poverty in the Third World, the South, urban disinvestment, ghetto poverty, or rural poor. This theory of poverty highlights the fact that certain institutions, people, and groups of people lack the power to demand redistribution as well as the objective resources required to create prosperity and well-being.

According to Abdulai and Shamshiry (2014), employing spatial disparities in poverty analysis requires that poverty be concentrated in specific areas, towns, and localities both within and between countries and regions of the world. Some ideas proposed to explain the reasons of

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poverty include disinvestment, density, accessibility to natural resources, diffusion of innovation, and others. The conventional belief has long maintained that wealthy neighbourhoods will continue to grow more quickly than impoverished ones, even during periods of general economic development. Solutions to poverty connected to regional differences addressed the root causes of decline in depressed areas (Abdulai and Shamshiry, 2014).

Abdulai and Shamshiry, (2014) contend that a cluster of impoverished conditions contributes to a generalized state of poverty. It is believed that in order to attract businesses and corporations from other regions, some places will unavoidably become poorer. For example, low housing costs in these impoverished neighbourhoods could attract more homeless people, which would discourage building owners from making housing investments. Bradshaw (2006) asserts that although poverty is concentrated in some areas more than others, the development literature is replete with explanations for why some regions lack the economic resources required to compete. He enumerated several causes of the variations in poverty, such as disinvestment, density, proximity to natural resources, and dissemination of innovation.

The amount of farmland a household owned had a negative correlation with its likelihood of being impoverished in the Dembel district of Ethiopia, according to research by Shibru et al. (2013). Kassie et al. (2014) found a positive relationship between an asset like farm size ownership and the well-being of Mozambican rural households. Land has been found to be associated with lower levels of poverty (Bersisa & Heshmati, 2016). Therefore, it is expected that the welfare of rural households will be positively impacted by households possessing more land.

2.2.5 The Theory of Cumulative and Cyclical Interdependencies

This theory of poverty is also known as the Cyclical Theory of Poverty, according to Abdulai and Samshiry (2014). This type of poverty arises when unexpected events, such as natural disasters, leave people or households unable to pay for their basic needs. According to the cyclical explanation, individual circumstances and community resources are inextricably linked. For instance, a failing economy leaves people without the means to engage in the economy, which makes it even more difficult for the community to survive economically because fewer people are paying taxes (Bradshaw, 2006). He goes on to say that insufficient employment

results in insufficient income, which in turn causes insufficient savings, spending, and consumption. This assumes that people are unable to develop their own enterprises, invest in training, or start their own firms. This further implies that there won't be any market growth, that people will stop investing, and that there won't be any chances for the community.

The second stage of the cycle focuses on health-related issues. Lack of funds for a clean home, a balanced diet, and preventive treatment will also contribute to health issues. These are a handful of the reasons behind the impoverisher's downfall. Furthermore, the cycle of poverty suggests that those with poor incomes neglect to invest in their children's education, causing them to attend inadequate schools and fall even further behind when it comes time for them to enter the labour. They are also vulnerable to illness and inadequate medical care.

The third stage of the poverty cycle is brought on by a lack of income and employment, which also results in declining motivation, depression, and low self-esteem. People's psychological issues are made worse by the people they associate with, creating a culture of hopelessness. Leaders in rural areas are also impacted by this culture of hopelessness, which makes them feel pessimistic and fatalistic (Bradshaw, 2006).

2.2.6 Poverty Cycles

Seccombe (2004) conducted an analysis of the various theories for the persistence of poverty. The writer discovered that the descriptions for poverty's presence in academic literature have evolved throughout time, shifting from a primarily individualistic perspective (personal attributes explain poverty) to a primarily structural one (social and economic policies determine poverty). Poverty is a result of systemic failures including corruption, local and foreign violence, and prejudice, not of motivation, family history, drug or alcohol misuse, or personality. From the body of research on poverty, Hulme et al. (2001) determined four components and their particular traits that they thought to be the primary drivers of poverty.

Table 2.1 Causes of poverty (Secombe, 2004)

FACTOR	CHARACTARISTIC
Economic	Absence of skills
	Economic shocks
	Terms of trade
	Little productivity
Social	Discrimination
	Health issues
	Inequality
	Lack of trust
Political	Bad governance
	Violence
	Insecurity
Environmental	Low quality natural resource
	Natural disasters
	Remoteness

Source: Soccombe (2004).

These scholarly results run counter to society's perceptions. Early studies on society's beliefs about the reasons behind poverty demonstrated that, contrary to what academic scholars suggested, this pattern did not alter with time. Feagin (1975) was among the first to demonstrate how society views poverty as the root of personal failure. The division of society into high- and low-income groups, according to Kluegel and Smith (1986), results in disparities in how society views poverty. Individual explanations seem to be preferred by those with higher incomes, whereas structural explanations are preferred by those with lower incomes. Furthermore, Hunt (1996) discovers evidence indicating that different ethnic groups hold different beliefs regarding poverty. The authors discover evidence that while white people have a negative attitude toward social welfare programs, Blacks and Latinos believe that both individual and institutional causes are significant. According to Seccombe (2004), the individual explanation remains more prevalent in modern

culture, suggesting that societal perceptions of poverty have not changed along with scholarly literature's perceptions throughout the years. These traits demonstrate the existence of a poverty cycle, which makes it very challenging for the impoverished to break free from their circumstances and raise their standard of living. The worst-case situation is that this results in ongoing poverty. In this instance, the poverty cycle prevents those living in poverty from changing their circumstances, which means they inevitably pass this on to future generations (Hulme and Sheperd, 2003).

2.2.7 Measuring Poverty

The World Development Report (2000, 2001) states that the following metrics can be used to quantify the many aspects of poverty:

2.2.8 Measuring Material Deprivation

This method takes a household's income and consumption levels into account. The national poverty datum line, a crucial threshold for income or consumption below which a person is deemed impoverished, is used to measure these. In this sense, the causes of poverty can be assessed based on how well they assist households in transitioning from a permanent state of being "below the poverty line" to one of being "above the poverty line."

2.2.9 Measuring Vulnerability

Vulnerability can also be used to measure poverty. The context of vulnerability looks at how people's susceptibility to poverty is established and sustained on two levels: one level is the individual's circumstances and situation, and the other level is the wider institutions and processes that restrict their options. Although people have the potential to make decisions that deplete resources and cause instability in their life, the vulnerability context acknowledges that powerful external systems and forces collaborate to maintain a protracted cycle of poverty. To fully eliminate poverty in a sustainable manner, intermediaries must be developed to handle its multidimensional nature. Vulnerability is a dynamic concept that is measured according to a number of factors, including fluctuations in income or consumption, the existence of other dimensions of well-being such as physical assets, human capital, and social capital, and the frequency of non-income risks such as natural disasters (World Bank 2000).

2.2.10 Measuring Empowerment

Empowerment, according to Misra (2003), is the ability for the people to rule themselves. According to the quotation, women who are empowered develop their independence and strength and become more equipped to make life decisions for themselves. This strengthens their control over resources, deters disobedience, and defines their place in society. According to the World Bank (2002), empowerment is the procedure of giving impoverished people more resources and capacities to engage with, influence, control, and hold accountable organizations that have an impact on their life.

The social, cultural, and political context of a given community may have an impact on the metrics used to measure empowerment. One indicator of economic empowerment is an individual's ability to demand sufficient resources, which is influenced by their level of economic dependency. Participating in family and group decision-making is a crucial sign of social empowerment. Political empowerment is measured by the ability to participate in national politics.

2.3   EMPIRICAL LITERATURE

In general, both a macro and a micro analysis can be used to study the literature on the causes of poverty. According to Collier and Gunning (1999: 83) and Christiaensen, Demery, and Paternostro (2003), information at the microeconomic level is hidden when poverty drivers at the household level are mostly left out of the aggregate study. Ravallion (2001) also highlighted the significance of using a microeconomic approach when examining the variables that determine poverty when economic growth is present. In order to assess poverty changes across nations, he employed household survey data from a sample of 50 countries and 120 indicators. He also advocates for further micro and country-specific studies on the factors that contribute to poverty in an expanding economy.

Recent research indicates that the primary micro-level factors that determine poverty are typically household size, education level, composition and size of the household, assets owned by the household, sector of employment, number of income earners in the household, sex and ethnicity of the household head, and rural versus urban location, among other factors. Geda et al. (2005) examined Kenyan poverty factors using household level data, starting with education level. Using polychotomous and binomial logit models, they discovered that, among other things, poor

educational attainment is closely linked to poverty status. This outcome is consistent with that of Anderson et al. (2005), who investigated the factors influencing poverty in the Lao PDR using multiple regressions. The likelihood of existing in poverty was also found to be increased by access to education by Apata et al. (2010), who used a probit model to study the factors influencing rural poverty in Nigeria, focusing on 500 smallholder farmers. It was also discovered that farmers' exposure to workshops and seminars provided evidence supporting the critical role that education plays in reducing poverty. Research on the factors influencing poverty in Sri Lanka's estate sector, including those by Rodriguez (2011), Mexican, Eirini and Panos (2011), and Sinnathurai and Brezinova (2011), corroborated this finding. Moreover, Ibrahim and Umar (2007) discovered a correlation between the number of adult male and female members of the home who are literate and the occurrence of poverty. But according to Tshediso (2012), who employed a logistic regression approach, education level had no bearing on the causes of poverty in South African families led by women. This outcome runs counter to what another research has found.

Apata et al. (2010) provide evidence that access to micro-credit and the market, along with ownership of livestock assets, significantly contribute to the decrease of poverty with regard to asset ownership status and access to social and economic services as predictors of poverty. Their research also shown the detrimental effects of prejudice against women's property rights on poverty. A similar conclusion was previously found by Anderson et al. (2005). When measuring poverty in terms of per capita consumption in the Lao PDR, they discovered that one of the key factors influencing poverty is access to agricultural inputs. They also came to the conclusion that minority households had higher rates of poverty not because of lower resource usage efficiency but rather because of limited access to productive resources. The earlier empirical evidence that poverty in Sri Lanka's real estate industry is considerably and negatively impacted by access to markets and infrastructure is supported by more recent findings by Sinnathurai and Brezinova (2011). Remarkably, Adeyemi et al. (2009) determined that lack of access to health care services is not a significant factor in determining poverty in their evaluation of the determinants of poverty in Sub-Saharan Africa.

 In their 2014 study, Huma and Imran examined the factors that contribute to poverty in Pakistan and demonstrated the influence of macroeconomic variables on poverty. They employed two model specifications, five variables, and the ordinary least squares methodology in their study

article. His research has disproved the notion that unemployment and government spending on the budget deficit contribute to poverty in Pakistan. Having demonstrated that there is a positive correlation between unemployment and poverty and a negative correlation between government spending and the budget deficit and poverty, he then looked at the impact of inflation and exchange rates on poverty in his second model. There is a positive correlation between poverty and both the inflation rate and the exchange rate. He described the relationship of these variable are statistically significant and proved the theoretical perception.

Foreign direct investment's impact on the reduction of poverty is discovered by Mahmood and Chaudhry (2012). The time series data were gathered by him between 1973 and 2003. Short- and long-term interactions are obtained by the use of the ARDL and Error Correlation models. According to the study, the variables are highly significant and have a detrimental impact on poverty. The impact of various macroeconomic policies on poverty in Nigeria between 1990 and 2002 is discussed by Egbe and Clement (2011) in their thesis, The Influence of Macroeconomic Policies and Programs on Poverty Problem. Rather than highlighting the steps the government has done to lessen the effects of poverty, they highlighted the reasons why poverty exists in the state. They used regression equation models to assess the data, explain the policies and initiatives, and demonstrate that macroeconomic factors had little bearing on the state's rapidly rising rates of poverty.

 The study "The Effect of Socio Economic and Demographic Variables on Poverty" is conducted by Hassan, Chaudhry, and Malik (2009). The effect of socioeconomic and demographic factors on poverty was examined in a case study. They employed a poverty profile and primary data, and their analysis employed an econometric technique to reach their findings. They demonstrated how the occurrence of poverty is influenced by a household's landholding, size, number of animals, and landholdings. They recommend that land be allocated to landless households and that socioeconomic considerations be encouraged. Pindiriri (2015) states that research on the factors contributing to poverty in Zimbabwe is ongoing. Using the myeloid zinc finger (MZF) dataset, a two stage least squares approach was used. According to the report, the main causes of poverty in Zimbabwe include large households, low educational attainment of the household head, low household income, and household location. The report suggested stepping up family planning

initiatives, helping the underprivileged learn, enacting investment-friendly laws to generate jobs, and implementing land transfer plans that specifically targeted the impoverished.

A study of Tanzania's agricultural growth, poverty, and nutrition was carried out (Pauw and Thurlow, 2011). Through the application of a micro simulation model and a regionalized, recursive dynamic computable general equilibrium, they discovered that poverty and nutrition results in Tanzania do not seem to have been greatly enhanced by economic expansion. The findings point to certain discrepancies in Tanzania's recent growth and measures of poverty. The study also discovered that the rate of poverty reduction may have been limited by the pattern of economic expansion. Concentrating on crops cultivated in certain regions of the nation, large-scale farmers have been the main drivers of agricultural expansion in the country, as they are less likely to be impoverished. There is a limited correlation between agricultural growth and nutrition results, which can be explained by the slow increase of food crops and cattle. Accelerating agricultural growth, especially in maize, increases households' access to calories and reinforces the association between growth and poverty. It also significantly contributes to growth itself, according to the findings.

A quantile regression model is used in research for Rwanda (Habyarimana et al. 2015) and Hong Kong (Peng et al. 2019) to analyse poverty. The authors concentrated on three distinct quantiles for the Rwandan case: the bottom 40% representing the impoverished population, the middle class representing the next 40%, and the top 20% representing the non-poor. For the Hong Kong investigation, however, an income to poverty line ratio (I/P ratio) was used. This ratio makes it possible to analyse the independent variable characteristics in relation to the degree of poverty. The research on Rwanda has yielded significant findings, two of which are that urbanization and education are the two most important factors in reducing poverty. The primary factors that determine poverty in Hong Kong, according to the authors, are the head of the household's age, marital status, and educational attainment. (Heshmati et al. 2019) used household monthly per capita consumption as the dependent variable and the age, marital status, occupation, and education of the household head as potential predictors of poverty in addition to other sociodemographic variables. One discovery was the inverse U-shaped relationship between consumption levels and the age of the household head. From the lowest quantiles to the highest quantiles, these effects increase in strength as the severity of poverty reduces.

Almost every nation in the world has had a number of studies done on poverty. Micro level data from the Eritrean Household Income and Expenditure survey 1996–1997 are used in the study by Eyob F. and Mark H. (2004) to investigate the factors that contribute to poverty in Eritrea. By controlling for geographical differences, the poverty index was employed as the dependent variable and a variety of explanatory factors, including schooling, remittances, community involvement, schooling, and access to social services, were utilized to estimate the DOGEV model. For modelling the factors of poverty across poverty categories, it was demonstrated that the DOGEV is a compelling model from the class of discrete choice models. The research shows proof of the enslavement of impoverished Eritrean households. Demand factors, including occupation and hours worked, or certain behavioural and social issues, could account for these captivities. As seen by the results, there are pockets of poverty within the educated population subgroup and education has varying effects on wellbeing across poverty categories. Each poverty category experiences a different impact from household size. The likelihood of being poor and age were shown to have a convex relationship, which defies evidence presented in the literature. Poverty and regional unemployment were found to be strongly correlated. Access to sewage and sanitary services, home ownership, and remittances were found to have a strong negative correlation with poverty. The research also reveals a strong association between poverty orderings and captivity in the poverty category, which makes the use of normal multinomial/ordered logit in poverty analysis less justified.

According to the literature review, the variables were used in a prior study that adhered to Filmer and Prichett's (2001) methodology. In order to better understand health consequences or pinpoint target populations for programs aimed at reducing poverty, a study was done on creating indices of living standards in rural Bangladesh (Snaebjorn, G. Alain, BL. et al. 2010). Principal component analysis of data on household assets and building materials was used to create the indices (Filmer and Pritchett, 2001). After being put to the test, it was discovered that their use and resilience were internally consistent and connected with infant mortality, nutritional and demographic variables, and the health of mothers and their babies. Indices constructed from nine or ten factors related to household assets performed well; adding more variables didn't add much, while using fewer variables caused issues. The most enlightening resources from this South Asian rural milieu are ranked in order. Over the six-year study period, there was a continuous and significant improvement in living conditions. It was determined that basic household socioeconomic data

gathered in the field could be utilized to create trustworthy and practical living standards indices in rural South Asian communities. These indices can help with the evaluation of the capabilities, quality of life, and health of households and their members.

Examining changes in US Census Bureau poverty statistics from 2019 to 2021, (Chang et al.,2021) and associates evaluated the effects of employment loss during the pandemic. Their instrument was a two-stage least squares model with instrumental variables that compared changes in local rates of poverty and unemployment. Even when individual demographic variables were taken into account, poverty increased far more in the communities experiencing the highest decreases in employment. Applying a rigorous instrumental variables method, this study successfully separated the significant impact of job availability on financial well-being. To analyze the relationship between poverty and the cost of education, Gicheva and Thompson combined national individual-level data on household incomes, student loan balances, and repayment status. They corrected for potential confounds and regressed debt and default indicators against a binary poverty outcome using an ordinary least squares methodology. Increased debt levels were highly associated with increased likelihood of being below the poverty line, indicating one way in which educational obstacles exacerbate economic disadvantage.

Using data from the 1996 National Consumer Survey, Anyanwu (2010) investigated the factors that contribute to gendered poverty in Nigeria. According to empirical data from the female-headed household model, the probability of poverty decreases with the age and educational attainment of the head of the household. Positive odds of poverty are associated with living in rural locations, the Midwest, employment in the manufacturing sector, household size, and age square. Ijaiya et al. (2011) investigated how economic expansion affects Nigeria's efforts to reduce poverty. Evidence from the multiple regression analysis shows that while changes in growth have a positive and substantial impact on poverty reduction, changes in the beginning level of growth have a negative and non-significant effect. The study ends by suggesting that in order to achieve long-term growth and the decrease of poverty in the nation, sustainable macroeconomic policies, increased infrastructure investment, and excellent governance would be highly beneficial.

2.4 RESEARCH GAP

Zimbabwe, a country known for its rich cultural diversity and history, has long struggled with poverty. Even with its abundance of natural resources and agricultural potential, a sizable section of the populace nonetheless faces poverty. It is essential to comprehend the factors that contribute to poverty in Zimbabwe in order to properly address this problem. Although a number of characteristics of poverty in the nation have been studied by previous study, there is still a significant knowledge gap about the complex and dynamic processes that contribute to poverty's persistence. By investigating the complex factors that contribute to poverty in Zimbabwe, this study seeks to close this disparity.

The lack of focus on the differences in poverty between rural and urban areas is one major gap in the literature currently under publication. Zimbabwe is a dualistic country with a large rural population that depends primarily on agriculture for a living. Conversely, the metropolitan regions serve as centres of infrastructure and economic activity. Nevertheless, current research frequently overlooks the unique difficulties encountered by rural populations in favour of focusing an excessive amount of attention on urban poverty. Developing a focused and successful plan to reduce poverty requires an understanding of the particular elements that contribute to poverty in rural areas.

Studies on poverty frequently focus on economic issues, but there is a clear lack of attention paid to institutional and governance aspects. Poverty can persist for a long time due to a number of factors, including weak institutional frameworks, political instability, and corruption. Developing policies that address the underlying causes of poverty requires a thorough examination of the ways in which institutions and governance structures either support or undermine efforts to reduce poverty. There is a need for more research in this field because the effects of governance on the dynamics of poverty are typically underappreciated in the literature.

Like many other African nations, Zimbabwe is experiencing negative effects from climate change on agriculture and means of subsistence. Nevertheless, the material that has already been written about poverty in Zimbabwe often ignores how climate change influences poverty. Examining how poverty is mitigated by climate change is essential for creating sustainable poverty reduction measures and adaptation solutions, especially in rural communities that primarily rely on agriculture.

2.5   CONCEPTUAL FRAMWORK

The conceptual framework aims to establish a theoretical basis for studying the determinants of poverty in Zimbabwe. It focuses on the relationship between the poverty level (dependent variable) and unemployment rates, inflation rates, GDP and literate rates as determinants of poverty in Zimbabwe (independent variables). By understanding this relationship, the framework also aims to explore the interconnectedness and interdependencies among these determinants.

2.6   CONCLUSION

This chapter's main goal is to examine diverse writers' perspectives on the factors that contribute to poverty and how to reduce it in different ways. It is a hotly contested topic how economic, social, political, and environmental issues affect efforts to reduce poverty. Although these drivers have generally been successful in reducing poverty, the empirical evidence shows that their effects have fallen short of expectations. However, there have been both beneficial and negative effects of poverty determinants in Zimbabwe and the global society. It is now the responsibility to ascertain from this study whether the factors contributing to poverty in Zimbabwe have a beneficial or bad effect. The research approach is examined in the upcoming chapter.

CHAPTER THREE

3 RESEARCH METHODOLODY

3.1 INTRODUCTION

This section presents the technique employed to analyze the factors that contribute to poverty in Zimbabwe using annual data spanning six observations from 2017 to 2022. Because of this, the goals outlined in the study's first chapter were achieved by the application of the logistic regression model. Since the research methodology are covered in this section, they include the study design, data sources, data collection techniques, data collection strategies, and data analysis processes.

3.2 RESEARCH PHILOSOPHY

According to Solomon R. C. & Higgins K. M. (2017), research philosophy is a wide and complex area of study that examines essential questions concerning knowledge, existence, values, reason, and the nature of reality. It encompasses critical and systematic inquiry into various aspects of human experience, providing a framework for understanding the world and our place in it. Understanding the determinants of poverty is essential for designing effective poverty alleviation strategies in Zimbabwe. This research philosophy outlines the underlying principles and philosophical framework guiding the investigation into the factors influencing poverty in the country. By adopting a comprehensive and multidimensional approach, this study aims to contribute to the existing knowledge on poverty determinants and inform evidence-based policymaking.

3.2.1 Interpretivism

A philosophy that is applied in this research is interpretivism. The study's components were interpreted, incorporating human interest into the research process through interpretivism. In the realm of management research, interpretivism is sometimes referred to as social constructionist. In order to comprehend the perspectives of a huge population, Kasi (2009) contends that researchers employ small samples in this method and carefully assess them. Saunders et al. (2007) stated that the researcher's goal was to comprehend "social actors'" meanings and interpretations as well as their perspectives on the world. This research philosophy's main contribution to the study was making it easier to comprehend how and why the issue was being studied. Moreover, it

permits the investigator to understand the social processes. In this case, interpretivism made it possible to see how Zimbabwe's GDP, unemployment, inflation, and literacy rates may all be used as instruments to reduce poverty. Nonetheless, the main disadvantages of this philosophy are interrelated to the approach's partiality and ample chance for researcher unfairness.

3.2.2 Positivism

When analyzing facts to support the idea that there is only one objective reality, positivism was employed. In a positivist study, a hypothesis is first formulated and then evidence is gathered to evaluate the theory. Furthermore, positivism is objective, value-free, relies on measurable statistics, and requires that is the reality supported by empirical evidence, according to Mugenda & Mugenda (2003). The philosophical approach known as positivism maintains that any claim that can be supported by reason can be proved by science, logic, or mathematics, which is why the researcher found it to be significant. It was utilized by the researcher in order to generate true findings and knowledge that could be validated and confirmed.

 The research had a distinct theoretical focus from the beginning thanks to the application of positivism. It was also a cost-effective way to gather a lot of data. Positivism increased the researcher's ability to maintain command of the study procedure. But it lacked the capacity to comprehend social dynamics and failed to identify the interpretations that people make of social phenomena.

3.3 RESEARCH DESIGN

Kumar (2019) defines research design as the setting up of parameters for data collection and analysis with the goal of balancing procedural economy and relevance to the study goal. It entails choosing the study's general design, as well as the kind of research, the ways to gather data, and the procedures for analysing the findings. To effectively address their study objectives, researchers use a methodical approach to data collection and analysis, which is guided by the research design.

3.3.1 Research instrument and analysis software

According Creswell, J. (2014), a research instrument refer is a tool, device, or procedure that is employed to gather statistics or data for the purpose of conducting research. It can include a wide range of items such as surveys, questionnaires, interview protocols, observation checklists, physiological measurement devices, and experimental apparatus. These instruments are designed

and utilized to gather empirical evidence and facilitate the investigation of research questions or hypotheses. In this study, the researcher used a laptop and a notebook where he was writing down the information he was getting from the internet through observation. The researcher will use R to analyze the data.

3.3.2 Data Sources

The internet was used by the researcher to access the data from the World Bank. The information used was secondary because it was obtained and assembled by other organizations and was readily prepared for analysis by others (Pannerselvam, 2005). The researcher chose to apply secondary data because it is difficult to get the primary information related to this topic.

Rationale: Secondary data can be easily accessed and provides essential insights into how researchers address problems akin to those for the needed research project.

3.3.3 Data collection procedure

According to Kothari (2004), data collecting is the process of obtaining empirical facts to shed light on a situation, provide answers to research questions, and gain new insights. The World Bank provided the secondary data that will be used in the study. Bernard (2017) states that, the methodical approach that researchers take to gather data is known as the data collecting procedure. It describes the protocols for recording and maintaining data as well as the equipment or tools used, along with the methods and approaches for selecting participants in the information gathering process.

3.4 DATA CLEANING PROCESS

According to Jain and Flynn (2010), data cleaning is the process of improving data quality by identifying and correcting or removing errors and inconsistencies. It involves detecting and resolving issues such as missing values, data entry errors, inconsistencies, and outliers to ensure the accuracy and reliability of the data. Additionally, to make sure that the "garbage in, garbage out" mentality is not applied, the data must be cleaned before use. Both batch processing with scripts or data quality software and interactive data wrangling tools are viable options for data purification. Several Excel techniques were used in this study to clean the data, including filtering, conditional formatting, sorting, and grouping.

3.5   DATA VALIDITY

As stated by Creswell & Creswell (2017), The validity of research findings pertains to their veracity or authenticity. It is the degree to which the information captures what it says it will. Because it establishes the dependability and correctness of the conclusions made from the data, validity is significant. In this Study validity of data will be established through statistical procedures involves calculating the coefficient of correlations between the variables.

3.6   DATA REABILITY

Trochim and Donnelly (2008) define dependability as the degree of stability and consistency in measurements. It describes the extent to which repeated measurements produce reliable findings. Over time or among various raters or observers, a trustworthy measure yields results that are comparable. The researcher utilized reliable and credible data sources which include RBZ and World Bank, that provide accurate information on poverty levels in Zimbabwe. The researcher cross checked and verified the data from multiple sources that is, RBZ and World Bank to ensure consistency and reliability.

3.7   DATA PRESENTATION AND ANALYSIS APPROACH

The objective of data analysis, according to Alexopoulos (2010), is to extract exact information from raw data. (Kojo, 2011) defines data analysis as the act of compiling and arranging data so that it may be easily understood. Data presentation involves displaying statistically evaluated information to facilitate understanding of trends. The deductive and inferential statistics were shown using tables, bar charts, graphs, and a few narrative components. Understanding the conclusions on the causes of poverty in Zimbabwe was made possible by the data analysis procedure. R will be utilized by the researcher for data analysis. The quantitative replies will be presented and analyzed using tables, graphs, bar graphs, and line graphs. The data was first totalled.

3.8 DESCRIPTION OF VARIABLES

Table 3.1: Variables to be used in the study and their respective symbol.

Candidate Variable	Symbol	Proxy
Inflation rate	**INF**	GDP Deflator
Unemployment rate	**UMP**	Number of people not economically active as a percentage (%) of the total population economically active.
Literacy rate	**LTR**	Number of people who can read or write as a percentage (%) of the entire population.
Gross Domestic Product	**GDP**	Total output produced in the economy

3.8.1 Inflation rate

Mankiw, N. G. (2014) defines inflation rate as the proportion change in the average level of prices for commodities within an economy over a given time period, usually a year. It is a crucial economic indicator that is used to calculate how quickly a currency loses purchasing power over time. A country's government policies, corporate investment decisions, and consumer purchasing power are just a few of the areas in which inflation can have a major impact.

Justification

The purchasing power of people and households is diminished by high rates of inflation, especially for those with fixed or low incomes. People's ability to pay for needs like food, shelter, healthcare, and education declines when prices rise quickly. This may cause Zimbabwe's living standards to drop and the country's poverty rate to rise. Poverty can be made worse by high inflation rates, which can also increase unemployment and economic inequality. In the face of sharp price rises,

businesses might find it difficult to maintain employment levels and make compensation adjustments. This may lead to a decline in earnings, the loss of jobs, and a widening wealth divide.

Furthermore, investment and economic progress may be discouraged by consistently high inflation rates. Future pricing uncertainty has the potential to deter domestic and foreign investment, which would otherwise result in a reduction in productive activity, the creation of jobs, and general economic growth. This might make the nation's poverty even worse. Increased social and political unrest can be a contributing factor to high inflation rates, which may have a negative impact on Zimbabwe's poverty rates. Aside from hurting economic activity and making poverty worse, inflation-induced economic woes can also cause social unrest, protests, and political tensions.

3.8.2   Unemployment rates

The proportion of the labour force that is unemployed and actively searching for work is known as the unemployment rate, according to the U.S. Bureau of Labor Statistics (BLS). This extensively utilized economic metric offers valuable perspectives on the condition of the labour market and the economy at large. The number of jobless people divided by the entire labour force is used to get the unemployment rate, which is then multiplied by 100.

Justification

The ability of people to earn a living and provide for their families is directly impacted by unemployment. When someone is unemployed, their income is lost, which lowers their standard of living and raises their chance of falling into poverty. Access to needs including food, housing, healthcare, and education can also be hampered by unemployment. Without a steady source of income, people could find it difficult to meet their fundamental necessities, which would make Zimbabwe more vulnerable to poverty.

Furthermore, unemployment can affect families and households more broadly, which might worsen poverty. It can imprison households in a cycle of poverty by causing financial stress, strained social relationships, and limited prospects for upward mobility.

3.8.3　Literacy rate

According to UNESCO (2011), the literacy rate is the proportion of people aged 15 and above who can read and write a succinct, basic statement about their daily life with comprehension. It is an essential indicator of a community's level of literacy and academic attainment.

Justification

Employability is directly correlated with literacy. Greater access to formal jobs and other income-generating activities is afforded to those with greater literacy rates. People with higher literacy levels are less likely to live in poverty because they can learn new skills, get information, and participate in the economy. It is a vital force behind economic growth. It promotes the spread of innovation, entrepreneurship, and knowledge, which in turn promotes economic progress and the decrease of poverty. Increased productivity, a more trained labour force, and the growth of varied economic sectors are all facilitated by higher literacy rates, and these factors can help pull people out of poverty on an individual and community level.

Furthermore, literacy makes it possible for people to get and comprehend knowledge in the fields of health, agriculture, and finance. This gives them the ability to use resources wisely, obtain necessary assistance, and make well-informed decisions. Increased literacy rates make people in Zimbabwe less vulnerable to poverty by enhancing their capacity to obtain and use resources.

3.8.4　Gross Domestic Product

According to the International Monetary Fund (IMF), the Gross Domestic Product (GDP) is a widely used economic measure that determines the total value of all final goods and services produced inside a country's borders during a specific time period, generally a year. It provides a measure of an economy's output and economic activity.

Justification

GDP growth is frequently linked to improvements in living standards and general economic development. A higher GDP can contribute to a decrease in poverty by increasing output, income, and employment possibilities (World Bank, 2020). Increased expenditures in the construction of infrastructure, including that related to communication, energy, and transportation, are also generally associated with higher GDP levels. Better infrastructure may lower poverty by increasing

productivity, generating jobs, and promoting economic growth (African Development Bank, 2018).

Furthermore, improvements in human development metrics, such as access to healthcare, education, and basic amenities, can be facilitated by GDP growth. Investments in social programs and infrastructure that assist human development and the reduction of poverty can be made possible by higher GDP levels (United Nations Development Programme, 2020).

3.9   PRETESTING

3.9.1   Descriptive Statistics

The field of statistics that focuses on data arrangement, summary, and demonstration is known as descriptive statistics. It includes a vast range of methods and approaches for deriving significance from data. (Portney, L. G., & M. P. Watkins, 2009). Descriptive statistics are methods used to compile, arrange, and make sense of a data collection; they can be displayed tabularly or graphically, according to Jaggi (2012). Descriptive statistics aid in the rational simplification of vast volumes of data by condensing them into more manageable summaries.

3.9.2   Correlations

One method for figuring out how many variables are related to one another is correlation. (F. J. Gravetter and L. B. Wallnau, 2014). Additionally, it is a statistical metric that expresses how two or more variables are related to one another. It displays the degree to which variations in one variable are correlated with variations in another. The correlation coefficient, which has values ranging from negative to positive, is commonly used to express correlation. Positive values indicate a positive link, while negative values indicate a negative association. The Pearson's coefficient of correlation, Spearmen's Rank Coefficient, and the least squares approach are a few tools for analyzing correlation. A scatter plot will be used in this study to show different facets of the relationship between the variables. A scatter plot, sometimes referred to as a scatter graph or scatter chart, is a graph that shows how two continuous variables are related to one another. It is an effective tool for finding trends, correlations, and patterns in the data. Herschel, John Frederick W. (1833).

3.9.3 Multicollinearity test

The foundation of logistic models is the presumption that independent variables are not multicollinear. High correlation between independent variables frequently results in substantial standard errors for the estimated parameters of those variables. Removing superfluous variables is one way to deal with multicollinearity. Using the correlation matrix, the multicollinearity of the independent variables in this study will be examined. The correlation coefficients for every pair of variables in the dataset are shown in a table. By displaying the magnitude and direction of a linear relationship between variables, it aids in the detection of multicollinearity. If there is multicollinearity and the correlation coefficient is more than seven, the researcher will be concerned. Similarly, there is no reason to worry about multicollinearity if the Variance Inflation Factor (VIF), which is the reciprocal of tolerance, is less than five.

3.9.4 Heteroskedasticity test

Heteroscedasticity occurs when the error terms do not have a constant variance. In logistic models, the variance of the error term is highest when probabilities approach 0.5 and lowest when probabilities approach zero or one. To address concerns regarding the violation of assumptions related to heteroscedasticity in logistic models, the robust option for estimating the standard errors will be used. The maximum likelihood estimation's variance is measured by the Huber-White sandwich estimators. Robust standard errors can adjust for the variance of the error components in the event that the logistic model deviates from the assumptions.

3.9.5 Shapiro-Wilk test

In statistics, the Shapiro-Wilk test is used to determine normality. Martin Wilk and Samuel Sanford Shapiro released it in 1965. The Shapiro-Wilk test determines whether a sample $X_1,...,X_n$ is representative of a normally distributed population by applying the null hypothesis concept. The test statistic is:

$$W = (\sum a_i X_i)^2 / \sum (X_i - X)^2 \quad i = 1, 2, \ldots\ldots, n$$

Where:

X_i (with parentheses enclosure the subscript index i) is the ith order statistic, that is, the ith-smallest number in the sample, X is the sample mean and the constants a_i are given by:

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$$(a_1, a_2, \ldots\ldots\ldots, a_n) = [m^T V^{-1}] / (m^t V^{-1} V^{-1} m)^{1/2}$$

$$\text{and } m = (m_1, m_2, \ldots\ldots\ldots, m_n)^T$$

Where, m_1, m_2, …………, m_n are the expected values of the order statistics of independent and identically distributed random variables sampled from the standard normal distribution, and V is the covariance matrix of those order statistics. The researcher may throwaway the null hypothesis if W is below a determined value.

3.10 POVERTY PREDICTION MODEL

3.10.1 Dependent Variable

There are two possible states for the dependent variable: poor and nonpoor. for the factors that determine poverty. A general multivariate binary logit model with four independent variables is represented by the link functions below:

Logit(P)=β_0 +$\beta_1 X_1$+………$\beta_n X_n$………. Equation (3.1)

Where (Y= 1/$\forall$), otherwise Y=0 given 1−P.

The sign represents the likelihood that the outcome variable or customer in a database classified as a poor given predictor, whereas 1− P is the probability of a customer classified as a nonpoor.

3.10.2 Model Fitting

Variable selection is a step in the model fitting process that determines which variables are important to the model. This procedure is carried out to guarantee that the final model has the least amount of variance and matches the data flawlessly. More predictive power is possessed by a model with less variation than by one with greater variance. The likelihood ratio (LR) test will be used to choose the model variables for the probit model.

The theoretical probit model serves as the basis for the model that will be used in the variable selection procedure. The poverty model, which is the empirical model that has been suggested, is expressed mathematically as:

Logit (Y) = B_0+ $B_1 X_1$+$B_2 X_2$+$B_3 X_3$+$B_4 X_4$ +e_i

where Xi for i = {GDP, Inflation, Unemployment, and Literacy Rates}. The "best" model of fit in binary logistic regression is extremely unlikely to emerge. The researcher will remove significant variables at each model level as the modelling process progresses. The researcher will next create a second model using the significant variables from the first one. If insignificant variables are still present, the process will be repeated until all insignificant variables are removed (i.e., p is greater than0.05), at which point the "best" suitable model will be retained.

where B0 and Bn represent the matching variable Xn's regression coefficient. In logistic regression, we forecast the chance of Y happening given known values of Xi (or X_s) rather than the value of a variable Y from a predictor variable Xi or multiple predictor variables (X_s). The bracketed part of the equation is actually identical to the multiple linear regression equation in that it has a constant B0, a predictor variable X1, and a coefficient associated with that predictor B1, as we can intuitively observe. The equation changes to this when there are multiple predictors:

$$P(Y) = \frac{1}{1 + \exp -(B0 + \cdots \ldots \ldots \ldots + BiXi)}$$

is similar to the equation used when there is single dependent except that the linear combination has been extended to include any number of predictors. Thus, the logistic regression equation with many predictors includes the multiple regression equation, while the one predictor version only included the simple linear regression equation. There is a strong reason why we cannot apply linear regression straight to a case where the outcome variable is categorical, despite the similarities between logistic regression and linear regression. The rationale is that the linearity of the connection between variables is one of the underlying assumptions of linear regression. As a result, a linear relationship must exist in the observed data for linear regression to be a viable model. This assumption breaks out when the result variable is categorical (Berry, 1993).

Since the logit function spans an open interval between positive and negative infinity, it is unbounded. The link function that connects the probabilities is called logit. The explanatory variables listed in the research model of the first chapter are represented by the n variables in the logit algorithm, which are indicated with. The study model's explanatory variables comprise both continuous and categorical data. Similar beta coefficients are found for independent variables,

which are sometimes referred to as model parameters since they indicate the relative weight of each predictor variable in the logit.

3.10.3 Assumptions of the Logistics Regression

In order to have effective analysis, the model should satisfy the following four assumptions:

Linearity: There should be a linear relationship between the regressor variable and the dependent variable's log-odd

Independence: The independence of variables is the fundamental assumption in statistics modelling, including logistics regression. It implies that every data point or observation should stand alone from the rest, that is the value of one observation should not depend on or affect the value of another.

No or little multicollinearity: When there is a significant degree of correlation between several regressor variables in the regression model, this is known as multicollinearity. This may result in estimates of the regression coefficients that are unstable, making it challenging to identify the precise contributions of each predictor to the outcome variable.

Homoscedasticity: The variance of the residual should be constant across all the levels of the regressor variables.

3.11 SUMMARY

Based on the variables listed in the first chapter, the researcher can examine the factors that contribute to poverty in Zimbabwe by using the logistic regression model that is given in this chapter. Additionally included were data sources, analysis tools, and research techniques. For this investigation, a descriptive research approach was also applied. This strategy was chosen, in part, because it sheds light on the research conundrum by revealing the variables under investigation, which provided accurate and helpful data to address the research issues. The upcoming chapter examines the findings' presentation and discussion.

CHAPTER FOUR

4 DATA PRESENTATION AND ANALYSIS

4.1 INTRODUCTION

Chapter four emphases on the extensive analysis of determinants underlying poverty in Zimbabwe which is an intentional exercise to provide substantial evidence and suggest the policy gap for effective poverty alleviation. The chapter constructs a detailed understanding of the major poverty determinants after running the poverty determination test that focuses on the vital features and risk factors that lead to the high poverty rates within the Zimbabwe region. The chapter takes this rigorous approach as it statistically analyses the data and the interpretation to find the web of connections and relationships among different determinants like inflation rates, levels of literacy, unemployment rates, and GDP. Through the use of advanced regression and diagnostics tools the chapter gives more depth to questions about how the different factors of poverty are related to poverty intensity. Next, the factor delivers empirical evidence corroborating the links between these predictors and poverty as well as highlighting the different mechanisms through which they operate so as to better inform the stakeholders and policy makers.

4.2 DESCRIPTIVE STATISTICS

An introductory investigation of the data employed was conducted so as to give a brief description of the basic and features of the variables understudy. The summary of descriptive statistics is illustrated in Table 4.1.

Table 4.1: Descriptive statistics.

	Length	Minimum	Median	Mean	Maximum	Quartile	
	Statistics	Statistics	Statistics	Statistics	Statistics	First	Third
INFLATION	6	3.1	213.1	235.3	604.9	135.2	254.8
LITERACY RATE	6	84.00	86.50	87.09	89.85	86.00	89.03
UNEMPLOYMENT	6	3.950	7.900	7.642	9.500	7.325	9.075
GROSS DOMESTIC PRODUCT	6	17.58	24.60	25.14	34.14	21.59	28.12

The **table 4.1** shows descriptive statistics of the years, inflation rate, employment rate, level of literacy and GDP. The inflation rate ranged from a minimum of 3.1% to a maximum of 604.9%, indicating significant variability over the years. The median inflation rate is 213.1%, suggesting that half of the observed inflation rates are below this value. The mean inflation rate is 235.3%, which is higher than the median, indicating a right-skewed distribution where higher values pull the mean upward. Levels of literacy ranged from 84.00% to 89.85%, with less variability compared to the inflation rate. The median literacy rate is 86.50%, indicating that half of the observed literacy rates are below this value. The mean literacy rate is 87.09%, indicating a slightly right-skewed distribution. The unemployment rate ranged from 3.95% to 9.50%, showing moderate variability over the years. The median unemployment rate is 7.90%, suggesting that half of the observed unemployment rates are below this value. The mean unemployment rate is 7.642%, indicating a relatively stable distribution. GDP in billions ranged from 17.58 to 34.16, showing variability in economic performance over the years. The median GDP is 24.60 billion, indicating that half of the observed GDP values are below this value. The mean GDP is 25.14 billion, suggesting a right-skewed distribution with higher values pulling the mean upward. This summary of statistics provides insights into the central tendency, variability, and range of values for each variable, which can help to inform further analysis and decision-making regarding poverty determinants in Zimbabwe. Now the next section is to check if the data meet all the requirements of fitting the logistic regression model. Soo the researcher started by checking for Outliers.

4.3   PRE-TESTS

4.3.1   Checking for Outliers

Boxplot of Economic Indicators

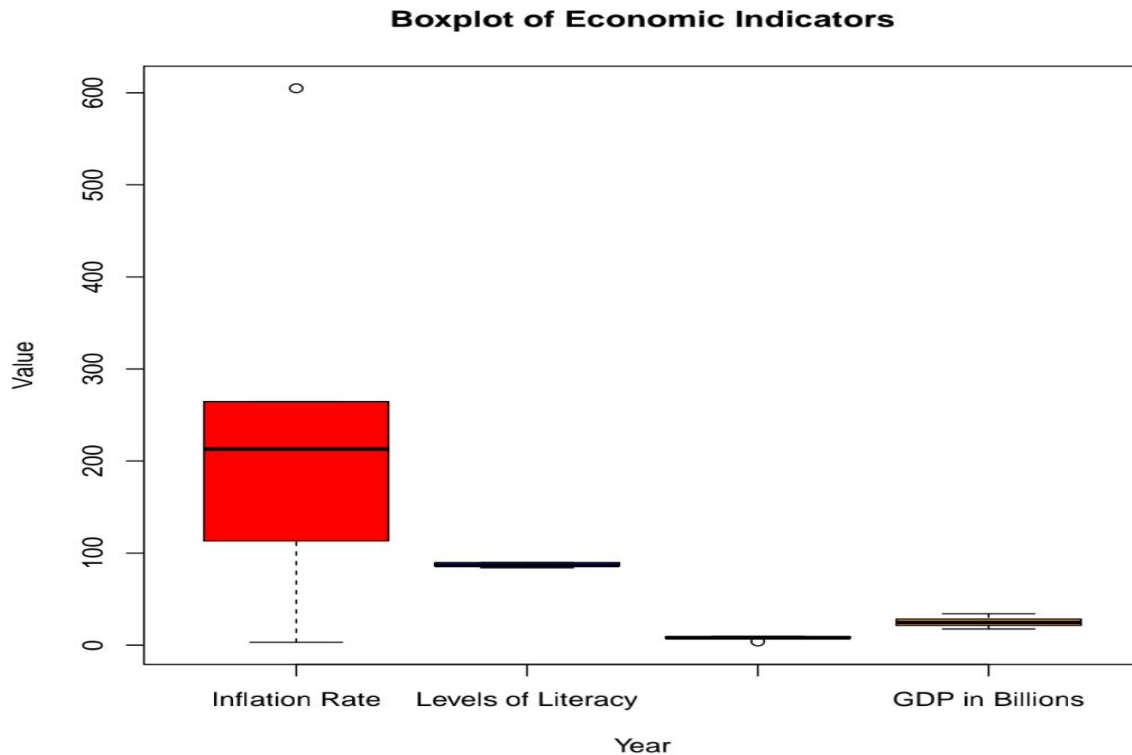**Figure 4.1: Boxplot Visual Analysis**

An outlier was identified on unemployment rate and inflation rate as shown above in figure 4.1.

4.3.2   Tukeys Method checking for Outliers

It is a statistical method for identifying outliers based on the interquartile range (IQR). This method involves calculating the IQR for a variable and then determining any values that fall outside a certain range.

Table 4.2: The Tukeys Method

Variables	IQR (%)
Inflation rate	604.9
Levels of literacy	Numeric (0)
Unemployment rate	3.95
GDP	Numeric (0)

The findings above demonstrate, another way, of saying that there are outliers that appear in each variable of the data set. A detection of an outlier is figured out beyond the set inflation rate at 604.9%. The magnitude of the value is however higher than all the other values and does not fit in the range of the values typically gotten for this inflation rate. Refers to that none of the outliers are detected for the variable of literacy. This implies that all the values of this attribute lie within the implementation range and do not seriously differ from the rest of the data. A 3.95% unemployment rate level points to an occurrence of outlier. The value of this item differs with those of other unemployment rates and sits in an exceptional range of values the variable typically assumes. GDP does not show any extreme outliers according to the result. So, this proves that all GDP values are the same and they are not more than a given range. While other data show differences, GDP values do not.

4.3.3   Checking Heteroscedasticity

To conduct White's test for heteroscedasticity, the researcher first estimates the logistic regression model and then perform the test on the residuals.

Residuals

Table 4.3: Procedures for White`s test

Number of Variables	1	2	3	4	5	6
Residuals	-2.477	2.322	9.322	-6.756	-9.660	-5.514

Coefficients of the Logistics Regression Model.

	Estimate	Standard Error	t-value	Pr(>|t|)
Intercept	4.658	1.626	0.286	0.822
Inflation rate	-1.838	9.414	-0.195	0.877
Literacy rate	-5.394	1.996	-0.270	0.832
Unemployment rate	1.099	3.352	0.328	0.798
GDP (Billions)	-1.961	-0.310	-0.310	0.809

Residual Standard Error	Multiple R-squared	Adjusted R-squared	F-statistics	p-value
3.586 Degrees of freedom:1	0.1015	-3.493	0.02823 Degrees of freedom: 4 and 1	0.996

 The result of White's test for heteroscedasticity shown in Tables 4.3 suggests that the model's residuals do not exhibit significant heteroscedasticity. The coefficients estimated for the predictor variables (Inflation rate, Literacy rate, Unemployment rate and GDP-Billions) represent the relationship between each predictor and the squared residuals of the logistic regression model. The p-values associated with each coefficient test the null hypothesis that the corresponding predictor variable has no effect on the variance of the residuals. In this case, all p-values are greater than the conventional significance level (e.g., 0.05), indicating that none of the predictor variables significantly contribute to the variance of the residuals. The adjusted R-squared value is negative, which can occur when the number of predictors is greater than the number of observations, indicating an overfit model. However, since this test is primarily focused on the significance of the coefficients rather than the overall model fit, the negative adjusted R-squared is less relevant here.

Overall, based on these results, we fail to reject the null hypothesis of homoscedasticity, suggesting that the model's residuals do not exhibit significant heteroscedasticity.

4.3.4   Assessing Normality

While logistic regression doesn't require normality in the independent variables themselves, it undertakes a linear connection between the independent variables and the log odds of the dependent variable. Perform normality tests (Shapiro-Wilk test) to get a sense of normality. Non-normal data might require transformations (log transformation) before including them in the model.

Table 4.4: Shapiro-Wilk normality test.

	Shapiro-Wilk test	p-value
Inflation rate	0.89743	0.3590
Literacy rate	0.90642	0.4133
Unemployment rate	0.86449	0.2051
GDP	0.96015	0.8209

The data shows normality since all p-values are greater than 0.05 significance level. The smaller value of the Unemployment Rate might be due to the existing Outlier.

4.4   RESULTS/ ANALYSIS FOR OBJECTIVES

4.4.1   Objective1: To identify the key determinants and risk factors contributing to high poverty rates in Zimbabwe.

In Zimbabwe, poverty is still a major issue, with a large percentage of the population living below the nationwide poverty line. Zimbabwe's high rates of poverty have been caused by a number of important factors, including the GDP, unemployment, inflation, and literacy rates. Pindiriri (2015) states that research on the factors contributing to poverty in Zimbabwe is ongoing. Using the myeloid zinc finger (MZF) dataset, a two stage least squares approach was used. According to the study, the main causes of poverty in Zimbabwe include low household income, poor household head educational attainment, high unemployment rates, and rising inflation rates. The report suggested stepping up family planning initiatives, helping the underprivileged learn, enacting investment-friendly laws to generate jobs, and implementing land transfer plans that specifically

targeted the impoverished. The literature in Chapter 2 also identifies the listed above as the key determinants and risk factors contributing to high poverty rates in Zimbabwe.

4.4.2 Objective 2: To explore the interconnectedness among the determinants.

Scatterplot
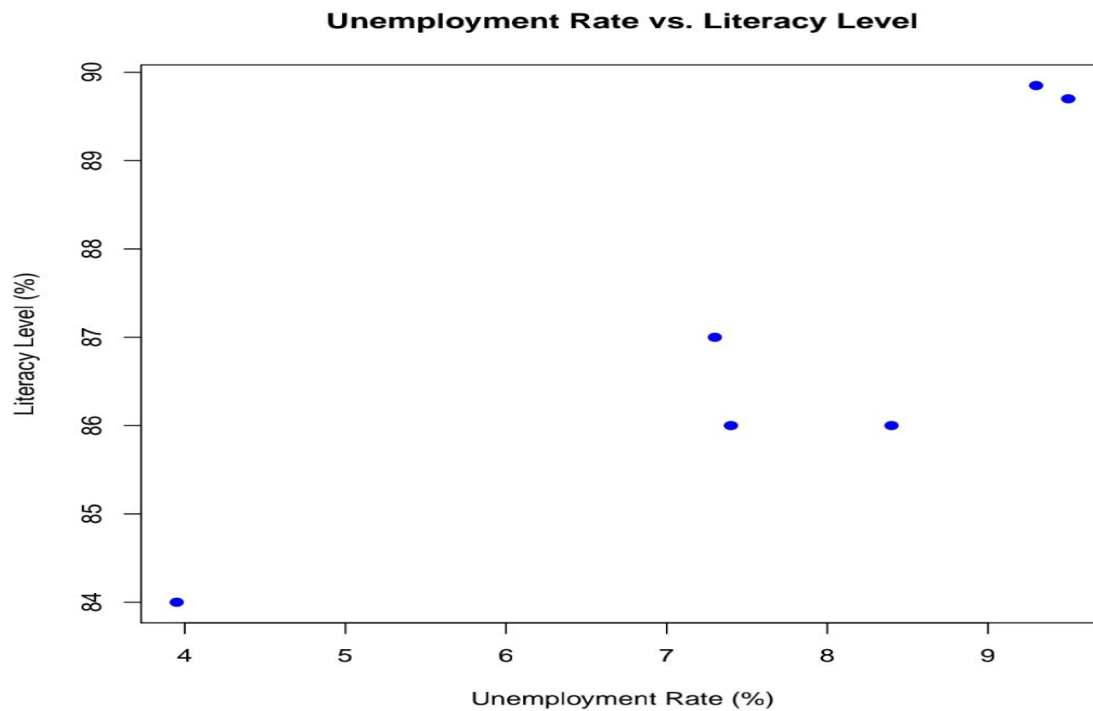
Figure 4.2: Correlations

The scatter plot is a visual method for determining the correlation between two variables. Figure 4.2 shows a graph in which each point represents a pair of value for two variables being analysed. The scatter plot shows almost a linear relationship between unemployment rate and levels of literacy. This suggest that, the researcher has managed to meet the objective listed above of exploring the interconnectedness among the determinants of poverty in Zimbabwe. The scatterplot shows that unemployment rate and literacy level interconnect to each other.

4.4.3   Objective 2: To explore the interdependence among the poverty determinants.

Identify Multicollinearity

When independent variables have a strong correlation with one another, multicollinearity arises. This may cause the model's coefficient estimates to become unstable. In order to look for strong correlations (greater than 0.8 or 0.9) between independent variables, the researcher produced the correlation matrix. If required, think about eliminating one of the associated variables or applying dimensionality reduction strategies.

Table 4.5: Correlation Matrix

	INF	LTR	UMP	GDP
INF	1.0000000	0.2116509	0.2559590	-0.0318069
LTR	0.2116509	1.0000000	0.8715776	0.4677796
UMP	0.2559590	0.8715776	1.0000000	0.7679607
GDP	-0.0318069	0.4677796	0.7679607	1.0000000

As shown by the correlation matrix above, there is multicollinearity between unemployment rate and level of literacy since their value are above 0.8 which is an indicator for multicollinearity. Since logistics regression assumes no multicollinearity or no strong interdependence the researcher employed Regularization process to meet the assumption.

4.4.4   Addressing Multicollinearity
Regularization process

Ridge regression

Ridge regression is a regularization technique used to address multicollinearity and overfitting in linear regression models. It adds a penalty term to the standard linear regression objective function, known as the ridge penalty or L2 regularization term. Multicollinearity occurs when predictor variables in a regression model are highly correlated with each other. This can lead to unstable coefficient estimates and inflated standard errors. By penalizing large coefficients, ridge regression

reduces the variance of the coefficient estimates. This helps to control overfitting, particularly when there are many correlated predictor variables in the model. The researcher employed ridge regression to handle multicollinearity.

Verifying Multicollinearity

Table 4.6: Variance Inflation Factor (VIF).

	Literacy rate and Unemployment rate
VIF value	**4.160557**

VIF measures how much the variance of an estimated regression coefficient increases if your predictors are correlated. If VIF values are high (usually above 5 or 10), it indicates multicollinearity. In Table 4.6, the value is less than 5 then this assures the absence of multicollinearity or it proves that there is no interdependence among the determinants of poverty.

4.4.5   Objective 3: To provide evidence-based recommendation for comprehensive poverty reduction strategies.

This article offers suggestions for policymakers, the government, and other parties involved in attempts to reduce poverty based on the findings.

Although the model failed to show the statistically significant drivers, the precise methodology and research that would yield additional information regarding poverty in Zimbabwe are yet unknown. The fields of education, health, social protection, and gender equality are those where an inclusive approach to poverty reduction is required, with an emphasis on interventions aimed at both correcting structural issues and eliminating the root causes of poverty.

4.5 LOGISTICS REGRESSION RESULTS PRESENTATION

4.5.1 Explore for non-linearity
Analysis of Variance Table

Response Variable: Gross Domestic Product (GDP)

Table 4.7: Ramsey RESET test for non-linearity

	Degrees of Freedom	Sum of Squares	Mean Squares	F-value	Pr(>F)
Inflation rate	1	0.180	0.180	0.0112	0.9254
Literacy rate	1	41.971	41.971	2.6107	0.2475
Unemployment	1	103.749	103.749	6.4536	0.1263
Residuals	2	32.153	16.076		

Table 4.7 shows that none of the predictors have statistically significant p-values (all p-values are greater than the chosen significance level, typically 0.05). This suggests that there is no evidence to reject the null hypothesis that the coefficients for these predictors are equal to zero. In other words, there is no evidence of non-linearity in the model when considering the squared fitted values.

4.5.2 Model training and testing.
In order to conduct the analysis, the researcher delineated the data which included variables such as years, inflation rate, literacy rate, unemployment rate, and GDP. Consequently, separate the dataset into training and test set by adopting 70-30 split ratio. Thereby, 70% of data are used for training of the model while 30% are reserved for testing of the model accuracy at the next stage. Based on the binary variable `poor` is generated if GDP value is below the median value of GDP. The reason for this is to make a binary you will normally have a one which means poor and a zero which is non-poor. The researcher verified multicollinearity using the t-test to ensure valid results were obtained and employed the lasso regression technique while imposing a penalty on some of his variables to meet the key assumptions of the logistic regression on his data. The Lasso algorithm goes through iterations with coefficients minimizing the residual sum of squares (RSS) is added as a modification process (L1 penalty term) to prevent it from overfitting. And expert

executed a logistic regression model which had already been trained to provide predictions for the test data. Then the researcher computed the accuracy of the model on the test set by matching the model's binary outputs (`poor` column) with those in the real test data. This is of great significance to determine a model's good performance

Logit(P)= 0.4286+0.1524 INF +0.3859 LTR + 0.0149 UMP -0.1046 GDP

The poverty prediction model above shows the coefficients obtained from the ridge regression model. The Intercept 0.4286 represents the estimated probability of being classified as poor when all predictor variables are zero. A one-unit increase in inflation rate is associated with a 0.1524 increase in the log odds of being classified as poor, holding all other predictors constant. A one-unit increase in levels of literacy is associated with a 0.3859 increase in the log odds of being classified as poor, holding all other predictors constant. A one-unit increase in unemployment rate is associated with a 0.0149 increase in the log odds of being classified as poor, holding all other predictors constant. A one-unit increase in GDP is associated with a 0.1046 decrease in the log odds of being classified as poor, holding all other predictors constant. These coefficients represent the direction and strength of the relationship between each predictor variable and the probability of being classified as poor. Positive coefficients indicate a positive association with poverty, while negative coefficients indicate a negative association.

4.5.3   Assessing the Robustness of the Model
Model 1: Poverty ~ INFLATION RATE + UNEMPLOYMENT RATE + LEVELS OF LITERACY + GDP.

Model 2: Poverty ~ INFLATION RATE + UNEMPLOYMENT RATE + GDP.

Analysis of Deviance Table

Table 4.8: The F-test.

	Resid.Df	Resid.Dev	Df	Deviance	Pr(>chi)
Model:1	0	4.661			
Model:2	1	4.900	-1	-2.3897	1

Based on the results of the F-test, we cannot draw strong conclusions about the robustness of the model. The p-value of 1 suggests that there is no significant difference in deviance between the full model (Model 1) and the reduced model (Model 2) on the testing data. However, it's essential to consider the context and potential issues with the model, such as numerical precision issues and overfitting. The extremely small deviance values and the lack of significant difference between the models may be influenced by these factors. Therefore, while the F-test indicates that removing the level of literacy predictor from the model does not significantly affect its fit on the testing data. The model might appear well but it is over fitting. The researcher concluded the model is not robust enough.

4.6   SUMMARY OF THE FINDINGS

Through the analysis, the researcher wanted to identify and focus on some imperative factors such as determinants and the rate of risk of having high poverty rates in Zimbabwe. In the process, the researcher used logistic regression modelling to see how poverty (it is a binary variable) was correlated with other factors which were: inflation rate, unemployment rate and GDP. In the same line, carefulness in interpreting the results was imperative considering the numerical precision problems and overfitting likelihood of model. The model did not demonstrate the statistically significant determinants but it is yet to be known the exact approach and exploration that would expose more findings about poverty in Zimbabwe.

From the multifaceted, intricate interrelations among the determinants that were uncovered in the exploration, it is evident that causality becomes incredibly complicated to understand when modelling poverty. A traditional regression approach deals with the predictors one by one expecting that they are independent influencing parts of the phenomenon. However, poverty is rather a multifaceted problem, and different variables interact with and boost each other. The variables employed in this study were interrelated as shown by the coefficient matrix. Despite the relationship between these variables, the use of logistic regression model in determining poverty existence in Zimbabwe was not a very good idea. It was clear from the findings that these variables might contribute to poverty but there might exist other significant variables not mentioned in this study that might explain better. Therefore, this study has managed to meet its objectives in trying to understand how these incorporated variables relate in explaining poverty and also how the logistic model might work in processing this phenomenon. The researcher concluded by advising

other means of modelling poverty instead of logistic might be useful since this model cannot be relied upon due to its insignificances.

The limitations of our findings notwithstanding, they prove the crucial character of empirical based legislation as a mechanism of reducing poverty in Zimbabwe. Education, health, social protection and gender equality are the areas where the approach to poverty reduction needs to be inclusive and focus on the interventions that aim at the eradication of the underlying causes of poverty as well as at the fixing of structural factors. This could mean in into particular health care spending and skill development, job creation policies, social safety programs, and sustainable economic development programs. Moreover, seeking ways of joint partnerships and cooperation among the government agencies, NGOs and other affected groups is mandatory for putting into effect poverty alleviation measures that are proven to be applicable in Zimbabwe. Prior to more data collection on the effectiveness and durability of these approaches, research and data facts should be gathered to provide for a base upon which to make the interventions.

4.7   CHAPTER SUMMARY

The 4th chapter took a closer look of the many poverty determinants prevalent in Zimbabwe, by employing a form of rigorous statistics to uncover why and how poor socio-economic factors and poverty incidence. This specific chapter focused on uncovering the underlying correlations existing among the inflation rate, the rate of unemployment, the level of the literacy rate and the GDP using the available statistical evidence. Highlighting states-of-the-art regression techniques and diagnostic tools, this chapter shed onto aspects of how these determinants might influence poverty patterns in the region. Generally, Chapter 4 breaks down the factors that lead to poverty in Zimbabwe, and comes up with the recommendations that are backed up by evidence. These include those that are for the policy makers and other relevant stakeholders so that they can come up with a comprehensive approach to the reduction of poverty. Illuminating the complicated relationship between socio-economic factors and poverty incidence in the region is the crucial task of this chapter. This task brings the contribution to the ongoing discussion over sustainable development and social equity in the region.

CHAPTER FIVE

5 SUMMARY, CONCLUSIONAND RECOMMENDATION

5.1 INTRODUCTION

The research project is summarized in this chapter. In addition to determining if all of the research goals have been achieved, it offers policy recommendations based on the research findings from the research problem that was outlined in the first chapter. The primary objectives of this study were to determine and examine the major causes and contributing variables to Zimbabwe's high rate of poverty. Additionally, to investigate the relationships and interdependencies between the GDP, inflation rate, unemployment rate, and literacy levels—all of which are factors that determine poverty. This chapter will summarize the findings and provide detailed recommendations for tactics to reduce poverty in Zimbabwe.

5.2 RECOMMENDATIONS

Based on the results, this section provides recommendations for policymakers, the government other stakeholders involved in poverty alleviation efforts.

Adopt a Multi-Dimensional Approach to Poverty Measurement:

Recognize that poverty is a complex, multifaceted phenomenon that cannot be adequately captured by a one model or set of variables. The government should encourage the development and use of multidimensional poverty indices that consider a broader range of indicators, such as access to education, healthcare, housing, and basic services, in addition to income or consumption. This holistic approach will provide a more comprehensive understanding of the various deprivations experienced by the poor in Zimbabwe.

Foster Cross-Sectoral Collaboration and Coordination:

Encourage collaboration and coordination among government agencies, civil society organizations, the private sector, and international development partners to address poverty in a holistic and coherent manner. Facilitate the distribution of data, best practices, and lessons learned to enhance the effectiveness of poverty alleviation efforts across different sectors and regions. Moreso, strengthen institutional frameworks and governance mechanisms to ensure accountability, transparency, and efficient resource allocation for poverty reduction programs.

Adopt a Targeted and Integrated Approach to Poverty Reduction:

Based on the refined understanding of poverty dynamics, design and implement targeted interventions that address the specific needs and challenges faced by different segments of the population. Promote an integrated approach that combines social protection measures, economic empowerment programs, and investments in human capital development (education, healthcare, skills training) to tackle the multidimensional nature of poverty.

5.3   CONCLUSIONS

The logistic regression model employed in this study to analyze the determinants of poverty in Zimbabwe has been found to be statistically insignificant in its ability to adequately fit the observed data. This outcome suggests that the selected independent variables and their hypothesized relationships are not sufficient to effectively explain and predict the patterns of poverty within the Zimbabwean context. The quality and the limitedness of the data used in the analysis may have played a role in the model's inability to produce significant results. Potential issues with data collection, the researcher had insufficient funds to subscribe on World Bank channels so as to acquire large quantity of data regarding to the study. This could have undermined the model's predictive power.

5.4   RESEARCH CONSTRAINS

Although the researcher has managed to meet the research objectives, he encountered certain limitations during the course of the study and include the following:

The nation's collapsing economy made it difficult for the researcher to obtain pertinent research materials from the internet. In order to get around this, the researcher had to spend more time looking for free Wi-Fi in the surrounding areas in order to access the required materials.

In addition, the researcher had a short period of time to finish his research.

The researcher had no money to subscribe on World Bank channels so as to access the adequate data for the study.

5.5   AREAS FOR FURTHER RESEARCH

Examine the spatial distribution of poverty and identify regional or local-level factors that contribute to poverty, using techniques like spatial regression models. Also, investigate the role of spatial inequality and regional disparities in poverty, and explore potential strategies for addressing these inequalities.

5.6   CONCLUSION TO CHAPTER 5

This chapter included an overview of the research findings, study conclusions, and the challenges the researcher faced. This chapter also contained the recommendations.

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7   APPENDIX A

Create a data frame

data <- data.frame(

  YEARS = c("2022", "2021", "2020", "2019", "2018", "2017"),

  `INFLATION RATE %` = c(264.60, 113.30, 604.90, 225.40, 200.80, 3.10),

  `LEVELS OF LITERACY %` = c(89.85, 89.70, 87.00, 86.00, 86.00, 84.00),

  `UNEMPLOYMENT RATE %` = c(9.30, 9.50, 7.30, 7.40, 8.40, 3.95),

  `GDP IN BILLIONS` = c(27.37, 28.37, 21.51, 21.83, 34.16, 17.58)

)# Get descriptive statistics of the data frame

summary(data)

	Length	Minimum	Median	Mean	Maximum	Quartile	
	Statistics	Statistics	Statistics	Statistics	Statistics	First	Third
INFLATION	6	3.1	213.1	235.3	604.9	135.2	254.8
LITERACY RATE	6	84.00	86.50	87.09	89.85	86.00	89.03
UNEMPLOYMENT	6	3.950	7.900	7.642	9.500	7.325	9.075
GROSS DOMESTIC PRODUCT	6	17.58	24.60	25.14	34.14	21.59	28.12

8   APPENDIX B

Create a data frame

data <- data.frame(Year = years,

        Inflation_Rate = inflation_rate,

        Levels_of_Literacy = levels_of_literacy,

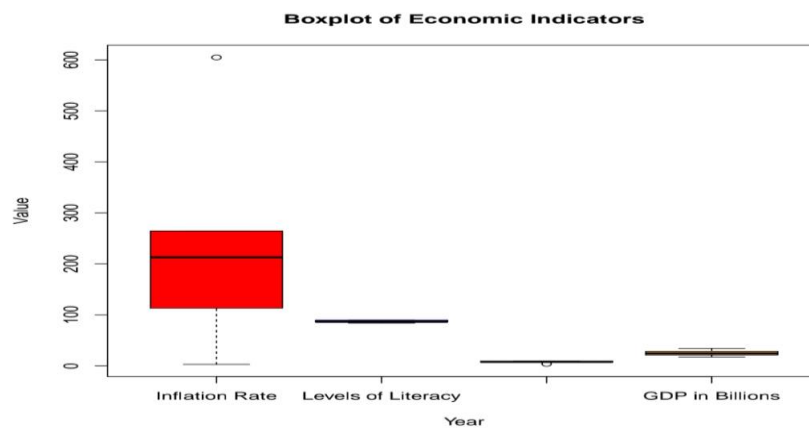   Unemployment_Rate = unemployment_rate,

GDP_in_Billions = gdp_in_billions)

Boxplot

boxplot(data[, -1],

    main = "Boxplot of Economic Indicators",

    xlab = "Year",

    ylab = "Value",

    col = c("red", "blue", "green", "orange"),

    names = c("Inflation Rate", "Levels of Literacy", "Unemployment Rate", "GDP in Billions"))

Boxplot of Economic Indicators

9   APPENDIX C

Rstudio code

Data

years <- c(2017, 2018, 2019, 2020, 2021, 2022)

inflation_rate <- c(3.10, 200.80, 225.40, 604.90, 113.30, 264.60)

levels_of_literacy <- c(84.00, 86.00, 86.00, 87.00, 89.70, 89.85)

unemployment_rate <- c(3.95, 8.40, 7.40, 7.30, 9.50, 9.30)

gdp_in_billions <- c(17.58, 34.16, 21.83, 21.51, 28.37, 27.37)

Create a data frame

data <- data.frame(Year = years,

        Inflation_Rate = inflation_rate,

        Levels_of_Literacy = levels_of_literacy,

        Unemployment_Rate = unemployment_rate,

GDP_in_Billions = gdp_in_billions)

Shapiro-Wilk test for each variable

shapiro_test_inflation <- shapiro.test(data$Inflation_Rate)

shapiro_test_literacy <- shapiro.test(data$Levels_of_Literacy)

shapiro_test_unemployment <- shapiro.test(data$Unemployment_Rate)

shapiro_test_gdp <- shapiro.test(data$GDP_in_Billions)

Print results

print("Shapiro-Wilk Test Results:")

print(paste("Inflation Rate:", format(shapiro_test_inflation$p.value, scientific = TRUE)))

print(paste("Levels of Literacy:", format(shapiro_test_literacy$p.value, scientific = TRUE)))

print(paste("Unemployment Rate:", format(shapiro_test_unemployment$p.value, scientific = TRUE)))

print(paste("GDP in Billions:", format(shapiro_test_gdp$p.value, scientific = TRUE)))

Output Results

	Shapiro-Wilk test	p-value
Inflation rate	0.89743	0.3590
Literacy rate	0.90642	0.4133
Unemployment rate	0.86449	0.2051
GDP	0.96015	0.8209

10 APPENDIX D

Create a data frame

data <- data.frame(Year = years,

Inflation_Rate = inflation_rate,

Levels_of_Literacy = levels_of_literacy,

Unemployment_Rate = unemployment_rate,

GDP_in_Billions = gdp_in_billions)

Compute correlation matrix

correlation_matrix <- cor(data[, -1])

Print correlation matrix

print("Correlation Matrix:")

print(correlation_matrix)

	Inflation rate	Level of literacy	Unemployment rate	GDP in Billions
Inflation rate	1.0000000	0.2116509	0.2559590	-0.0318069
Levels of literacy	0.2116509	1.0000000	0.8715776	0.4677796
Unemployment rate	0.2559590	0.8715776	1.0000000	0.7679607
GDP in Billions	-0.0318069	0.4677796	0.7679607	1.0000000

11 APPENDIX E

Checking for non-Linearity

```
# Data

years <- c(2017, 2018, 2019, 2020, 2021, 2022)

inflation_rate <- c(3.10, 200.80, 225.40, 604.90, 113.30, 264.60)

levels_of_literacy <- c(84.00, 86.00, 86.00, 87.00, 89.70, 89.85)

unemployment_rate <- c(3.95, 8.40, 7.40, 7.30, 9.50, 9.30)

gdp_in_billions <- c(17.58, 34.16, 21.83, 21.51, 28.37, 27.37)

# Define response variable (binary based on some criteria)

threshold <- mean(gdp_in_billions)

binary_response <- ifelse(gdp_in_billions > threshold, 1, 0)

# Fit logistic regression model

logistic_model <- glm(binary_response ~ inflation_rate + levels_of_literacy + unemployment_rate, family = binomial)

# Extract log odds

log_odds <- predict(logistic_model, type = "link")

# Create scatterplots

par(mfrow=c(2, 2))  # Set up a 2x2 layout for the plots

# Plot 1: Inflation Rate vs. Log Odds

plot(inflation_rate, log_odds, xlab = "Inflation Rate %", ylab = "Log Odds", main = "Inflation Rate vs. Log Odds")
```

Plot 2: Levels of Literacy vs. Log Odds

plot(levels_of_literacy, log_odds, xlab = "Levels of Literacy %", ylab = "Log Odds", main = "Levels of Literacy vs. Log Odds")

Plot 3: Unemployment Rate vs. Log Odds

plot(unemployment_rate, log_odds, xlab = "Unemployment Rate %", ylab = "Log Odds", main = "Unemployment Rate vs. Log Odds")

Plot 4: Year vs. Log Odds

plot(years, log_odds, xlab = "Year", ylab = "Log Odds", main = "Year vs. Log Odds")

Reset plot layout

par(mfrow=c(1, 1))

Further investigation **checking adjusted R squared** for each corresponding regression model.