

CHINHOYI UNIVERSITY OF TECHNOLOGY



**LIFE INSURANCE UPTAKE IN PREDOMINANTLY INFORMAL ECONOMIES: A
CASE OF ZIMBABWE.**

By

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A Thesis Submitted in Fulfilment of the

Requirements for the Doctor of Philosophy Degree in Business Management

Graduate Business School

Chinhoyi University of Technology

Zimbabwe

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June 2025

APPROVAL FORM

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Approved research topic: **Life Insurance Uptake in Predominantly Informal Economies:
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The proposal adheres to ethical principles as outlined by the Research Ethics Committee of the University. Permission is hereby granted to carry out the research as described in the approved proposal. May you please assist the student in any way possible.

The main objective of the study is to: **Assess the drivers of life insurance penetration in Zimbabwe.**

Best Regards

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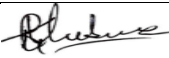
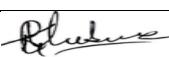
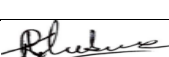
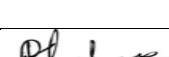
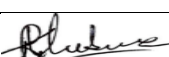
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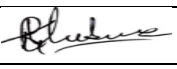
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DEDICATION

To Vee, my beautiful wife and friend, Adina Zwinozika, my granddaughter, Sue, Sally, and Lilly-Rose. You are all that I live for. Thank you for your inspiration!

ABSTRACT

This study examines the determinants of life insurance penetration and density in Zimbabwe's largely informal economy. It addresses challenges often overlooked by traditional economic models and proposes a penetration model to enhance life insurance adoption. Using the life cycle hypothesis and human capital theory as theoretical foundations, it develops a model to assess the effects of macroeconomic, demographic, and institutional factors. A positivist philosophical stance and deductive approach guide the quantitative analysis, which employs the Autoregressive Distributed Lag (ARDL) technique on macroeconomic data from 1990 to 2022. The findings reveal a significant positive long-run effect of the informal sector on penetration ($\beta = 0.427$, $p < 0.05$) but a negative effect on density ($\beta = -0.362$, $p < 0.01$), highlighting the dual role of micro-insurance and income instability. Central bank independence ($\beta = 0.571$, $p < 0.01$) and financial development ($\beta = 0.388$, $p < 0.05$) are key long-term enablers, enhancing institutional trust and market access. However, financial development shows a short-run diversionary effect ($\beta = -0.217$, $p < 0.1$). Per capita income positively affects long-run penetration ($\beta = 0.349$, $p < 0.05$) and triggers short-term density gains ($\beta = 0.298$, $p < 0.05$). Insurance literacy increases penetration ($\beta = 0.311$, $p < 0.05$) but reduces density ($\beta = -0.273$, $p < 0.05$), indicating a shift toward lower-cost, informed consumption. Unemployment ($\beta = -0.402$, $p < 0.01$) and age dependency ($\beta = -0.316$, $p < 0.05$) emerge as significant long-term barriers. Life expectancy negatively influences short-run uptake but enhances long-term density ($\beta = 0.394$, $p < 0.05$). The study proposes a robust, evidence-based model to inform insurance policy, product design, and financial inclusion strategies, with emphasis on regulatory reform, flexible premiums, and digital innovation. Future research should explore behavioural dynamics and household-level data.

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To my beloved wife, Virginia, your unwavering love, patience, and support have been the foundation of my strength during this journey. To my daughters, Sue, Sally, and Lilly-Rose, your joy and encouragement reminded me of the importance of perseverance.

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List of Abbreviations

AD	Accidental death
ADF	Augmented Dickey-Fuller test.
AIC	Akaike Information Criterion
ARDL	Auto Regressive Distributed Lag
BIC	Bayesian Information Criterion
CBI	Central bank independence
CPI	Inflation
CSV	Cash surrender value
DEP	Dependency
DGE	Dynamic general equilibrium model
EDU	Life insurance literacy
FIND	Financial development
GDP	Gross domestic product
GIB	Guaranteed insurability benefit
GLA	Group life assurance
GWP	Gross written premium
HCT.....	Human Capital Theory
IAIS	International Association of Insurance Supervisors
IFS	International Financial Statistics
IMF	International Monetary Fund
INC	Per capita income
INF	Informal sector
IOPS	International Organisation of Pension Supervisors
IPEC	Insurance and Pensions Commission
LCH	Life Cycle Hypothesis
LEXP	Life expectancy
LIDENS	Life insurance density
LINSP.....	Life insurance penetration
NDS1.....	National Development Strategy 1

.

OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing power parity
PUA	Paid-up additions
RBZ	Reserve Bank of Zimbabwe
SADC	Southern African Development Community
SDG	Sustainable Development Goal
SIC	Schwarz Information Criterion
UECM	Unrestricted error correction model
UL	Universal life
UN	United Nations
UNEMP	Unemployment
ZiG	Zimbabwe Gold
ZIMCDD	Zimbabwe Coalition on Debt and Development
ZimStat	Zimbabwe National Statistics Agency

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The importance of insurance to the global economy is widely recognised. Access to insurance is acknowledged as key for advancing the UN Sustainable Development Goals (Holliday, Remizova, & Stewart, 2021). Insurance directly contributes to economic development by supporting growth, ensuring stability for local economies and households during unforeseen disruptions, and serving as a tool for redistribution and social cohesion (Asongu & Odhiambo, 2020; Raj, Ashokkumar, & Johannes, 2024; Sawadogo, Guerineau, & Ouedraogo, 2018). A robust life insurance sector facilitates risk pooling, enhances savings and investment, and promotes trade (Din, Abu-Bakar, & Regupathi, 2017; Peleckienė, et al., 2019).

In 2023, global life insurance premiums reached an estimated USD 2.9 trillion, with North America, Western Europe, Emerging Asia, and Developed Asia collectively accounting for 83% of this revenue (Swiss Re, 2024). In stark contrast, Africa's share was a mere 1.5% (USD 42.9 billion), with 98% of this figure concentrated in nine countries, including Kenya, Egypt, Morocco and South Africa (African Insurance Organisation, 2024). South Africa alone dominates the African life insurance market, contributing 81.2% of the continent's premiums. However, as the most mature market in the region, its growth is slowing relative to the rapid expansion seen in emerging African economies such as Morocco, Egypt, and Kenya. The life insurance landscape in Sub-Saharan Africa remains predominantly underdeveloped. Non-life insurance continues to dominate, accounting for 88% of premiums in countries such as Tanzania and Uganda, 70% in Zambia, and 65% in Kenya (Swiss Re, 2024). Excluding South Africa, non-life insurance represents 71% of Africa's total premiums, underscoring the significant untapped potential for life insurance across the continent (Swiss Re, 2024).

Zimbabwe's life insurance market, despite being among Africa's top ten producers in terms of life premiums, the country contributed only 0.36% of Africa's gross written premium (GWP) in 2023 (African Insurance Organisation, 2024). With a life insurance penetration rate of 0.48% and density of just USD 10.22, Zimbabwe lags far behind the continental averages of 2.4% penetration and USD 31 density. These figures are dwarfed by South Africa's penetration rate of 9.1% and density of USD 562, making it the second highest globally after Hong Kong, which boasts a penetration rate of 14.8% (Swiss Re, 2024).

Other African countries demonstrate significant disparities in adoption. For instance, Namibia has an impressive penetration rate of 6% and a density of USD 288, while Mauritius shows moderate uptake with a penetration rate of 2.4% and a density of USD 23 (Swiss Re, 2024). Further shown in Figure 1.1 is the link between the size of the informal sector and life insurance penetration and density in selected nations, shedding light on the challenges and opportunities inherent in advancing insurance uptake in economies dominated by informal employment.

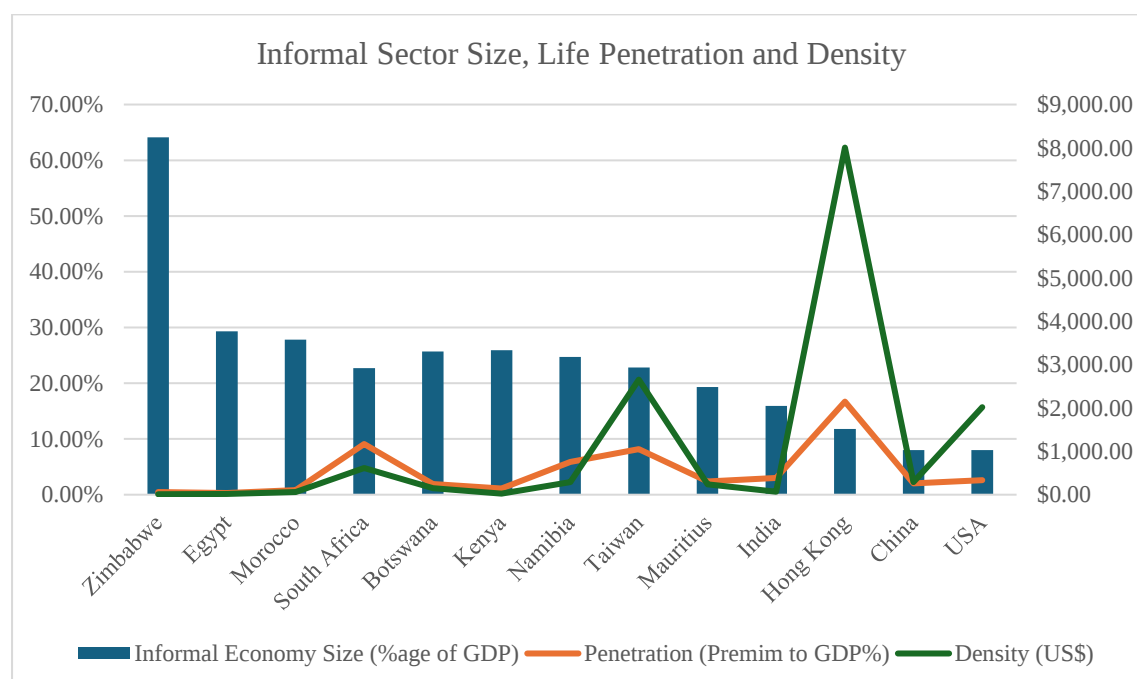


Figure 1.1: Life Insurance Penetration and Informal Economy Size for Selected Countries as of December 2023.

Source: Author's Compilations from Swiss Re (2024), African Insurance Organisation (2024, IPEC (2024) and World Bank (2024).

Zimbabwe hosts the world's largest informal sector, at 64% of GDP according to ZNCC (2024). While most developing economies have large informal sectors, developed economies host very small informal sectors (Vorisek et al., 2022). Zimbabwe's life insurance penetration rate of 0.48% and a density of USD 10.22 reflect significant underdevelopment and highlight the minimal role of the life insurance industry in the national economy. These low life insurance adoption figures fall well below both the African continental average and the suggested minimum penetration threshold of 4.1 per cent, deemed necessary for a positive economic impact, as asserted by Asongu & Odhiambo (2020).

Although Zimbabwe has experienced a general decline in life insurance uptake over the past three decades, the period of dollarisation between 2009 and 2019 marked a notable exception. During this time, both life insurance penetration and density increased, while the size of the informal sector declined. These trends suggest a positive impact resulting from the adoption of a multi-currency regime. The patterns are illustrated in Figure 1.2.

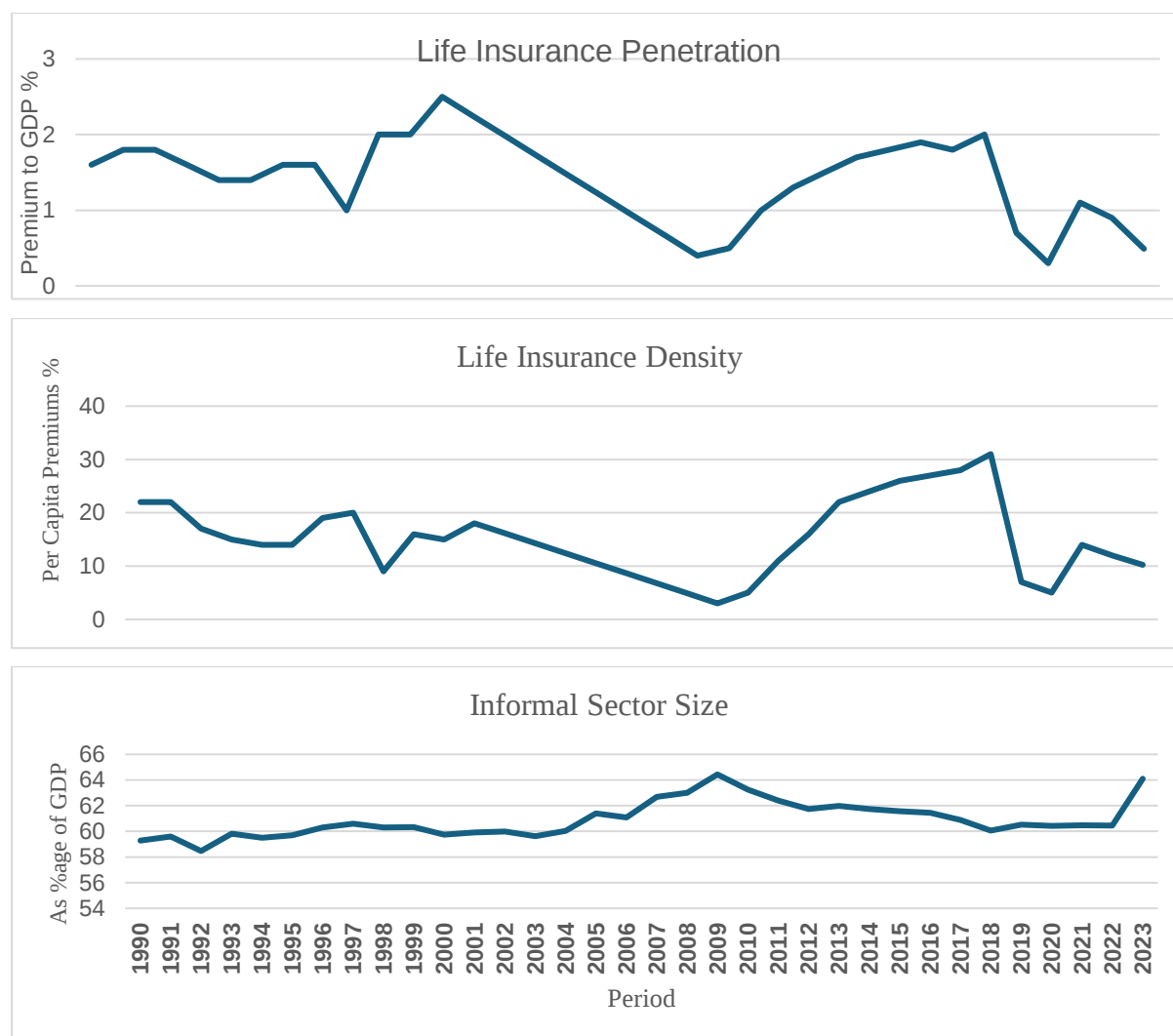


Figure 1.2: Life Insurance Penetration, Density and the Informal Sector Growth Trends as of December 2023

Source: Author's Compilations from Swiss Re (2024), African Insurance Organisation (2024), IPEC (2024) and World Bank (2024).

The long-term structure of life insurance programmes suggests that the life market generally thrives on formal economic arrangements. As a result, the study aimed to assess life insurance penetration challenges in Zimbabwe's largely informal economy. It attempted to evaluate how

the informal economy influences life insurance uptake amid above-average inflation and a currency crisis after the COVID-19 epidemic.

1.2 Statement of the Problem

Life insurance penetration and density in Zimbabwe have experienced a sustained decline over the past decades. A persistently low penetration rate reflects the underperformance of the life insurance industry in fulfilling its core functions of risk pooling, savings mobilisation, capital accumulation, and intergenerational wealth transfer. At the current levels of adoption, the life insurance sector remains well below the internationally recommended threshold of 4% penetration, which is considered the minimum for the industry to contribute meaningfully to national economic development (Asongu & Odhiambo, 2020). Consequently, the sector's potential to enhance household financial resilience and stimulate broader economic growth remains largely untapped.

This uptake gap necessitates strategic action. The life insurance industry must acknowledge and respond to the structural and behavioural barriers that are impeding market expansion. Moreover, regulators and policymakers are urged to design and implement policies that stimulate demand and promote greater inclusion. Addressing this persistent underperformance requires a complex understanding of the determinants of life insurance adoption specific to Zimbabwe's socioeconomic context.

While international research has explored various drivers of life insurance demand, empirical work in Zimbabwe remains limited and largely focused on non-life and health insurance markets. Only two studies have directly addressed the determinants of life insurance penetration in the country. One considered macroeconomic factors within the broader SADC region (Nkotsoe, 2018), and the other focused narrowly on Zimbabwe (Towo, Njanike, & Jonasi, 2021). Although informative, these studies fail to examine several critical variables relevant to Zimbabwe's context.

In particular, prior research has largely neglected the impact of the informal sector, which constitutes a substantial proportion of the national economy. Additionally, key economic indicators such as inflation, per capita income, and financial development remain underexplored. Likewise, the institutional dimension, particularly the role of Central Bank

Independence, has not been adequately assessed. Moreover, important demographic variables—including the age dependency ratio, life expectancy, and insurance literacy—are absent from earlier frameworks. Unemployment, a persistent structural challenge in Zimbabwe, has also not received sufficient empirical attention in relation to life insurance demand.

This study addresses these significant gaps by constructing an inclusive and empirically grounded model that incorporates the informal sector alongside a broader set of economic, institutional, and demographic variables. By doing so, it offers a more comprehensive understanding of the factors influencing life insurance penetration in Zimbabwe and informs policy and industry strategies aimed at deepening financial inclusion.

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1.3 Research Objectives

The major goal was to investigate the effect of the informal sector, along with other economic, demographic, and institutional factors, on life insurance penetration in Zimbabwe. The study focused on the following objectives:

- a) To investigate the effect of the informal sector economy on life insurance penetration.
- b) To examine the impact of inflation on life insurance penetration.
- c) To assess the influence of the Central Bank Independence on life insurance penetration.
- d) To evaluate the effect of per capita income on life insurance penetration.
- e) To determine the influence of financial development on life insurance penetration.
- f) To analyse the impact of life insurance literacy on life insurance penetration.
- g) To investigate the effect of the age dependency ratio on life insurance penetration.
- h) To assess the impact of life expectancy on life insurance penetration.
- i) To examine the influence of unemployment on life insurance penetration.

1.4 Research Hypotheses

The study was based on the following alternative hypotheses:

H₁: The informal sector economy negatively affects life insurance Penetration.

H₂: Inflation has a negative impact on life insurance penetration.

H₃: Central Bank Independence (CBI) has a significant negative impact on life insurance penetration in Zimbabwe.

H₄: Per capita income has a significant positive impact on life insurance penetration.

H₅: The level of financial development has a significant influence on life insurance penetration.

H₆: Life insurance literacy has a significant positive influence on life insurance penetration.

H₇: Age dependency ratio has a significant negative influence on life insurance penetration.

H₈: Life expectancy has a positive impact on life insurance penetration.

H₉: Unemployment has a significant negative impact on life insurance penetration.

1.5 Significance of Study

This study on life insurance penetration in Zimbabwe's predominantly informal economy makes significant contributions across theoretical, methodological, practical, and policy domains. Theoretically, it challenges conventional assumptions regarding informality by integrating institutional and demographic variables into models of insurance adoption. This expanded framework offers a more nuanced look at the determinants of life insurance uptake in developing economies.

From a practical standpoint, the study aligns with key regional and global development frameworks. It supports the aspirations of Africa's Agenda 2063 and the United Nations Sustainable Development Goals (SDGs), both of which recognise insurance development as central to inclusive growth and sustainable economic transformation (Margarita et al., 2022). Domestically, the study reinforces Zimbabwe's Vision 2030 and the National Development Strategy 1 (NDS1), which target 67% social insurance coverage by 2025 and point to the importance of a stable financial sector in facilitating economic intermediation (ZIMCodd, 2022).

The study's findings provide helpful information for stakeholders within the life insurance ecosystem. Insurers and intermediaries may use the evidence to design and deliver products that are more responsive to the needs of individuals operating in the informal sector. These

insights can support the development of flexible, affordable, and accessible insurance solutions. For consumers, the research enhances understanding of coverage options appropriate to Zimbabwe's volatile economic environment.

Methodologically, the study bridges a gap in empirical research on the interplay between informality and life insurance uptake, offering robust analysis and a replicable framework for future investigations. This contribution enriches the academic discourse and paves the way for further exploration into this under-researched domain.

On a policy level, the results provide a foundation for regulators to develop supportive policies aimed at fostering industry growth, consumer protection, and financial inclusion. The research outcomes can inform the formulation of strategies to address structural barriers, enhance market accessibility, and build trust in life insurance products.

As a lecturer and independent insurance consultant, the researcher will apply the findings to enhance professional practice and engage potential clients within the life insurance sector. The study also identifies gaps for future research, contributing to the evolving body of knowledge in life insurance penetration within informal economies.

1.6 Delimitations of the Study

The study centred on the analysis of secondary data from Zimbabwe, focusing on economic, demographic, and legislative macroeconomic indicators for the period 1990 to 2022. The macroeconomic variables examined included the life insurance penetration rate, life insurance density rate, informal sector size to GDP, inflation rate, central bank independence index, per capita income, financial development index, literacy rate, age dependency ratio, life expectancy, and unemployment rate. Data were obtained from the Insurance and Pensions Commission (IPEC), Zimbabwe National Statistics Agency (ZIMSTAT), International Monetary Fund (IMF), the World Bank's Global Financial Development Database (2024), and Swiss Re's Sigma Explorer database (2024), all of which are publicly accessible online.

1.7 Definition of Terms

1.7.1 *Life insurance penetration*

Life insurance penetration serves as a vital metric for evaluating the importance of the life insurance sector in an economy. The calculation involves dividing the aggregate volume of life

insurance premiums, specifically those related to domestic risks, by the country's Gross Domestic Product (GDP) (Swiss Re, 2022). The formula for calculating life insurance penetration is:

$$\text{Life Insurance Penetration} = \frac{\text{Total Life Insurance Premiums}}{\text{GDP}} \times 100$$

Where:

- Total Life Insurance Premiums denote the aggregate premiums received by insurance providers within a specified timeframe, usually one year.
- GDP denotes the nation's gross domestic product during the specified timeframe.

This metric provides insights into the extent to which life insurance services are integrated into the financial activities of a nation (Bah & Abila, 2022). A higher life insurance penetration rate typically suggests a more developed and robust life insurance market, reflecting a greater awareness and uptake of life insurance products among the population (Swiss Re, 2022).

1.7.2 Premium Volume

The term "premium volume" refers to the total amount of direct premiums received by insurance providers over the course of the previous calendar year (Swiss Re, 2022). These premiums represent payments made by policyholders for coverage against specific risks, ensuring financial protection and security for individuals and families.

1.7.3 Life insurance density

Life insurance density serves as a measure of insurance consumption, reflecting the level of demand for insurance products within the population (Oteng, Lartey, & Amofa, 2023). To compute it, total insurance premiums are divided by the population of the specified area, representing the average premium per capita (Swiss Re, 2022). Mathematically, it is expressed as:

$$\text{Life Insurance Density} = \frac{\text{Total Life Insurance Premiums}}{\text{Total Population}}$$

This metric provides insight into how widely insurance products are utilised within a society, reflecting the penetration and acceptance of insurance services among individuals (Oteng, Lartey, & Amofa, 2023).

1.7.4 Insurance Premium

An insurance premium is the payment made by an individual or organisation to an insurance company for coverage under a policy (Denuit, Hainaut, & Trufin, 2019). Typically paid monthly, quarterly, or annually, the premium amount is determined based on factors like coverage type, risk level, and policy duration (Ukpong & Acha, 2019). In exchange for the premium, the insurer provides financial protection or compensation for specified losses, as outlined in the policy terms (Apriyani Purba & Wulansari, 2024).

1.7.5 Policy lapse

A policy lapse occurs when an insurance policy becomes inactive or terminates due to the non-payment of premiums by the policyholder (Mulholland & Finke, 2023). When a policy lapses, the coverage and benefits provided by the insurer are suspended or cancelled, meaning the insurer is no longer obligated to pay for any claims or provide the agreed-upon protection (Shamsuddin, Ismail, & Roslan, 2022). To reinstate coverage, the policyholder may need to meet specific conditions set by the insurer (Poufinas & Michaelide, 2018).

1.7.6 Micro-insurance

Micro-insurance refers to a form of insurance tailored to serve low-income individuals or communities, typically offering protection against risks such as health, life, property, and agricultural losses (Mhella, 2023; Sing'oei, Nyiva, & Jemaiyo, 2024). It is characterised by low premiums, simplified conditions, and limited coverage, thereby ensuring accessibility for those often excluded from conventional insurance markets (Mhella, 2023). The primary objective of micro-insurance is to strengthen financial security and resilience among vulnerable groups by providing a safeguard against unforeseen events (Oppong, Baorong, & Mfoutou, 2024).

1.8 Chapter Summary

This chapter presented the study's background, problem statement, research objectives, research questions, and hypotheses. It further discussed the study's significance and delimitations, along with definitions of key terms employed. The subsequent chapter examines relevant literature and empirical studies on life insurance penetration within Zimbabwe's largely informal economy. It also outlines the study's conceptual framework and supports the operationalisation of its variables.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter offers an in-depth analysis of the theoretical, conceptual, and empirical foundations relevant to examining life insurance penetration in Zimbabwe's predominantly informal economy. It begins with an overview of the theoretical framework, establishing fundamental theories that elucidate the economic dynamics of life insurance. The conceptual framework follows, presenting a structured model of key concepts and their interrelationships essential to this inquiry. The chapter proceeds with a review of empirical literature, covering the definition of life insurance, its historical development, and global relevance. It explores the types of risks covered, the life insurance products offered in Zimbabwe, and the various distribution channels used. The link between economic growth and life insurance penetration is investigated, with attention to the growth threshold and comparisons across developing nations. The discussion then focuses on Zimbabwe's informal economy, outlining its features and the challenges it poses to life insurance expansion. It also critically assesses Zimbabwe's economic and socio-political context, along with the regulatory landscape affecting life insurance. The chapter concludes with a discussion of innovative strategies to improve insurance penetration, current market trends, and empirical support for the study's constructs and hypotheses. This comprehensive review sets the stage for the empirical analysis that follows.

2.1 Theoretical Framework

The consumption of life insurance is supported by various traditional economic theories. The study's macroeconomic inquiry would be based on lifespan-related economic theory. The Life Cycle Hypothesis by Ando & Modigliani (1963) and the Human Capital Theory formulated by Mincer (1958), Schultz (1961), and Becker (1962) represent the key economic explanations for individuals' motivation to acquire life insurance (Heo, 2020). Consequently, the study would primarily rely on the Life Cycle Hypothesis as its major theoretical framework, with the Human Capital Theory serving as a secondary supporting framework.

2.1.1 Life Cycle Hypothesis

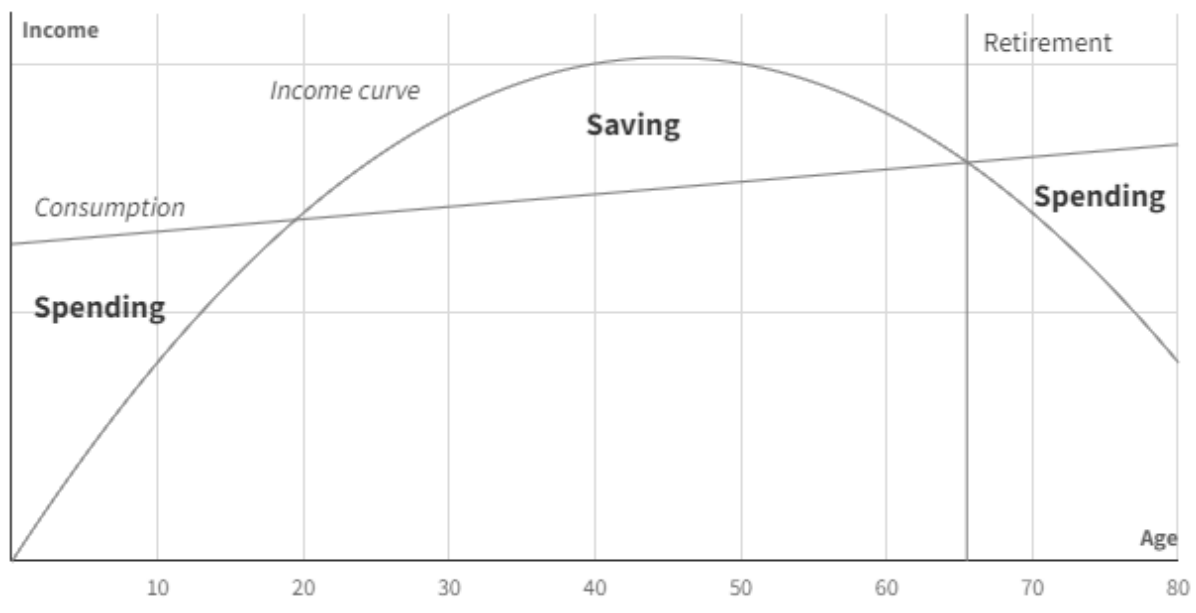


Figure 2.1: Life Cycle Theory of Consumption/ Life Cycle Hypothesis

Source: Author (2024)

The life-cycle theory of consumption, commonly referred to as the ‘life-cycle hypothesis’, was introduced by Albert Ando and Franco Modigliani in 1963. This hypothesis asserts that an individual’s consumption at any given time is influenced by available resources, the return on their capital, and their age (Ando & Modigliani, 1963). An individual's resources consist of current net worth and the present value of all expected future labour income (Dwivedi, 2020). The theory holds that a rational consumer distributes income across their lifetime, structuring consumption based on total available resources to maximise overall lifetime utility (Heo, 2020).

The hypothesis suggests that consumption is determined by wealth, projected lifetime income, and the years remaining until retirement. As noted by Heo (2020), consumption depends on:

$$C = \frac{W + RY}{T}$$

Where:

C = consumption

W = Wealth

R = years until retirement (remaining working years)

Y = Income

T = Remaining years of life

The theory suggests that consumption is influenced by wealth, anticipated lifetime income, and the time remaining until retirement:

$$C = aW + bY \quad (1.1)$$

C signifies consumption, W indicates wealth, Y pertains to labour income, a represents the marginal inclination to spend from wealth, and b depicts the marginal propensity to consume from income.

The life-cycle model suggests that saving patterns change throughout an individual's life, with wealth generally being accumulated during working years and drawn down during retirement (Mankiw, 2019). It also reinforces the idea that life insurance and annuities play a crucial role in enhancing household utility by offering financial protection across different life stages (Yaari, 1965; Lewis, 1989; Heo, 2020).

The life-cycle model offers a rationale for the importance of life insurance (Black & Skipper, 2000). Yaari (1965) and Lewis (1989) highlighted the economic significance of life insurance and annuities, demonstrating their beneficial effect on household utility through demand functions grounded in the life-cycle framework (Heo, 2020). Fischer (1973) observed that life insurance purchases are linked to income sources, with labour income prompting such purchases, while income from wealth does not (Heo, 2020). According to Liebenberg et al. (2012), key life events—such as marriage, childbirth, homeownership, or starting a job—tend to encourage life insurance purchases, whereas events like spousal death, job loss, divorce, or retirement may lead to policy cancellations.

The life-cycle hypothesis serves as a theoretical foundation for understanding the role of life insurance in economies dominated by informal employment, such as Zimbabwe. The theory posits that individuals aim to stabilise consumption throughout their lives, and life insurance facilitates this by offering financial protection against unforeseen events like death or disability. In contexts where formal employment and public safety nets are scarce, life insurance becomes an essential financial planning instrument. This framework helps explain why, despite income

instability and limited savings options, individuals in Zimbabwe may still view life insurance as a priority.

Despite its influential contributions, the life-cycle hypothesis has faced several criticisms. One major critique is its assumption of rational planning and foresight by individuals regarding their future income, lifetime income profile, and other socio-economic factors (Dwivedi, 2020). This assumption is often unrealistic, as individuals may not have accurate information or the ability to plan meticulously for the future. Furthermore, the theory presupposes that individuals deplete their wealth in old age, which is contradicted by evidence showing that many prefer to leave inheritances (Mankiw, 2019). Behavioural economics challenges the notion of rational and forward-thinking individuals, highlighting issues such as lack of self-control and the inability to save adequately for the future (Dwivedi, 2020). Additionally, the theory's assumption that individuals have a high degree of confidence in their life expectancy and access to all necessary information for planning is unrealistic (Dwivedi, 2020). Branson & Klevorick (1972) critiqued the theory for its unclear linkage between current income and current consumption, contending that variations in current income, if not accompanied by changes in expected future income, lead to only minimal adjustments in current consumption. Moreover, empirical research has often failed to support the life-cycle hypothesis, leading to questions about its validity (Mankiw, 2019; Dwivedi, 2020).

The life-cycle theory of consumption offers a useful framework for analysing individuals' economic behaviour throughout their lives, especially in relation to life insurance usage. Its relevance to the study of life insurance penetration in Zimbabwe's largely informal economy is significant, offering insights into how individuals manage their resources to achieve financial security. However, the theory's assumptions and empirical validity have been questioned, highlighting the need for a deeper understanding of consumption patterns that consider behavioural factors and the realities of economic uncertainties. Despite these criticisms, the life-cycle hypothesis remains a foundational theory in economic studies, providing a basis for analysing and improving life insurance uptake in various economic contexts.

2.1.2 Human Capital Theory

Human Capital Theory, established in the mid-twentieth century by Mincer (1958), Schultz (1961), and Becker (1962), serves as a key framework for examining the link between education, training, and income. Becker (1962) advanced the economic notion of human capital

by asserting that differences in education and training contribute to disparities in income and earnings. Individuals can acquire skills known as human capital that enhance their productivity and lead to increased income (Blair, 2012). It presents a clear explanation for personal income, stating that improvements in knowledge, skills, and abilities lead to better job opportunities and higher wages (Fix, 2018).

According to Human Capital Theory, investments in education and skill development raise an individual's productivity, thereby contributing to greater income. This relationship is captured in the human capital model equation:

$$P = MP + G = W + C = \pi \quad (1.2)$$

Where:

P represents total labour productivity

MP denotes marginal productivity.

G denotes the surplus of anticipated revenues.

W indicates wage

C represents the aggregate of opportunity costs associated with education or training.

π depicts the total wage

Equation (1.2) demonstrates that when a worker undergoes education or training, represented by $P = MP + G$, the resulting increase in productivity leads to a rise in total wage, shown by $W + C = \pi$ (Heo, 2020). Human Capital Theory, therefore, connects the development of knowledge and skills to economic results by highlighting the importance of education and training in improving productivity and income.

Human Capital Theory is applicable to the analysis of life insurance penetration within Zimbabwe's predominantly informal economy. It offers a framework for understanding how personal investment in education and skill development can shape economic behaviour, including decisions related to life insurance. In contexts where formal employment and social

security systems are limited, life insurance becomes an important instrument for financial planning and managing risk. The hypothesis posits that persons possessing greater human capital are more inclined to understand and appreciate the benefits of life insurance, which can result in increased demand. Additionally, by emphasising the roles of productivity and income in shaping economic choices, Human Capital Theory provides insight into the factors that affect life insurance uptake across various demographic groups in Zimbabwe.

Despite its widespread application, Human Capital Theory has faced several criticisms. One major critique is the weak correlation between human capital and income, as noted by empirical researchers (Fix, 2018). Mincer (1974), an early contributor to Human Capital Theory, originally described human capital as the total number of years spent in formal education. However, he later found that this accounted for only a small part of income variability, with weak correlations between income and years of schooling. Additionally, when schooling-related factors are included in multiple regressions, the coefficient of schooling remains relatively small (Mincer, 1974). Another criticism is the ambiguity in the definitions of human capital. Narrow definitions correlate poorly with income, while broader definitions are often too vague to be measurable (Fix, 2018). This lack of precision complicates the empirical application of the theory and challenges its validity. Moreover, the theory presumes that every individual has the same access to education and training opportunities, which does not always reflect reality, particularly in informal economies where resources and infrastructure are often constrained.

Human Capital Theory nevertheless presents a strong framework for examining the economic value of education and training by connecting these investments to productivity and income. Its importance to the analysis of life insurance penetration in Zimbabwe's informal economy is considerable, as it helps explain how human capital affects economic behaviour and decision-making. Still, the theory's empirical limitations and unclear definitions point to the need for a thoughtful application that accounts for the specific challenges faced in informal economies. In spite of these concerns, Human Capital Theory continues to serve as a useful approach for exploring and addressing the determinants that affect life insurance participation, supporting the development of policies and strategies to enhance financial security in Zimbabwe.

2.1.3 Connections between the Theories and the Study

Human Capital Theory and the Life Cycle Hypothesis are related in their interpretation of economic behaviour throughout an individual's life. Both theories offer useful perspectives for understanding how people make financial decisions aimed at improving utility and achieving favourable economic results. The Life Cycle Hypothesis focuses on the need to balance consumption and plan finances over time, with life insurance serving as a key instrument for risk management and economic protection. In contrast, Human Capital Theory stresses the influence of education and skill development in improving productivity and income, which in turn affects the capacity and motivation to invest in financial instruments such as life insurance.

Within the context of this study on life insurance penetration in Zimbabwe's predominantly informal economy, the two theories together offer a well-rounded explanation of individual economic behaviour. The Life Cycle Hypothesis supports the role of life insurance in maintaining stable consumption and managing uncertainty, especially where formal employment and social protection are limited. Human Capital Theory builds on this by showing how educational and skill-based investments can strengthen economic well-being, thereby enabling greater access to life insurance.

Table 2.1: Strengths and Weaknesses of the Theories

Theory	Strengths	Weaknesses
Life Cycle Hypothesis	- Provides a clear framework for understanding how individuals plan their consumption and savings over their lifetime.	- Assumes rational planning and foresight, which may not be realistic for all individuals.
	- Emphasises the importance of life insurance in ensuring financial security and smoothing consumption.	- Presumes that individuals will deplete their wealth in old age, which is not always the case.
	- Provides an understanding of how individuals behave economically at various stages of life.	- Behavioural economics challenges the theory's assumptions of rationality and meticulous planning.

		- Empirical research has often failed to support the theory's predictions, raising questions about its validity.
Human Capital Theory	- Offers a strong foundation for analysing the economic advantages of education and training.	- Weak correlation between human capital and income as noted by empirical research.
	- Emphasises the link between human capital, productivity, and income.	- Ambiguity in the definitions of human capital complicates empirical application.
	- Relevant for explaining the economic behaviour and decision-making of individuals in informal economies.	- Assumes equal access to education and training opportunities, which is not always the case.
		- The theory's assumptions and empirical weaknesses highlight the need for a careful application.

Source: Adapted from: Branson & Klevorick (1972), Dwivedi (2020), Fix (2021), Mankiw (2019), and Mincer (1974).

In conclusion, while both theories have their strengths and weaknesses, they provide valuable insights into the factors affecting life insurance penetration in Zimbabwe's largely informal economy. The integration of these theories helps to form a comprehensive understanding of how economic, educational, and demographic factors influence life insurance consumption, thereby informing policies and strategies aimed at improving financial security in Zimbabwe.

2.1.4 Earlier Literature on Life Insurance Uptake.

Table 2.2 presents selected previous studies that have applied either the life cycle hypothesis or the Human Capital Theory as a framework to investigate life insurance adoption.

Table 2.2: Literature on Life Insurance Uptake

Author (s)	Year Published	Research Title	Theoretical Framework of the Study
Yaari, M.E.	1965	Uncertain Lifetime, Life Insurance, and the Theory of the Consumer.	Yaari's seminal paper integrates the Life Cycle Hypothesis with life insurance demand, creating a foundational framework that has informed subsequent research.
Fischer, S.	1973	A Life Cycle Model of Life Insurance Purchases	Fischer's model directly applies the life cycle hypothesis to explain patterns in life insurance purchasing behaviour.
Campbell, R.A.	1980	The Demand for Life Insurance: An Application of the Economics of Uncertainty	Campbell's study uses the Life Cycle Framework to analyse the economic behaviour behind life insurance purchase decisions.
Beenstock, M., Dickinson, G. & Khajuria, S.	1986	The determination of life premiums: An international cross-section analysis 1970–1981	This paper investigates the elements affecting life insurance demand in industrialised nations using the Life Cycle Hypothesis.
Fitzgerald, J.F.	1987	The Effects of Social Security on Life Insurance Demand by Married Couples	Using the Life Cycle Hypothesis, Fitzgerald's study investigates how social security affects demand for life insurance.
Lewis, F.D.	1989	Dependents and the Demand for Life Insurance	By including the preferences of all family members, this study builds on Yaari's life cycle theory, hence demonstrating how household demographic makeup influences life insurance demand.
Bernheim, B.D.	1991	How Strong Are Bequest Motives? Evidence Based on Estimates of the	This paper explores the influence of bequest motives on life insurance

		Demand for Life Insurance and Annuities	demand, based on the Life Cycle Framework.
Gandolfi, A.S. & Miners, L.	1996	Gender-Based Differences in Life Insurance Ownership	This paper examines how life cycle stages influence gender differences in life insurance ownership.
Outreville, J.F.	1996	Life Insurance Markets in Developing Countries	This research uses the Life Cycle Framework to evaluate life insurance markets in developing nations, with an emphasis on the factors that influence demand.
(Brown & Poterba, 2000)J.M.	2000	Joint Life Annuities and Annuity Demand by Married Couples	This study employs the Life Cycle Model to examine the factors influencing the demand for joint life annuities among married couples.
Beck, T., & Webb, I.	2003	Economic, demographic, and institutional determinants of life insurance consumption across countries	To investigate the variables affecting life insurance consumption in several nations, this study used the Life Cycle Hypothesis as the central theoretical framework..
Schlag, C.H.	2003	Determinants of demand for life Insurance products--Theoretical concepts and empirical evidence	Using Human Capital Theory, the paper aimed to highlight theoretical ideas that clarify life insurance need and to provide empirical results on the elements influencing this need.
Li, D., Moshirian, F., Nguyen, P. & Wee, T.	2007	The demand for life insurance in OECD countries	The study explores the determinants of life insurance consumption in OECD countries, using the Life Cycle Framework as a theoretical basis
Gutter, M.S. & Hatcher,C.B.	2008	Racial Differences in the Demand for Life Insurance	Focussing on both the decision to acquire life insurance and the degree of coverage across different ethnic groups, the study used Human Capital Theory to investigate racial

			differences in the proportion of human capital that families protect through life insurance.
Liebenberg, A.P., Carson, J.M., & Dumm, R.E.	2012	A Dynamic Analysis of the Demand for Life Insurance	This research investigates life insurance demand using a dynamic life cycle framework, assessing how life events and shifts in household financial circumstances influence the need for life insurance.
Lu, Y. & Yanagihara, H.	2013	Life insurance, human capital accumulation and economic growth	Using an overlapping generations framework to investigate the role of life insurance in developing human capital and its impact on investment in education, the paper uses Human Capital Theory to contrast economic growth rates in settings with and without life insurance.
Dey, S.	2015	Demand for Long-Term Care and Long-Term Care Insurance: A Human Capital Perspective	The study applies Human Capital Theory to assess long-term care insurance demand, comparing private coverage with self-insurance, family aid, and public options. A key focus is the role of education and health in driving these preferences.
Outreville, J.F.	2015	The relationship between relative risk aversion and the level of education: A survey and implications for the demand for life insurance	The research utilised Human Capital Theory to analyse empirical literature about the relationship between relative risk aversion and educational attainment, as well as to investigate the consequent implications for life insurance demand.
Abonongo, J. & Luguterah, A.	2016	Demand For Life Insurance Products in	Though the paper does not formally embrace the life cycle theory, it

		The Upper East Region Of Ghana	acknowledges that often the life cycle paradigm is used to examine demand for life insurance, with uncertainty about life expectancy affecting life insurance use..
Sardar, S. & Shiri, G.	2016	The Effect of Human Capital, Assets, and Social Interactions on Life Insurance Demand (Case Study: Branches of Iran Insurance Company, Tehran, Iran)	This study investigates how human capital, asset ownership, and social relationships shape the need for life insurance in Iran using Human Capital Theory.
Zerriaa, M., Amiri, M.M., Noubbigh, H. & Naoui, K.	2017	Determinants of Life Insurance Demand in Tunisia	Using annual macroeconomic data spanning the years 1990 to 2014, the study examined the elements affecting life insurance demand in Tunisia applying the Human Capital Theory and the Life Cycle Hypothesis.

Source: Author's compilation (2024)

2.2 Conceptual Framework

This study adopts a conceptual framework grounded in the life cycle hypothesis and human capital theory, both of which emphasise intertemporal decision-making under conditions of uncertainty. The framework models life insurance penetration as a function of macroeconomic, institutional, and demographic variables. It aims to assess how shifts in these external factors influence aggregate demand for life insurance in Zimbabwe over time.

The key exogenous independent variables incorporated in the framework include the size of the informal sector, inflation, per capita income, unemployment, financial development, central bank independence, life expectancy, age dependency ratio, and insurance literacy. These were selected based on a synthesis of existing empirical literature and contextual relevance to Zimbabwe's socioeconomic conditions.

The informal sector, recognised as a distinctive and pervasive component of Zimbabwe's economy, is treated in this study as an exogenous independent variable rather than as a moderating or mediating factor. For the purposes of this analysis, the informal sector is operationally defined as its relative size in proportion to the country's GDP. The primary objective is to assess the impact of an expanding informal sector on life insurance penetration. This modelling choice is influenced by both theoretical and methodological considerations. The research focuses on examining the direct and sustained effects of variations in the informal sector's size on life insurance penetration and density. Conceptualising it as an exogenous driver facilitates a more policy-relevant interpretation of its systematic influence on insurance demand, particularly with respect to income instability, exclusion from formal financial systems due to informality, and the potential role and scalability of microinsurance as a targeted intervention.

Conceptually, distinguishing between informal sector dynamics and conventional economic variables is critical. The informal sector represents a structural economic condition that alters the environment in which other macroeconomic variables operate. Unlike per capita income or inflation, which represent conventional economic aggregates, informality reflects labour market composition, institutional informality, and regulatory gaps. Thus, it can be modelled independently, even if it affects and interacts with other factors.

Figure 2.2 presents the conceptual framework, depicting the hypothesised causal relationships among the independent variables and the dependent variable—life insurance penetration. While the diagram may resemble a path analysis structure, suggesting the potential application of structural equation modelling (SEM), the study employs the autoregressive distributed lag (ARDL) methodology for estimation. The use of ARDL is deliberate and methodologically appropriate for the following reasons:

- a) **Nature of the Data:** The study uses annual time series data from 1990 to 2022. The ARDL model accommodates variables with different orders of integration ($I(0)$ and $I(1)$), unlike SEM, which requires stationarity or larger cross-sectional datasets.

b) **Sample Size:** SEM techniques generally require large samples for reliable parameter estimation, which are not available in this case. ARDL is more efficient for smaller samples, especially in macroeconomic contexts.

c) **Short- and Long-Run Dynamics:** ARDL permits simultaneous estimation of short-run fluctuations and long-run equilibrium relationships, aligning well with the study's objective to assess both immediate and sustained effects of macro-level factors on life insurance uptake.

In summary, the conceptual framework retains the informal sector size as an exogenous independent variable to explore its direct and long-term influence on life insurance penetration in Zimbabwe. This approach, while recognising the sector's complex interactions with other variables, enables a clearer analytical pathway for identifying its net effect. The model structure and empirical design maintain the distinction between conventional economic indicators and informal dynamics, ensuring conceptual clarity and methodological rigour.

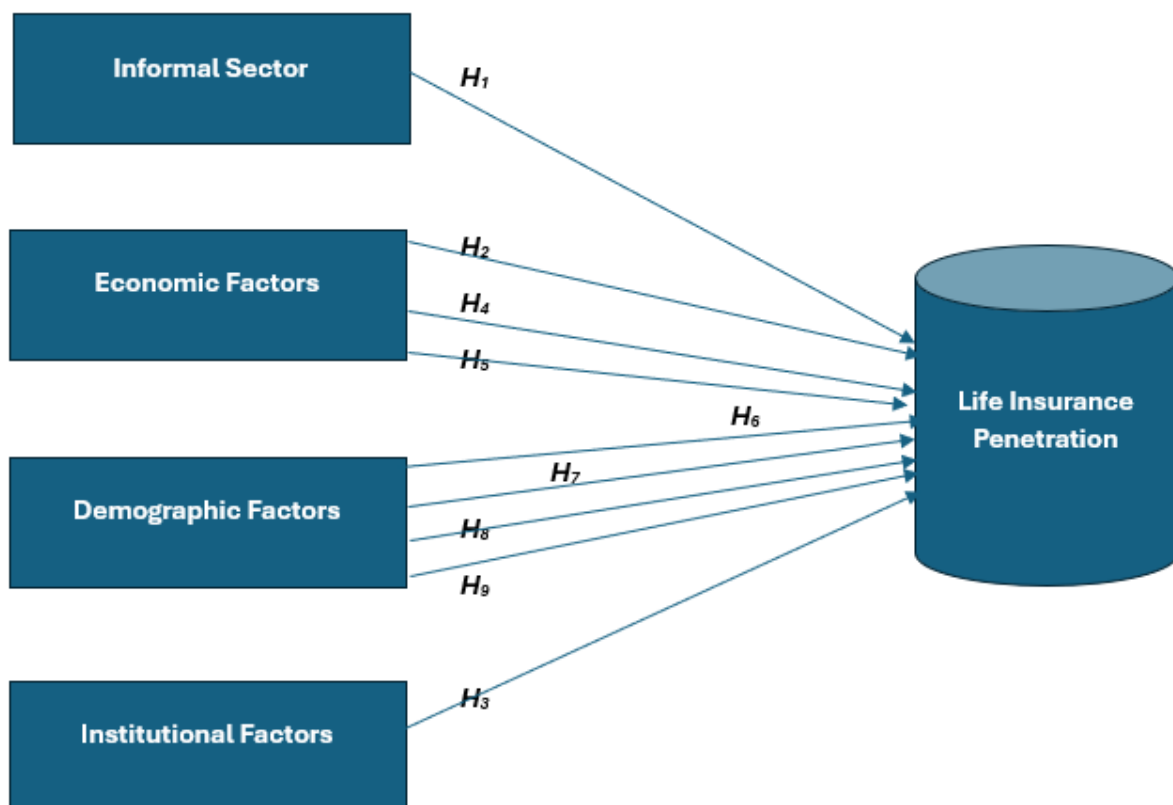


Figure 2.2: Macroeconomic Factors that influence life insurance penetration.

Source: Author (2024)

Table 2.6: A Description of the Study Variables

Variable Name	Variable Type	Variable/ Proxy Variable Description	Source
Life insurance penetration	Dependent	The proportion of life insurance premiums for domestic risks relative to GDP. Premium volume represents the direct premiums collected by the insurer over the preceding calendar year (Swiss Re, 2022).	Swiss Re, Sigma Explorer Reports (Swiss Re, 2024).
Life insurance density	Dependent	Life insurance density reflects the average expenditure on life insurance per capita in a specific country or region. The calculation is achieved by dividing the total life insurance premiums by the total population (Oteng et al., 2023; Swiss Re, 2022).	Swiss Re, Sigma Explorer Reports (Swiss Re, 2024).
Informal Economy Measure	Independent	Projections of informal economic activity expressed as a share of formal GDP, generated using a dynamic general equilibrium	World Bank Informal Economy data Base (World Bank 2024).

		model (Elgin et al., 2021).	
Inflation	Independent	Inflation, as indicated by the annual growth rate of the GDP implicit deflator, reflects the overall rate of price change within the economy. It is calculated by dividing GDP at current local currency by GDP at constant local currency (Gogoberishvili and Bayar, 2023).	Data obtained from the national accounts of the World Bank and the National Accounts data files of the OECD (World Bank 2024).
Central Bank Independence (CBI)	Independent	Central bank independence refers to the extent to which a central bank functions without political pressure or government involvement in its policy decisions, particularly in relation to monetary policy (Romelli, 2024).	CBI Indices Data Base (IMF, 2024).
Per capita income	Independent	Gross domestic product (GDP) per capita is expressed in current international dollars, converted using purchasing power parity (PPP) conversion	World Development Indicators database provided by the World Bank (2024).

		factors. GDP measures the total gross value added by all resident producers, inclusive of product taxes and exclusive of subsidies. The PPP adjustment accounts for cross-country price level differences, while the population data reflect mid-year estimates encompassing all residents, regardless of legal status (Rehman & Cooper, 2023).	
Financial Development	Independent	The ratio of private credit provided by deposit money banks and other financial institutions to Gross Domestic Product (GDP) (Muhammad & Ngele, 2023).	Global Financial Development Database International Financial Statistics (IFS) (IMF, 2024)
Insurance literacy	Independent	Educational attainment measured as the percentage of the population aged 25 and older who has completed secondary education, reported by the World Bank (2024).	Global Financial Development Database International Financial Statistics (IFS) (IMF, 2024)

Age dependency ratio	Independent	Population of dependency 100 x (Population (0-14) + Population (65+)) / Working Population (15-64) (ZIMSTAT, World Bank (2024).	Global Financial Development Database International Financial Statistics (IFS) (IMF, 2024)
Life expectancy	Independent	The estimated average age of death for individuals in a given population group (World Bank, 2024)	World Bank World Development Indicators database (2024).
Unemployment	Independent	The percentage of the labor force that is unemployed and actively seeking employment (World Bank, 2024).	World Bank World Development Indicators database (2024).

Source: Author (2024)

2.2.0 Empirical Literature

2.2.1. Overview of Life Insurance

2.2.2 What is a life insurance contract?

A life insurance contract is a legally binding agreement between a policyholder (the insured individual) and an insurer (the insurance company). In this arrangement, the insured agrees to pay regular premiums, and in exchange, the insurer commits to providing a predetermined sum, called the sum insured or death benefit, to the insured or designated beneficiaries in the event of the insured's death within the agreed coverage period (Banyár, 2021; Fang & Kung, 2012; Tomić & Kaščelan, 2022). The policy covers the life of the insured, who may or may not be the policyholder. This allows life insurance to be taken out either on the policyholder's own life or on someone else's life, provided the policyholder has a valid interest in that person (Banyár, 2021; Tomić & Kaščelan, 2022). The beneficiary, who may be an individual or a legal

entity, is specified in the contract to receive the sum insured (Tomić & Kaščelan, 2022). Although death remains the primary risk covered, contemporary life insurance policies may also provide protection for other important life events unrelated to death.

Life insurance agreements are governed by contract law in most jurisdictions. To be legally valid, an insurance contract must satisfy key criteria such as offer and acceptance, competent parties, exchange of consideration, lawful purpose, insurable interest, and adherence to the doctrine of utmost good faith (Rejda et al., 2022). The final two elements differentiate the life insurance contract from other commercial contracts.

2.2.3 The Nature of a Life Insurance Contract

A life insurance contract is considered partially aleatory rather than entirely commutative (Tomić & Kaščelan, 2022). An aleatory contract is one where the exchange of value depends on an uncertain event, which may result in one party receiving a significantly larger value than they contributed due to chance (Rejda, McNamara, & Rabel, 2022). For instance, a 10-year term life insurance policy with an annual premium of \$250 provides a guaranteed benefit of \$250,000 to a 25-year-old policyholder. If the insured passes away during the first year, the death benefit of \$250,000 is paid out, which is not proportional to the premium paid. By contrast, other commercial agreements are commutative, where each party exchanges items of equivalent value. For example, when a person purchases real estate, the amount paid typically reflects the property's market value (Rejda et al., 2022). Although an aleatory contract involves uncertainty or the occurrence of an unforeseen event, life insurance is not regarded as a form of gambling. This distinction arises because gambling introduces a new speculative risk that did not exist before, whereas insurance addresses a pre-existing pure risk (Rejda et al., 2022). While both involve uncertain outcomes, insurance manages risk without creating new uncertainty.

Rejda et al. (2022) also explain that an insurance contract is unilateral, as only the insurer is legally obligated to perform under the contract. After the policy is issued and the first premium is paid, the insured is not legally required to continue paying premiums or to comply with policy conditions. Although the insured must keep up with premium payments to maintain coverage, the law does not compel them to do so. However, if premiums are paid, the insurer is required to accept them and must continue to provide coverage as stated in the agreement.

A life insurance policy is also described as a contract of adhesion, which means the insured must accept the contract in full, including all of its terms and conditions (Rejda et al., 2022). The insurer prepares and issues the policy, and the insured typically has no opportunity to revise or negotiate its contents. While endorsements or riders can be added, the core terms are generally fixed by the insurer. Courts have held that when there is a lack of clarity in the contract, the interpretation should favour the insured to correct any imbalance (Rejda et al., 2022). This ensures that unclear provisions are resolved to the advantage of the insured.

The principle of reasonable expectations strengthens the position that unclear insurance policy terms should be interpreted in favour of the insured (Shelley, Arnold, and Needleman, 2002). According to this principle, the insured should receive the coverage they reasonably believed the policy provided, even if that expectation is not entirely supported by the policy's wording. Insurers are not allowed to include exclusions or limitations that contradict what the insured could reasonably expect from the policy.

Life insurance primarily aims to offer financial security to individuals and households by safeguarding against mortality, morbidity, and longevity risks (KPMG, 2018; Sanjeewa & Hongbing, 2019). Consequently, policyholders are safeguarded by the life insurance industry from the perils of untimely demise, sickness, incapacity to work, and insufficient funds for retirement (Cummins et al., 2018). These life cycle events can have financial implications for individuals, households, and businesses.

2.2.4 Termination of a life insurance contract

After a life insurance policy becomes active, the insurer generally does not have the authority to cancel it. Typically, only the insured can end the contract, either by allowing it to lapse or by surrendering it (Hwang, Chan, and Tsai, 2022). A lapsed policy is one that has become inactive due to the policyholder's failure to make the necessary premium payments (Shamsuddin et al., 2022). A policy is therefore terminated by the insurer when the policyholder fails to pay the regular premium (Poufinas & Michaelide, 2018). A policy lapse results in the loss of coverage on the part of the insured. It also means a loss of expected future income to the insurer. A notable characteristic of the majority of life insurance agreements is that if the policyholder terminates the contract prior to the completion of the coverage period,

the amount of money they receive in return for surrendering their policy, known as the cash surrender value (CSV), is typically negligible or non-existent (H. Fang & Kung, 2020). Premature terminations of insurance policies by way of lapses and surrenders are therefore not desirable for both insurers and policy holders (Hilpert, 2020).

2.3 Historical Evolution and Significance of Life Insurance Globally

Life insurance has undergone substantial evolution over centuries, mirroring shifts in economic structures, social norms, and regulatory frameworks. The historical evolution of life insurance demonstrates its increasing importance as a financial tool and its contribution to economic and social stability.

2.3.1 Early Origins

Ancient civilisations can be identified as the origin of life insurance. Ancient Rome had early versions of life insurance, where burial clubs known as "collegia" covered the costs of funerals for their members (Bendlin, 2011). In ancient Greece and China, comparable practices existed in which collective funds were used to offer financial support to families following the death of a member (Davies, 1994). These initial systems established the foundation for combining resources to reduce individual financial risks related to mortality.

2.3.2 Development in the Middle Ages and Renaissance

During the Middle Ages, life insurance concepts began to formalise in Europe. Merchant guilds and fraternal organisations provided mutual aid to members, including support for families after the death of a breadwinner. The Renaissance period saw the emergence of more structured insurance contracts, particularly among Italian merchants who used them to insure cargo and trade ventures against the loss of key personnel (Clark, 1999). The development of actuarial science in the 17th century, notably by mathematicians such as John Graunt and Edmond Halley, provided a scientific basis for calculating risks and premiums, which was crucial for the growth of life insurance. Friendly or benevolent societies, also known as fraternal organisations, have a longstanding history across numerous European nations (Swiss Re, 2017). Prior to the development of modern insurance, these groups often offered coverage to individuals who shared similar types of employment (Swiss Re, 2017). However, the rise of modern insurance systems and the establishment of welfare states led to the decline and eventual closure of many such mutual organisations (Swiss Re, 2017).

In 1654, Chevalier de Méré's inquiries into gambling probabilities prompted mathematicians Blaise Pascal and Pierre de Fermat to lay the foundational principles of probability theory, marking a pivotal moment in the evolution of mathematical forecasting (Swiss Re, 2017). Although the Church initially resisted making predictions about the future, its mortality tables, which were developed by clergy members in an effort to comprehend divine order, offered vital data for these early calculations. Although life insurance was slow to adopt these new methods, it primarily relied on annuities and tontine schemes, which were frequently associated with fraud or mismanagement (Swiss Re, 2017).

2.3.3 Expansion in the 18th and 19th Centuries

Significant developments in life insurance occurred during the eighteenth century, particularly in England and the United States. Formal life insurance practices in the United Kingdom began to take shape in the early part of the century, especially in villages, provincial towns, and in London (Clark, 1997). Historical records, including policy registers and subscriber lists from early insurance firms, show that life insurance gained notable but temporary popularity during this period among affluent manufacturers and professionals, as well as the expanding urban middle class (Clark, 1997). A major milestone was the establishment of the Amicable Society for a Perpetual Assurance Office in London in 1706, one of the earliest mutual life insurance organisations (Murphy, 2010). The Society of Lloyd's, which began as a centre for marine insurance, also started to influence the life insurance sector. In the United States, the Presbyterian Ministers' Fund, founded in 1759, became the first life insurance company (Insurance Information Institute, 2020).

It was not until the eighteenth century that mathematical techniques were incorporated into the calculation of life insurance premiums. James Dodson, after being denied coverage due to his age, advocated for a more equitable method. His efforts led to the adoption of improved premium-setting practices by the English Equitable Life Assurance Society in 1766 (Swiss Re, 2017). Richard Price later expanded on these methods by developing a profitability model that accounted for both present and future mortality rates. This innovation marked a turning point in the evolution of life insurance from a speculative activity to a more scientifically based industry.

In the nineteenth century, life insurance demand increased rapidly due to the effects of industrialisation and urbanisation, which heightened the need for financial protection. The Equitable Life Assurance Society, established in 1762 in England, introduced key innovations such as the level premium structure and the option of surrender values (Insurance Information Institute, 2020). Progress in medical underwriting and the formation of regulatory institutions contributed significantly to the broader acceptance of life insurance. These advances strengthened consumer safeguards and played an important role in building public confidence in the insurance sector.

2.3.4 Modern Era and Global Significance

developed and developing countries alike. The widespread adoption of life insurance was facilitated by the economic expansion and increasing middle-class incomes that followed World War II (Adams et al., 2020; Zafeiris & Skiadas, 2022). The industry's expansion was further bolstered by progress in actuarial science, risk management, and information technology, which improved the effectiveness and dependability of insurance operations.

Life insurance has evolved into a crucial element of financial planning, offering not just compensation in the event of death, but also opportunities for savings, investment, and retirement planning. Its importance goes beyond personal financial security to encompass wider economic stability. Life insurance companies play a significant role as institutional investors, making substantial contributions to capital markets and fostering economic development. They have a crucial function in facilitating the flow of savings into productive investments, thereby supporting long-term financial intermediation (Cummins et al., 2018).

Furthermore, life insurance contributes to social stability by offering economic assistance during personal emergencies, thus alleviating the strain on public welfare systems. It assists individuals and families in effectively handling the financial consequences of unpredictable events, promoting economic stability and societal welfare.

2.4 Common Perils Covered by Life Insurance Policies

Life insurance is an essential tool for managing risks for individuals, households, and businesses. It offers financial protection against different unexpected events in life. Life

insurance typically provides coverage for a range of common risks, which may include the following:

2.4.1 Mortality Risk

Death is among the most certain yet least expected events in life. Life insurance's primary goal is to provide financial security against losses resulting from unanticipated life events including death (Harris & Yelowitz, 2018). Through the contract, the insurer agrees to pay the sum insured to the insured individual or their designated beneficiaries if the insured event occurs, most often an untimely death (Segodi & Sibindi, 2022). The unexpected loss of a financially supportive family member or a key employee in a business can create serious and unforeseen financial challenges for both families and businesses.

In addition to the emotional toll on a family or community caused by a death, there is often a lasting financial impact on a household that loses its primary income earner. From a household standpoint, premature death has been defined as the loss of a family breadwinner who leaves behind unpaid obligations (Harris, Yelowitz, & Courtemanche, 2021; Rejda, Mcnamara, & Rabel, 2022). These responsibilities may include caring for dependants, settling a mortgage, funding children's education, and repaying credit card or instalment debts, among others. The premature death of a breadwinner leads to the permanent loss of their potential future income. In addition to this loss, death often brings immediate financial obligations such as funeral expenses, unpaid debts, and at times, the costs related to settling the estate (Segodi and Sibindi, 2022; Tati and Baltazar, 2018). The resulting reduction in income can significantly lower a household's standard of living (Rejda et al., 2022). Life insurance thus serves as an essential means for individuals to secure financial support for their loved ones in the event of their passing (Gottlieb & Smetters, 2021).

When viewed from a business perspective, premature death can refer to the passing away of a key employee whose absence has a detrimental effect on the company (Rejda et al., 2022). The early death of a co-owner may cause a business to close, depending on the type of enterprise, while the loss of an essential employee could lead to a considerable decline in income (Rejda et al., 2022). Therefore, a company that heavily relies on a crucial employee may struggle to stay competitive if that employee dies unexpectedly. Life insurance can also be used to improve a borrower's creditworthiness by reducing the risk of default for individuals and businesses, thus promoting business efficiency.

To reduce the financial impact of early death, a risk-averse person or company can buy life insurance (Emamgholipour et al., 2017; Sinyavskaya et al., 2018). In exchange for a premium, a life insurance company promises to provide a specified amount of money to the named beneficiaries upon the death of the insured individual, thereby lessening the financial burden caused by an unexpected loss (Gubalová et al., 2018). The purchasing of life insurance has thus been viewed as a typical strategy for preventing the depletion of future human capital earnings (Cheng et al., 2022). Although the main trigger of life insurance payment is usually death, other life contingencies that give rise to the need for coverage include survival, disability, and ill-health.

2.4.2 Morbidity Risk

Both formal and informal employment necessitate that the worker maintains good health. Any life event, like an illness or injury, could incapacitate the worker, putting their earning capacity at risk (Doolin et al., 2020). Illness or injury may lead to sudden medical expenses for the worker. Insurers offer life insurance policies that provide pay-outs in cases of the insured person's poor health or disability due to sickness or injury (Hwang, 2021). Disability and long-term care products, considered morbidity products, are often included in life insurance policies and provide pay outs that adjust for the cost of living for the policyholder (Schanz & Treccani, 2023).

Many life insurance policies offer protection for terminal illnesses. If the insured individual is found to have a terminal illness with a life expectancy typically of twelve months or less, the insurance policy may provide an early disbursement of part or the entire that would otherwise be paid after their death. These benefits are referred to as accelerated death benefits, or combination benefits. They enable a policyholder who is chronically or terminally ill to receive a portion or the entire face amount of their life insurance policy before their death (Rejda, Mcnamara, & Rabel, 2022). This provision allows the policyholder to acquire monetary assets for medical care and other essential needs for the duration of their remaining life (Fang & Kung, 2012).

Some life insurance policies offer additional coverage for critical illnesses such as heart attacks, strokes, cancer, and other serious health conditions. The policy may either pay a single amount

of money or provide regular payments to the insured person upon diagnosis of a covered critical illness. The design of this insurance policy provides financial assistance for medical costs, income loss, and other economic hardships associated with serious health conditions (Tomi & Kaelan, 2022).

Some life insurance policies include provisions for disability coverage. Should the insured suffer a permanent or temporary disability that prevents them from working, the policy might provide benefits to make up for the lost income. Insurers specifically design this coverage to alleviate the financial strain that arises from a sudden decline in earning capacity due to disability (Rejda et al., 2022).

2.4.3 Longevity Risk

Living longer than expected after one's retirement is another risk that an individual has to take into account. One has to ensure that whatever savings that were accumulated during their working life outlive their retirement period. Increased longevity brought about by improved medicine and health care systems in most developed economies underscore the need to hedge one's retirement income against this risk (Yang, Huang, & Yeh, 2019). Life insurers have responded with products such as endowments, annuities, and pensions to meet this demand for coverage. These products are designed to offer pay outs contingent upon the insured person's continued survival.

2.4.4 Other Life Contingencies Covered by Life Insurance

The potential to live for certain duration or reach a specific age can impact one's financial circumstances. Being financially prepared for major life-cycle events like weddings, children's education, home purchases, and retirement is crucial (Zakaria et al., 2016). Insurers have also come up with life insurance products that are tailor made to meet these life events. Life insurance may also serve alternative purposes, including the intention to leave an inheritance (Lockwood, 2018; Pivac, Marasović, & Kovač, 2018), where the insured attempts to leave an inheritance for their survivors. It can also be purchased for tax planning, where the buyer wishes to maximise any tax benefits available (Ramij, 2021; Segodi & Sibindi, 2022). As a result, life insurance providers make available a diverse selection of products that can be adapted to meet the requirements of customers.

Life insurers provide an effective means of offering financial security and peace of mind to families. Risk pooling enhances the cost-effectiveness and financial efficiency of insurance in comparison to self-insurance. Insurance products offer dependable coverage against untimely death and income loss, as uninsured savings are frequently inadequate to replace the income of a wage-earner in the event of early death or disability (Cummins et al., 2018).

The life insurance industry offers policyholders protection against untimely death, sickness, incapacity, and insufficient retirement funds. Life insurers improve the quality of life for their policyholders by combining the risks of death, illness, and longevity among a large group of people and providing guaranteed payments. The practice of risk pooling enables the provision of financial protection, despite the difficulty in accurately predicting the occurrence of a financially adverse event for an individual policyholder (Cronk & Aktipis, 2021). Nevertheless, when there is a substantial number of policyholder, it is possible to forecast the proportion of individuals who would encounter such incidents with a reasonable level of precision.

2.5 Life insurance Products in the Zimbabwean Market

When a client purchases a life insurance policy, they effectively transfer their mortality risk to the insurance provider. Various forms of life insurance products such as term life, whole life, endowment, and universal life are widely available in global markets. In contrast, the life insurance market in Zimbabwe offers a narrow range of products, most of which are standard and conventional in nature. Commonly available options in Zimbabwe include whole life insurance, endowment policies, term life insurance, and annuity contracts.

2.5.1 Term life insurance

Term life insurance serves as the most basic type of life coverage, offering protection for a predetermined period. Under this arrangement, the insurer guarantees payment of a death benefit if the policyholder dies within the specified term, in exchange for regular premium payments. Policy durations generally span from one to thirty years (Insurance Information Institute, 2020). Unlike permanent life insurance, term policies typically lack cash value accumulation features (Poufinas & Michaelide, 2018). The primary variants include level term and decreasing term policies. Level term maintains a fixed death benefit throughout the coverage period, while decreasing term provides a benefit that reduces gradually each year

(Insurance Information Institute, 2020). Some advanced markets additionally offer increasing term policies, where the death benefit rises over the policy's duration.

2.5.2 Whole life

A whole life insurance policy provides permanent cover, ensuring lifelong protection for the insured individual with premiums typically fixed for the policy's duration (Pouffinas and Michaelide, 2018). The policy accumulates a cash surrender value over time, which the policyholder may claim upon early termination, less any applicable surrender charges. Premium payments can be arranged to last the insured's lifetime, a predetermined number of years, or until a set age, such as retirement.

2.5.3 Funeral policy

A funeral policy is a type of permanent life insurance that provides a pay out upon the death of the insured, regardless of when it occurs. Similar to whole life insurance, funeral policies may require premium payments throughout the insured's lifetime, for a specified duration, or until a certain age is reached, such as 75. Although funeral policies are often based on the structure of whole life insurance, they are more closely aligned with the Term-100 life policy, a form of permanent insurance available in some developed countries. Term-100, or T-100, provides lifetime coverage, with premium payments ceasing at age 100. Unlike whole life policies, T-100 policies generally do not accumulate a cash surrender value, as they are designed similarly to term life insurance. In Zimbabwe, funeral policies follow the T-100 model, offering no cash surrender value and typically providing benefits either as a lump sum, a set of funeral services, or a combination of both.

2.5.4 Credit life

A credit life insurance policy is fundamentally a form of decreasing term life insurance. It is a common product that is offered by insurers to cover a borrower's outstanding debt if the borrower defaults on the debt due to an insured life event such as death, disability due to illness or injury, retirement due to ill-health, as well as involuntary job loss such as redundancy or retrenchment by employer. Some policies also cover default due to abscondence by borrower.

This is in situations where the loan is unpaid for more than 90 days and the lender is unable to locate the borrower at their usual addresses. Most financial institutions that offer credits in Zimbabwe, especially commercial banks and building societies, have standing arrangements with insurers for their retail loans and mortgages to be compulsorily covered by credit life insurance. Most banc-assurance relationships in the country are built around the credit life insurance product

2.5.5 Group life insurance (GLA)

Group life insurance is another form of term life insurance. It is usually a coverage provided to a group of people who share some connection to the plan's sponsor, most commonly employees of that sponsor (Rejda et al., 2022). It can offer several benefits, which are frequently packaged together, such as life insurance, medical and dental benefits, and disability benefits (Rejda et al., 2022). In Zimbabwe, GLA cover is usually associated with occupational pension schemes, where it is used to provide death-in-service benefits if the employee dies in the course of employment. Here, the benefit is usually in the form of a multiple of the employee's basic salary, such as twice or four times annual salary. Group life assurance is also frequently offered as an independent product in the Zimbabwean market.

2.5.6 Endowment

An endowment insurance policy provides payment of the face amount if the insured passes away during a specified period (Rejda et al., 2022). If the insured remains alive at the end of the contract term, the face amount is given to the policyholder or the designated beneficiary. Endowment policies are issued for a predetermined period that typically does not exceed the insured's 70th birthday. The sum insured is payable upon the conclusion of the chosen term (referred to as maturity), or upon the insured's prior death. Money back policies are a variant of this product in which periodic partial payments of what are known as survival benefits are made and the balance sum insured is paid upon maturity. This form of endowment, however, often offers a face value as death benefit for the entire policy term. Endowment coverage is therefore a hybrid of life insurance and a savings plan, and a profit participation feature is provided by the majority of the plans (Poufinas & Michaelide, 2018). Endowment policies are popular in some developing countries (Abdul-Fatawu et al., 2019).

2.5.7 Pure endowment

A pure endowment insurance plan provides the policyholder with the sum insured or face amount at the end of the contract term, but only if the insured survives until that time. If the insured individual passes away before the policy term ends, no payment is made. One of the primary reasons for purchasing a pure endowment is to gradually save money for future use and this type of insurance policy often includes profit participation features (Poufinas & Michaelide, 2018). While most life insurances cover the risk of death, the pure endowment covers the risk of survival. Pension plans are usually modelled after endowments and pure endowment plans.

2.5.8 Annuity products

An annuity is a series of payments made to a policyholder by an insurer over a predetermined period or for life in exchange for a one-time payment (Rejda et al., 2022). Annuities are often purchased in retirement as coverage for the risk of the insured's longevity (Luciano et al., 2016). It is common for retirement savings plans modelled after endowment policies to give the policyholder the option of receiving the insured amount as an annuity rather than a lump sum (Poufinas & Michaelide, 2018).

2.5.9 Universal Life Insurance

While not prevalent in Zimbabwe, this form of permanent insurance is commonly found in well-developed insurance markets. Universal life insurance is a form of policy that permits flexible premium payments. It includes both protection and savings elements, which are treated separately within the agreement (Rejda et al., 2022). The decline of hybrid policies and the rise of adaptable whole life policies eventually resulted in the creation of universal life insurance (Rejda et al., 2022). Universal life insurance combines lifelong coverage with investment features that provide tax benefits, although certain restrictions apply (Ikeda & De Franca Carvalho, 2022). Universal life (UL) insurance is widely regarded as the most adaptable form of life insurance, as it allows the policyholder to make multiple modifications to the policy in the future.

In traditional term insurance and guaranteed whole life insurance, the three pricing elements, namely mortality costs, investment returns, and expenses, are combined into a fixed structure that does not change over the life of the contract. The policyholder typically remains unaware of how their premium is divided between mortality costs and expenses. In contrast, universal life insurance policies offer clear details regarding the allocation of mortality costs, the method for calculating expense charges, and any guaranteed investment returns attached to the policy. This transparency allows the policyholder to better understand how insurance costs and expenses vary over time and how they affect the policy's cash value. The cash value of a universal life policy reflects the monetary value of the investment account or accounts held within the policy and may either match or differ from the cash surrender value. Universal life insurance therefore gives policyholders a clearer and more transparent view of both the protection and investment aspects of the policy (Ikeda & De Franca Carvalho, 2022).

2.5.10 Riders and Supplementary Benefits

Life insurance policies are often improved by adding features known as riders and supplementary benefits (Rejda et al., 2022). These additions enable policies to be tailored to better suit the specific needs of policyholders. Although the terms "riders" and "supplementary benefits" are often used interchangeably, they have different purposes. Riders generally extend benefits payable upon the insured's death, while supplementary benefits provide advantages that can be accessed before death. Both riders and supplementary benefits may be included when the policy is issued or added later to an existing policy. They are available for both term and permanent insurance products and usually require the payment of extra premiums. However, aside from the paid-up additions rider, they do not contribute to the cash surrender value of the policy.

Riders increase the death benefit beyond what is offered by the base policy. Common riders, although not all are available in Zimbabwe, include paid-up additions (PUA) riders, term insurance riders, accidental death (AD) riders, and guaranteed insurability benefit (GIB) riders. A PUA rider allows a policyholder of a whole life or universal life policy to make additional lump-sum premium payments to purchase small amounts of paid-up permanent insurance during the life of the main policy (Shah, 2023). This enhances both the death benefit and the

cash surrender value. An AD rider offers an additional pay out if the insured dies because of an accident, supplementing the regular death benefit (Banyár, 2021). A GIB rider enables the policyholder to buy extra life insurance in the future without needing to prove insurability, with the premium based on the insured's age at the time of the purchase, assuming no change in health.

Supplementary benefits are designed to provide advantages while the insured is still alive and may or may not affect the death benefit. Examples include accelerated death benefits, accidental dismemberment benefits, waiver of premium for total disability benefits, and parent or payer waiver benefits (Banyár, 2021). Accelerated death benefits, also called living benefits, permit early payment of part of the death benefit under specific conditions. These include terminal illness benefits, allowing an advance if the insured is diagnosed with a terminal illness expected to lead to death within a defined time frame, and dread disease benefits, which provide a pay out if diagnosed with a covered illness even without a terminal prognosis (Banyár, 2021).

An accidental dismemberment benefit offers a lump sum payment if the insured loses a particular body part or function due to an accident, based on a schedule outlined in the policy document (Aswini & Babylantha, 2021). The waiver of premium benefit cancels premium payments, including those for any riders or supplementary benefits, if the insured becomes totally disabled. The definition of total disability may vary but typically involves the inability to perform usual work for the first two years, followed by any occupation for which the insured is reasonably suited (Aswini & Babylantha, 2021). The parent waiver benefit, for policies insuring a child, and the payer waiver benefit, for policies where the insured is someone other than the policyholder's child, operate similarly to the standard waiver of premium benefit.

Although riders and supplementary benefits require additional premiums, they offer significant opportunities for policy customisation and enhancement. These features not only increase the appeal of life insurance policies to consumers but also support the promotion and sale of insurance products.

2.6 Life insurance Distribution

Life insurance is distributed through various channels, including the methods and processes insurers use to offer their products or services to customers. Insurance distribution involves

selling, proposing to sell, advising on, or finalising insurance contracts with clients (Braun & Schreiber, 2017; Pain et al., 2014). This aspect is integral to an insurer's business model, which includes not only the sale of insurance policies but also a wide range of related activities (Rajendran & Balamurugan, 2017; Singh & Deshmukh, 2022). Distribution encompasses sharing product and pricing details, facilitating communication between the insurer and consumer, completing transactions, and other associated activities (Pain et al., 2014). In nearly all markets, life insurance distribution is strictly regulated, with regulations often focusing on licensing, market conduct, disclosure, and minimum capital requirements for participants (Đokić, 2022; Marano & Siri, 2017). Life insurers typically utilise two primary distribution systems: the agency channel and the direct distribution channel (Ntikalai & Tari, 2019).

2.6.1 Agency Distribution

The agency distribution system, essentially an intermediary model, is the predominant life insurance distribution channel in most markets, where participants primarily engage in face-to-face selling of insurance products (Insurance Information Institute, 2021). Insurance markets are characterised by asymmetric and incomplete information (Dosis, 2018; Laurent, 2016; Schwarcz, 2014). Potential customers are often unaware of the full range of available insurance products and may struggle to identify the best insurer. Conversely, insurers may lack sufficient information to accurately assess and price the risks associated with prospective clients (Koller, 2011; Pain et al., 2014). Life insurance intermediaries help to mitigate these information challenges, creating economic value for both insurers and customers through economies of scale and reduced coordination costs (Bikker, 2017; Cummins & Doherty, 2006; Klumpes & Schuermann, 2011; Pain et al., 2014). The intermediation process within the agency distribution model aims to effectively match products with consumers' needs (Kulkarni, 2015), typically through in-person interactions (Svoboda, 2021). Insurance policies provide intangible benefits at the time of purchase, requiring a degree of motivation and readiness from the buyer to accept these benefits (Low et al., 2021). Consequently, insurance consumers require education, counselling, motivation, and often persuasion to act, which is the primary role of the life insurance agency distribution model (Low et al., 2021). In Zimbabwe, the agency distribution system comprises direct agents, insurance brokers, independent agents, corporate agents, the multiple agency models, and the banc-assurance agency channel.

2.6.1.1 Direct Agents

Direct agents are sales representatives employed by life insurers to sell only the firm's products. Known as 'exclusive', 'tied', or 'captive' agents, they are controlled and supported by the company that hires them (Bedakihale, Venugopal, & Srinivasan, 2022; Eckert, Eckert, & Zitzmann, 2021; Petsch, 2022). Tied agents are typically compensated through commissions, salaries, or a combination of both. Additionally, some companies offer benefits such as subsidised pensions, medical insurance, car purchase loans, and mortgage schemes. These sales personnel are usually provided with office space, training, and other selling supports, such as online capabilities, by the contracting firm. Consequently, they are expected to enhance life insurance penetration and significantly contribute to the company's growth (Bedakihale et al., 2022). Although the direct agency channel is considered costly (Ntikalai & Tari, 2019; Ward, 2002), it allows insurers greater control over business volume, product mix, and customer retention.

2.6.1.2 Insurance Brokers

Insurance brokers act as intermediaries for insurance purchasers, offering a variety of services, including placing clients' business with insurers (Rejda et al., 2022). As professionals, brokers evaluate clients' risks, provide guidance on risk reduction, help clients understand coverage options, and serve as liaisons between policyholders and insurers (Singh et al., 2020). Unlike tied agents, brokers can contract with multiple insurers, thus presenting clients with a wide range of options (Guillem, 2020). This ability to consolidate a client's life, non-life, general, health, and travel insurance needs under one roof gives brokers a distinct advantage over other intermediaries (Singh et al., 2020). As independent firms, brokers aim to match customers' needs with insurers' offerings, establishing themselves as experts in insurance advisory.

Brokers are typically remunerated through commissions paid by insurers for procured business, and they may also charge fees for their services. Free from the control of insurers, brokers are expected to provide independent advice to their clients and assist them in the claims process.

2.6.1.3 Independent Agents

In Zimbabwe, independent agents may be contracted on a part-time basis to sell exclusively an insurer's products. In some markets, independent agents are permitted to represent multiple insurers (Rejda et al., 2022). Although not fully controlled by their contracting insurers, these agents may be required to meet minimum sales quotas within a financial period.

2.6.1.4 Corporate Agents

Corporate agents are entities primarily engaged in non-insurance businesses but contracted by life insurers to sell their products. While they function as independent intermediaries, they often have to contract with a single insurer. However, some markets permit these entities to work with multiple insurers under special licences.

2.6.1.5 Multiple Agency

The multiple agency model is a distinct type of agency in Zimbabwe. It functions in the same way as a corporate agency but holds a special licence allowing it to contract with multiple insurers. Like insurance brokers, a multiple agency can employ its own direct agents to solicit business on behalf of insurers. The corporate agency is remunerated through commissions by insurers for any new business it procures.

2.6.1.6 Bancassurance

Banc-assurance is a corporate agency distribution model where banks or financial institutions distribute insurance products through their networks, targeting their customer base (Bawa & Chathha, 2016; Rubio-Misas, 2022). Depending on market regulations, banc-assurance can represent either one insurance company exclusively or multiple insurers simultaneously (Guillem, 2020). While it is a less significant channel in some markets, banc-assurance is crucial in several European countries, including Spain, France, Portugal, and Italy, accounting for over 60% of these nations' life insurance sales (Rubio-Misas, 2022). The primary advantages of banc-assurance compared to other distribution systems are cost synergies and distribution benefits (Rubio-Misas, 2022), which stem from human resources, asset management, IT collaborations, and cross-selling opportunities (Chen, 2019; Shetty & Basri, 2020).

Different banc-assurance models are used in various markets. Common types include the pure distributor referral model, pure distributor corporate agency model, strategic alliance model, joint venture model, and full integration model (Devi, 2019; Guillem, 2020; Reddy & Sreelatha, 2021).

In the pure distributor referral model, the bank refers all sales leads to the partner insurer. Bank staff receives insurance inquiries and pass them to the insurer to complete the sales process. In some cases, the bank provides its customer database to the insurer, who then contacts the

prospects to complete sales (Aremu, 2020). Some arrangements offer insurer sales personnel office space within the bank premises, facilitating lead referrals. This model is simple to implement, requiring minimal investment and low bank involvement (Ganesan & Eswari, 2016).

In the pure distributor corporate agency model, the bank actively sells insurance products on behalf of the insurer (Reddy & Sreelatha, 2021). The bank typically earns commissions on new business, with commission levels higher than in the referral model. This model allows more interaction between bank employees and customers, with bank staff selling both banking and simple insurance products.

The strategic alliance model involves a contract where the bank exclusively sells insurance products for the partner insurer, developing a more integrated approach to distribution (Dua, Sahay, & Deol, 2019). This model may integrate the bank's and insurer's systems for selling insurance products, underwriting, and claims processing, requiring higher skill levels from bank employees.

In the joint venture model, the bank and insurance company form a joint business agreement to develop the banc-assurance business over a set period (Dua et al., 2019). Both parties invest, own, and control the venture jointly, sharing income, costs, and assets proportionally. This model allows joint product development, sales, and marketing, requiring strong commitment from both parties.

The full integration model combines banking and insurance services under one brand, with the bank selling insurance products and providing comprehensive financial solutions (Reddy & Sreelatha, 2021). The bank controls sales, while the insurer manages service levels and claims handling, often establishing an insurance business unit within the bank's corporate structure.

2.6.2 Direct Distribution

Direct distribution involves un-intermediated, non-face-to-face customer engagement through digital channels, mobile devices, and call centre platforms. While intermediated sales still dominate the global life insurance market, digital distribution is gaining momentum (Kaesler et al., 2020). The Covid-19 pandemic has hastened the expansion of digital insurance

distribution, supported by advancements in technologies such as Artificial Intelligence, Big Data, and mobile technology (Balasubramanian et al., 2021; Eckert et al., 2021; OECD, 2020; Svoboda, 2021).

Consumers can use digital platforms not only to purchase new life insurance products but also to manage their policies from home (Singh et al., 2020; Svoboda, 2021). The abundance of information and online tools provided by insurers enables consumers to better assess their risks and understand how insurance can mitigate those (Pain et al., 2014). Customers can now purchase life insurance online through self-service sales platforms on insurer websites (Svoboda, 2021; Kaesler et al., 2020).

Insurers also use mobile phones to distribute life insurance directly via internet-enabled phones, social media applications, and simple SMS technology (Leach & Ncube, 2014; Pain et al., 2014; Raithatha & Naghavi, 2018). This method has been particularly successful in developing countries for micro-life insurance distribution (Inyang & Okonkwo, 2021; Leach & Ncube, 2014).

Additionally, the call centre channel has emerged as a direct sales model. Insurers deploy call centre agents or customer service professionals who reach prospective customers through emails, SMS, live chat, phone calls, and other communication forms to sell life insurance products. This method is effective for captive markets, such as those offered by bancassurance models and insurers affiliated with mobile network operators (Pain et al., 2014; Singh et al., 2020).

Choosing an appropriate life insurance distribution strategy is vital for an insurer's growth and ability to compete (Olobo et al., 2022). It is important to select a distribution model that aligns with the organisation's goals. While the direct agency model continues to dominate worldwide, the increasing involvement of mobile network operators in the insurance sector is advancing the move toward direct distribution (Singh et al., 2020). The Covid-19 pandemic has further emphasised the need to strengthen direct life insurance distribution channels.

2.6.3 Limitations of the Agency Distribution System in Informal Economies

While the agency distribution system remains a dominant channel for life insurance dissemination in many markets, its effectiveness in informal economies—such as Zimbabwe’s—faces significant limitations. Informal economies are characterised by income irregularities, low financial literacy, limited trust in formal institutions, and decentralised economic activity (Gubwe, 2024; Silumbwe et al., 2024). These structural and behavioural characteristics present challenges that traditional agency models are ill-equipped to overcome.

First, the cost-intensive nature of the agency model creates barriers to scalability within low-income, dispersed informal populations. The reliance on face-to-face selling, which includes hiring, training, and maintaining a geographically distributed sales force, makes the model economically unviable in settings with low premium yields and high operational expenses (Ntikalai & Tari, 2019). Agents often prioritise wealthier or formally employed clients who offer higher returns, thereby excluding informal earners who present higher transactional and servicing costs (Churchill & Matul, 2012).

Second, the model's effectiveness is constrained by the low financial literacy typical in informal sectors. Although agency-based distribution relies on personal engagement to educate and persuade potential clients (Low et al., 2021), agents often lack the cultural or contextual training needed to translate complex insurance concepts into accessible value propositions for low-literacy audiences (Asiamah, 2023; Sang, Mohidin, & Budin, 2020; Sanjeewa & Hongbing, 2019). This knowledge asymmetry can lead to distrust or disengagement, particularly when agents focus on product sales rather than building long-term relationships (Elomari, 2025).

Third, physical and institutional access barriers persist in many informal contexts. Agency models generally operate through urban or peri-urban networks where infrastructure supports agent mobility and client meetings. In contrast, informal economies tend to be highly decentralised, with populations residing in rural or semi-urban areas with limited connectivity. In such settings, traditional agency networks struggle to penetrate due to logistical and infrastructural constraints (Kodia et al., 2024; Mwinuka et al., 2023).

Moreover, income volatility and informality in employment complicate premium collection and policy retention. The agency system is structured around regular premium payments and sustained policyholder engagement, assumptions that do not align with the episodic and

unpredictable income streams of informal sector workers (Silumbwe et al., 2024). This mismatch leads to high lapse rates and challenges in client servicing, undermining the long-term viability of agency-driven sales in such markets.

Another key limitation is the misalignment of incentives. Agents, particularly tied and direct agents, are usually rewarded through commissions tied to policy issuance rather than retention or suitability (Bedakihale et al., 2022; Petsch, 2022). In informal contexts, where long-term trust and service consistency are essential, such incentive structures may encourage mis-selling or overpromising, further eroding trust in formal insurance mechanisms (Giri, 2018).

Although models such as banc-assurance and corporate agency introduce efficiencies through institutional partnerships, they also face structural mismatches in informal settings. For instance, banc-assurance relies heavily on bank-client relationships, yet many informal sector participants are unbanked or underbanked (Demirgüç-Kunt et al., 2018). Similarly, corporate agents—often urban-based commercial entities—lack presence and relevance in rural informal communities.

Finally, regulatory and licensing requirements associated with agency models may inadvertently exclude grassroots actors who could otherwise serve as effective insurance promoters (Dror, 2023). Licensing thresholds, training requirements, and compliance frameworks are often designed for formal markets and may not accommodate the realities of informal microenterprises, cooperatives, or community-based organisations (Churchill & Matul, 2012).

Therefore, the agency distribution system, while effective in formal and semi-formal economies—faces structural and operational barriers in informal contexts. Its cost structure, reliance on high-touch sales processes, limited geographical reach, and incentive misalignments render it suboptimal for expanding life insurance coverage in informal economies. Overcoming these limitations requires adaptive distribution innovations, such as digital platforms, mobile agents, and community-based schemes, which offer greater flexibility and contextual sensitivity.

2.7 The Role of Life Insurance in Economic Development

Life insurance contributes to economic development in multiple ways, going beyond its core purpose of offering financial protection to individuals and families (Segodi & Sibindi, 2022). It supports long-term financial planning, encourages the mobilisation of savings, and aids in the development of capital markets, thereby promoting economic stability and growth. This section examines the different aspects of life insurance's influence on economic development.

2.7.1 Mobilising National Savings

A key function of life insurance in supporting economic development is its role in mobilising savings. Life insurance policies typically require policyholders to make consistent premium payments, which helps direct individual and household savings into the broader insurance system. These accumulated funds represent significant financial resources that can be invested in various economic sectors. The compulsory and long-term nature of these savings helps build substantial pools of capital essential for funding large-scale investments and economic projects (Ward & Zurbruegg, 2002).

Life insurance serves as a crucial risk management tool for households and firms, and as an effective savings instrument. Endowments and annuities, which provide savings and longevity protection, constitute the bulk of global life insurance premiums (Schanz, 2020). According to Aizpun et al. (2023), in 2022, savings-linked products made up 77 percent of global life insurance premiums, while the remaining portion consisted of risk-linked products. Schanz (2020) further argues that the expanding market for biometric risk covers, such as term life insurance, has not outweighed the appeal of savings products. These trends highlight the global life insurance market's preference for life insurance products as alternative savings instruments. By promoting savings through policies, the life insurance industry aids economic development and encourages financial intermediation (Sibindi, 2022).

Life insurance products offer a structured method of contractual saving and have proven to be effective in promoting significant savings, rivalling other saving options such as bank deposits, securities, and other contractual savings programmes globally (Meko, Lemie, & Worku, 2019). Individuals who may not typically save money regularly often make consistent payments for their life insurance policies, making life insurance a form of quasi-compulsory savings (Nam & Hanna, 2019). Life insurance products, particularly annuities, offer a convenient and possibly unparalleled method for individuals to prepare financially for retirement (Nam &

Hanna, 2019). By offering products similar to bank savings, insurance companies have positioned themselves as major actors within the financial market (Nam & Hanna, 2019).

Consumers benefit from both protection and savings through life insurance products. In advanced economies, many insurers offer equity-linked life insurance products that combine traditional protection with a savings component by investing the policyholder's premiums in equities (Hilpert, 2020). Such products typically include a capital guarantee, a minimum interest rate guarantee, and an embedded surrender guarantee option (Hilpert, 2020). These products allow customers to participate in volatile but potentially high-yielding investment markets like equities while enjoying the protection of a minimum guarantee on returns provided by the insurer (Albrecher et al., 2018; Fuino, Maichel-Guggemoos, & Wagner, 2020; Georgiopoulos, 2020).

Life insurance promotes long-term financial planning and savings, both of which are essential for achieving sustainable economic development. Policies that combine insurance with savings or investment components, such as endowment and whole life policies, promote disciplined saving habits among policyholders. These long-term savings contribute to financial security in retirement and can be used for significant life expenses such as education or home ownership which fosters economic stability and growth (Dickinson, 2000). Life insurance products also enable individuals and households to save for important life cycle events such as weddings, children's education, vacations, and retirement with greater certainty.

The mobilisation of national savings through life insurance serves an important function in promoting economic development. By requiring regular premium payments, life insurance channels individual and household savings into substantial financial resources that support large-scale investments and economic projects (Zinyoro & Aziakpono, 2023). The predominance of savings-linked products in global premiums underscores the sector's significance as a savings instrument. Life insurance not only facilitates disciplined saving habits and long-term financial planning but also provides protection and potential high returns through innovative products (Zinyoro & Aziakpono, 2023). As key players in the financial market, insurance companies enhance financial intermediation and stability, promoting sustainable economic growth and ensuring financial security for policyholders in retirement and major life expenses. Hence, life insurance remains indispensable for fostering economic stability and growth by encouraging both savings and financial protection.

2.7.2 Financial Intermediation and Investment

Life insurance companies play a pivotal role in financial intermediation by acting as conduits between savers and borrowers and significantly contributing to the development and liquidity of capital markets. By investing premium income in different financial instruments such as equities, corporate bonds corporate bonds, and government securities, life insurers support infrastructure development, corporate growth, and public projects, all of which are essential for economic development (Beck & Webb, 2003). This intermediation facilitates the flow of savings from individuals and institutions to entities in need of funding thereby enhancing overall economic growth and the advancement of financial markets (World Bank, 2020; Carvajal & Thereze, 2023).

Life insurance companies collect premiums in exchange for potential payments if specified events occur (Georgiopoulos, 2020). Consequently, insurers accumulate reserves for expected payments and maintain adequate capital buffers to comply with regulations and manage risks (Hulle, 2017). These reserves are allocated to financial markets to meet policyholder obligations and enhance shareholder returns (Georgiopoulos, 2020). Due to their extensive policyholder base, insurance companies accumulate substantial funds, playing a crucial role in supporting investments and the national economy (Banyár, 2021). They act as financial intermediaries, connecting investors with economic agents such as households, businesses, and governments that require funding (Pivac, Marasović, & Kovač, 2018). This function significantly enhances the growth of financial markets, particularly through long-term investments distinct from those typically managed by banks (Peleckienė et al., 2019).

Life insurance companies and pension funds, as long-term institutional investors, are key participants in many economies (Kamau & Weda, 2019; Velte, 2022). Since life insurance is usually maintained over an extended period, insurers tend to allocate a large share of their portfolios to long-duration assets in order to align with their liabilities (Foley-Fisher, Narajabad, & Verani, 2020). Regulatory regimes mandate risk-based capital measures to regulate the minimum solvency capital requirements for life insurers, ensuring their solvency and protecting customers (Hulle, 2017; Lim, Lee, & Har, 2021). These measures assess the amount of capital required based on the insurer's risk profile, and if capital drops below a certain threshold, regulatory interventions are implemented (Niehaus, 2018). Insurer ratings are also influenced by risk-based capital, impacting consumer demand (Niehaus, 2018).

Consequently, risk-based capital regulation incentivises life insurers to maintain sufficient capital which ensures their continued role in capital market development.

Securing capital for long-term investments is crucial for financing national projects like infrastructure development. Regulations often mandate that insurers allocate a portion of their funds to government-related assets to help finance major national capital projects. For example, life insurers and pension funds in Zimbabwe must allocate a minimum of 15% of their funds to prescribed assets, which include government-issued securities (Mujakaji & Chinjova, 2021; Chowa, Mhlanga, & Munakamwe, 2014). These measures compel insurers to participate in the financing of national projects which benefits the broader economy and supports national development.

In conclusion, life insurance companies are indispensable to financial intermediation and investment as they provide substantial capital for economic development through their extensive investment activities. By adhering to regulatory requirements and strategically allocating funds, they bolster capital market growth, support national projects, and ensure long-term economic stability. Thus, their role extends beyond risk management to being integral to the financial infrastructure thereby fostering sustained economic growth and development.

2.7.3 Risk Management and Economic Stability

Life insurance provides essential risk management services that are critical to economic stability. By offering protection against financial losses due to death, disability, or illness, life insurance helps individuals and businesses manage uncertainty, reducing the economic impact of adverse events on households and enterprises. This mitigation function enhances overall economic resilience and financial stability (Outreville, 2013).

Both the banking industry and the insurance industry are deeply involved in the risk market and play crucial roles in economic growth (Camino-Mogro & Bermúdez-Barrezueta, 2019). While banks support the transfer of risk by offering loans and generating income through interest, the insurance sector handles the risks assumed by banks by making investments that help maintain the long-term stability of the financial system (Zulfiqar et al., 2020). Accordingly, Beck & Webb (2003) argue that the banking and insurance sectors have a complementary impact on economic growth, collaborating to uphold the financial stability of an economy.

Life insurance activities play an important role in supporting financial stability by offering risk transfer services and acting as institutional investors. By effectively reducing financial losses and efficiently directing domestic savings towards investment, life insurance companies enhance financial resilience, fortify households, and foster sustainable and inclusive growth (Lee et al., 2019; Thompsen, 2022). This role is crucial for long-term poverty alleviation and overall economic stability.

Therefore, the contribution of life insurance to risk management and economic stability is both diverse and essential. By providing essential financial protection and acting as significant institutional investors, life insurers mitigate economic shocks and contribute to the financial system's long-term stability (Zinyoro & Aziakpono, 2023). Their collaboration with the banking sector further enhances their impact which ensures that both industries support each other in promoting economic growth and resilience. Consequently, life insurance is a cornerstone of economic stability, fostering sustainable development and financial security for individuals and businesses alike (Asongu & Odhiambo, 20200).

2.7.4 Support for Public Welfare

By providing financial protection and stability, life insurance significantly reduces the burden on public welfare systems. When individuals have access to life insurance, they are better equipped to handle financial hardships arising from life events such as death or disability. This reduces the demand for public assistance programmes and allows governments to allocate resources more efficiently, thereby supporting the development of a more robust and resilient social safety net (Arena, 2008).

The expansion of the life insurance sector alleviates the social burden on governments, particularly in developed countries where the insurance market reduces government spending on social protection while ensuring greater social support for citizens (Lee, Yong, & Lim, 2019; Užík et al., 2023). Insurance services provide opportunities to lessen the financial strain on state budgets and enhance the accessibility of social services for individuals and businesses. For instance, disability insurance supplements social security programmes by safeguarding against income loss due to disability (Holliday et al., 2021). Insurers also play a crucial role in offering pension products essential for preventing poverty in old age (Holliday et al., 2021).

A joint study conducted by the International Association of Insurance Supervisors and the International Organisation of Pension Supervisors in 2018 examined 45 jurisdictions, covering 80 per cent of global life insurance premiums (Price, 2018). The study revealed that over half of total life insurance liabilities are connected to retirement income and pension products, with even higher proportions observed in certain OECD countries including Australia, the United Kingdom, the United States, and Spain. Private insurance strengthens social security by offering additional assistance to the elderly in areas such as housing, healthcare, and long-term care, especially as demographic shifts and public pension fund deficits increase the insurance sector's role in mitigating poverty among the aged (Holliday et al., 2021).

In developing countries, private insurance has the potential to lessen inequalities in social security coverage. Widespread informality in labour markets and limited fiscal capacity in many low-income nations present structural challenges to financing and operating public programmes. As a result, including risk transfer mechanisms led by the private sector may improve the reach of protection systems (Schanz, 2020b).

Studies highlight the crucial role of life insurance in supporting vulnerable populations. For example, Weaver's (2010) research in the United States showed that between 22% and 37% of widows received survivor state benefits below the poverty threshold. Life insurance could reduce their reliance on government social welfare programmes, aside from Social Security (Cummins et al., 2018). In Ukraine, life insurance has shown a notable and swift influence on social advancement, producing considerable social advantages (Užík et al., 2023). Similarly, in Romania, life insurance and private pensions alleviate the burden on social security budgets strained by worsening demographics (KPMG, 2018).

Life insurance therefore plays a vital role in supporting public welfare by reducing the burden on social security systems and enhancing the resilience of social safety nets. Through financial protection and risk management, life insurance contributes to economic stability and supports vulnerable populations, thereby fostering social progress and reducing government expenditure on public welfare. By complementing public programmes and addressing demographic challenges, life insurance is integral to building a more inclusive and stable society.

2.7.5 Enhancing Human Capital

A growing body of literature affirms that life insurance plays a multifaceted role in enhancing human capital, particularly through mechanisms that foster economic stability, educational investment, and long-term wellbeing. The relationship is both direct, via financial protection, and indirect, through the mobilisation of resources for broader development outcomes.

Nwabunike (2024) provides compelling empirical evidence from Nigeria, demonstrating that life insurance funds positively influence the Human Development Index (HDI). The study finds that premium inflows, when efficiently managed and diversified into productive investment avenues, yield socio-economic dividends beyond individual policyholders. This reinforces the notion that life insurance contributes not only to financial security but also to national development through its role in capital formation and resource allocation.

Complementing this view, Mare, Dragoş, & Dragotă (2019) use spatial econometric methods to show that human development is a significant predictor of life insurance demand across Romanian regions. Their findings suggest a reciprocal relationship in which improved human capital—manifested through health, education, and income—drives life insurance uptake, while greater insurance coverage further reinforces household resilience and stability. This bi-directional interaction indicates a virtuous cycle between human development and financial inclusion.

Lu & Yanagihara (2013) extend this relationship to the macroeconomic level, arguing that life insurance facilitates economic growth by reducing income uncertainty, thereby encouraging long-term investments in education. By mitigating the adverse effects of premature death on household finances, life insurance provides a safety net that enhances intergenerational human capital formation.

From a financial planning perspective, Chen et al. (2006) conceptualise life insurance as a safeguard against the loss of human capital—the present value of an individual's future earning capacity. Their model emphasises how life insurance strengthens long-term financial strategies by insulating families from income shocks associated with mortality, thereby supporting asset preservation and rational investment behaviour.

Sawadogo, Guerineau, & Ouedraogo (2018) examine the relationship between life insurance development and economic growth in emerging markets, concluding that the two are positively

correlated, particularly in countries with sound institutional structures. Their findings underscore the broader systemic contributions of life insurance to economic stability, which is critical for enabling sustained investments in human capital across households and communities.

Dey (2015) explores the demand for long-term care and related insurance products through the lens of Human Capital Theory. The study concludes that individuals with higher education and better health are more likely to purchase long-term care insurance, indicating that human capital levels directly influence financial decision-making. This highlights the need for targeted initiatives to educate people about life insurance and improve engagement among lower-income or less-educated populations.

Similarly, Akotey & Djasi (2018) investigate the role of microinsurance in consumption smoothing among low-income households in Ghana. Their study reveals that microinsurance significantly reduces the likelihood of food insecurity during periods of financial distress. By safeguarding essential consumption, particularly nutrition, microinsurance indirectly strengthens human capital, especially in vulnerable populations where even minor shocks can lead to severe long-term setbacks.

Collectively, the reviewed studies highlight that life insurance contributes meaningfully to human capital development through diverse pathways. These include encouraging educational investments, supporting health resilience, improving financial planning, and fostering macroeconomic stability. While the magnitude and mechanisms of impact may vary by context, the overarching conclusion is consistent: life insurance is an essential instrument in advancing inclusive development and enhancing the quality and sustainability of human capital in both individual and societal domains.

2.8 Life insurance Penetration and Economic Development

The discussions above have shown that life insurance holds a vital position in modern economies and societies, making a significant contribution to long-term economic development and improving living standards. Numerous studies have confirmed the strong positive relationship between life insurance penetration and economic growth (Asongu & Odhiambo, 2020; Atuilik & Addo, 2021; Lee, Yong, & Lim, 2019; Peleckienė et al., 2019;

Sawadogo et al., 2018; Segodi & Sibindi, 2022; Senol, Zeren, and Canakci, 2020). Skipper (1997) argues that life insurance promotes economic development by enhancing financial stability and growth, encouraging loss mitigation, improving risk management, facilitating trade and commerce, mobilising savings, enabling better capital allocation, and complementing social insurance systems.

In 1964, the United Nations recognised insurance as a vital element of a healthy economy, describing the insurance market as a central feature of economic development (Cummins et al., 2018; Senol et al., 2020). More recently, the United Nations (2015) identified access to insurance services as essential for achieving sustainable development goals. Although insurance appears explicitly only once in SDG target 8.10—"Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance, and financial services for all"—research has suggested that insurance contributes to multiple SDGs (Holliday et al., 2021; Siwedza & Shava, 2020). For instance, Wanczeck et al. (2017) argue that insurance directly supports six SDGs and indirectly aids five others. Swiss Re (2017) also states that the insurance industry's contribution is "high" for seven SDGs, "medium" for five, and "low" for the remaining five. Chiew (2021) identifies nine SDGs influenced by the insurance sector. Empirical evidence from Holliday et al. (2021) shows that countries with greater insurance penetration have achieved more progress toward fulfilling their SDG commitments, as reflected in the SDG index. Therefore, it can be argued that life insurance development plays a key role in achieving global sustainable development objectives.

Several studies provide direct empirical evidence of life insurance penetration's impact on economic growth. Lee et al. (2013) find that for OECD countries, a one per cent increase in life insurance premiums leads to a 0.06 per cent annual rise in real GDP. Han et al. (2010), examining 77 advanced and emerging economies from 1994 to 2005, find that a one per cent increase in life insurance penetration results in a 1.7 per cent annual increase in economic growth.

Din et al. (2017) studied 20 countries, comprising 10 developed and 10 emerging economies, over the 2006 to 2015 period. They measured insurance activity using net written premiums, penetration, and density, and validated their results using the Hausman test for fixed effects. Their findings show a strong correlation between life insurance indicators and economic growth in both developed and emerging economies.

Lee et al. (2019) analysed panel data from 123 countries between 1967 and 2014 to explore how the continent and initial GDP per capita affect the relationship between insurance and economic growth. Their findings confirm a strong causal link between insurance development and economic growth, showing that higher insurance density—both life and non-life—supports economic expansion.

Senol et al. (2020) studied 36 countries from 1985 to 2018, using the panel causality test proposed by Dumitrescu & Hurlin (2012). They found mutual causality between the life insurance sector and economic growth, whereas a one-way causality existed from economic growth to the non-life insurance sector. Their results show that the life insurance sector contributes more significantly to economic growth by providing consistent long-term resources.

Hassan (2022) investigated the income elasticity of life insurance consumption and its impact on economic growth in 22 Asian countries between 2001 and 2016. Panel data analysis revealed that life insurance demand relative to GDP per capita is inelastic, suggesting that life insurance is a necessity in Asia. Additionally, growth analysis before and after the 2007–2008 subprime crisis showed that life insurance markets had a considerable influence on economic growth.

Cheng and Hou (2022) developed a simplified model to examine the joint effects of life insurance adoption and financial development on economic growth. Drawing on panel data from 17 advanced European economies spanning the period 1980 to 2015, their findings indicate that life insurance contributes positively to long-term economic growth, although the effects are not immediately observable. Moreover, the study highlights that life insurance development plays a stabilising role by mitigating long-term fluctuations in real economic growth and counterbalancing the adverse effects associated with private credit expansion.

Dawd & Benlagha (2023) applied linear dynamic panel-data methods to examine the relationship between insurance (life, non-life, and total) and economic growth in 16 OECD countries between 2009 and 2020. Their findings confirm a positive relationship between insurance development and economic growth, with a non-linear dynamic characterising the impact of life and non-life insurance premiums.

In conclusion, life insurance plays a critical role in economic development by mobilising savings, facilitating financial intermediation, managing risk, encouraging long-term planning, supporting public welfare initiatives, and strengthening human capital. By promoting financial stability and enhancing economic resilience, life insurance significantly contributes to sustainable economic growth. Its wide-ranging impact highlights its importance not only for individual financial security but also for broader economic prosperity.

2.9 Life Penetration Threshold Required for Economic Growth

The preceding literature has emphasised the vital role of life insurance penetration in promoting economic development. This leads to an important question: What level of penetration is necessary for life insurance to have a positive influence on a country's economic performance? Asongu & Odhiambo (2020) sought to address this question. Using data from forty-eight African countries between 2004 and 2014, and applying the Generalized Method of Moments, their study found that life insurance promotes economic growth. They identified that a life insurance penetration threshold of 4.149 per cent is required to positively impact economic prosperity. Additionally, they determined that a non-life insurance penetration threshold of 1.805 per cent is needed to have a positive effect. These findings remained consistent when the Hansen (1999) Panel Threshold Regression technique was applied to a balanced sample of 28 countries.

In Nigeria, Okonkwo & Eche (2019) explored the link between insurance adoption rates and economic growth from 1981 to 2017. They assessed both life and non-life insurance penetration rates. The study found that the average penetration rate during this period was just 0.003078. Regression analysis revealed no statistically significant relationship between insurance penetration and economic growth in Nigeria. This outcome supports the conclusion drawn by Asongu & Odhiambo (2020), indicating that penetration rates below the minimum thresholds of 4.149 per cent for life insurance and 1.805 per cent for non-life insurance are insufficient to positively influence economic development.

A similar pattern emerged in the study by Nwani & Omankhanlen (2019), which analysed the effect of insurance receivables on economic growth. Using life premiums, non-life premiums, and insurance investments as indicators, panel data from six insurance companies covering

2008 to 2017 were assessed using the panel OLS method, and the random effects results were confirmed with the Hausman test. Their findings showed that neither life premiums nor non-life premiums had a statistically significant positive impact on economic growth. In fact, the impact of non-life premiums was negative. However, insurance investments were found to have a statistically significant positive influence on economic growth. The authors concluded that the insurance sector has a minimal role in driving Nigeria's economic growth.

Sawadogo et al. (2018) also examined the relationship between the growth of life insurance and economic development, focusing on eighty-six developing countries from 1996 to 2011. Their research found that the expansion of life insurance positively affects per capita economic growth. However, the extent of this impact depends on a country's structural characteristics. Specifically, the positive effect diminishes in countries with higher deposit interest rates, greater bank credit, and larger stock market activity. The impact of life insurance is stronger in low- and middle-income countries and in nations with strong institutional frameworks. Conversely, the influence is relatively weaker in sub-Saharan Africa and in countries with a British legal system. The limited role of life insurance in sub-Saharan Africa further supports Asongu & Odhiambo's (2020) argument that higher penetration thresholds must be achieved. This limited impact may be partially explained by South Africa's dominance, as it accounts for 85 percent of Africa's life insurance market with a penetration rate of 11.2 per cent (Haegeli, 2021; Schanz, 2019).

Although existing studies affirm the significance of life insurance development for advancing a nation's economic agenda, they also make clear that achieving higher levels of penetration is critical. Countries must therefore set and pursue ambitious life insurance penetration targets if they aim to fully benefit from the positive economic contributions of their insurance sectors.

2.9.1 Life Insurance Penetration in Developing Economies

Life insurance is an important financial tool that offers protection against life's uncertainties and contributes to economic stability and growth. Despite its significance, the extent of life insurance penetration differs greatly between developed and developing nations (Aizpun et al., 2023). This section provides a comparative analysis of life insurance penetration, presents case studies from different developing countries, and investigates the factors that influence the adoption of life insurance in these economies.

2.9.2 Comparative Analysis of Life Insurance Penetration

Life insurance penetration, typically measured as the ratio of life insurance premiums to gross domestic product (GDP), serves as a key indicator of the development and maturity of a country's insurance sector. In developed economies, penetration rates tend to be considerably higher than in developing contexts. According to Swiss Re (2019), the average life insurance penetration in developed nations stood at approximately 5–6 per cent, in contrast to developing countries, where it often remains below 2 per cent.

Several structural and institutional factors account for this disparity. Developed countries generally benefit from higher per capita income, widespread financial literacy, robust capital markets, and sophisticated regulatory frameworks (Prete, 2018). Moreover, trust in financial institutions and insurance providers tends to be higher, facilitating increased uptake of life insurance products. In contrast, developing countries face multiple challenges that constrain the growth of their life insurance markets. These include low income levels, limited access to formal financial services, weak regulatory oversight, and underdeveloped distribution channels (Jeaven et al., 2021). Cultural norms, particularly the preference for informal safety nets such as family or community support, further reduce the perceived necessity for formal life insurance (Auriol et al., 2020).

To provide a more nuanced understanding of how life insurance penetrates developing economies, this section undertakes a comparative analysis of eight selected countries: India, Kenya, Ethiopia, Ghana, Zambia, Botswana, Namibia, and South Africa. These countries were purposefully selected due to their geographic diversity, varying stages of insurance market development, and distinct macroeconomic and institutional contexts. India represents one of the largest and fastest-growing life insurance markets among emerging economies, driven by an expanding middle class and government-led financial inclusion initiatives (Aizpun et al., 2023). Kenya and Ghana are key players in Sub-Saharan Africa, noted for innovations in mobile-based insurance and regulatory reforms (Mutembei, 2022, Swiss Re, 2022). Ethiopia and Zambia reflect countries with relatively low penetration but rising policy attention to insurance development (Meko et al., 2019; (Musonda & Chowa, 2022). Although Botswana and Namibia are smaller in size, they exhibit relatively stronger insurance frameworks and higher penetration rates than their regional peers (Swiss Re, 2024). South Africa stands out as

the continent's most advanced insurance market, often serving as a benchmark for policy and market comparisons (Swiss Re, 2024). Analysing these countries collectively provides valuable insights into the diversity of life insurance growth and offers lessons applicable to the Zimbabwean context.

2.10. India

Life insurance in India has undergone notable transformation since its official beginning in 1818 with the founding of the Oriental Life Insurance Company in Calcutta (Parida & Acharya, 2017). After gaining independence, the sector experienced major reforms, most significantly the nationalisation of life insurance in 1956, which led to the formation of the Life Insurance Corporation of India (LIC). The liberalisation of the insurance industry in 2000, which allowed private and foreign entities to enter the market, marked a turning point in its growth (Parida & Acharya, 2017). This section examines the current condition of life insurance in India, with particular attention to penetration, density, and the challenges limiting further progress.

2.10.1 Penetration and Density

Insurance penetration and density are important indicators of progress in the insurance sector (Oteng et al., 2023). In 2023, India recorded a life insurance penetration rate of 3 per cent, which remains slightly below the global average of 3.3 per cent (IRDAI, 2023). The insurance density in India during the same year was USD 70, representing the average per capita expenditure on life insurance (IRDAI, 2023). Despite these relatively modest figures, Swiss Re recognises India as one of the fastest-growing insurance markets globally. It forecasts that by 2032, India would surpass Germany, Canada, and South Korea to become the sixth-largest insurance market (Aizpun et al., 2023).

The penetration rate in India, though gradually increasing, remains low due to various socio-economic factors. Despite an expanding middle class and increasing disposable incomes, life insurance has not achieved significant penetration across all demographics. The urban-rural divide is particularly stark, with rural areas exhibiting markedly lower penetration rates (Giri & Chatterjee, 2020).

2.10.2 Barriers to Life Insurance Penetration

India's insurance market is growing rapidly, but there are several obstacles identified in the literature that hinder the expansion of life insurance penetration. This section examines some of the obstacles.

India presents a unique case among middle-income countries due to its high level of informality, with more than 90 per cent of the total workforce and 85 per cent of the non-agricultural workforce classified as informal, meaning they lack social insurance coverage (Mehrotra, 2020). Although India ranks among the fastest-growing major economies, informality has remained consistently high for several decades (Mehrotra, 2020). In response to the widespread absence of financial security among informal workers, the Indian government has launched several financial inclusion programmes (Neelappa & Prakasam, 2020). These include the Pradhan Mantri Jan Dhan Yojana (PMJDY), Pradhan Mantri Suraksha Bima Yojana (PMSBY), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY), and Atal Pension Yojana (APY), all designed to extend financial services to marginalised and low-income groups (Singareddy et al., 2019). While these initiatives have the potential to foster economic growth and protect vulnerable populations, challenges in execution remain. For example, enrolments under PMJJBY have declined due to low claim settlement rates and limited public awareness (Balamurugan et al., 2023). Moreover, rural, semi-urban, and hilly areas continue to face a lack of awareness regarding financial institutions (Kandpal, 2020). Addressing these challenges is essential to achieving inclusive growth and advancing sustainable development objectives in India.

A major obstacle to life insurance penetration in India is the general lack of awareness and low financial literacy among the population. Many individuals do not fully comprehend the advantages of life insurance or the way it functions. Research indicates that a considerable portion of Indians lacks the financial literacy necessary to make well-informed decisions about life insurance (Agarwal, 2020; Ankitha & Basri, 2019; Chattha, 2020; IRDAI, 2023). This insufficient understanding results in the underuse and misinterpretation of life insurance products (Ankitha & Basri, 2019; Giri, 2018; IRDAI, 2023; Uddin, 2017).

Indian consumers often perceive life insurance mainly as a tool for tax savings rather than recognising it as a means of protection and long-term financial planning (Kanungo et al., 2020; Tati & Baltazar, 2018). Studies have revealed that a significant number of individuals acquire life insurance policies primarily to benefit from tax deductions provided by sections such as

80C of the Income Tax Act (Chaudhary, 2016; Kanungo et al., 2020; Singh, 2022). According to the Income Tax Act, death benefits received by beneficiaries are exempt from income tax, policy loans taken by the insured are not taxed up to the value of the policy, and life insurance premiums qualify for tax deductions (Kavya & Kavitha, 2023). As a result, people frequently underestimate the primary goals of life insurance, which are to manage risks and provide financial security, resulting in lower product adoption rates.

Socioeconomic factors contribute significantly to India's low life insurance penetration. A large segment of the population resides in rural areas with limited incomes, where the main priority is addressing basic necessities rather than engaging in long-term financial planning (Giri & Chatterjee, 2021; Manimegalai & Sathapriya, 2016). Due to the current high levels of income inequality, a sizable portion of the population is unable to pay life insurance premiums (Chakraborty & Das, 2022). This economic disparity is especially pronounced in rural areas, where the amount of money available for discretionary spending is significantly lower (Chakraborty & Das, 2022; Deb et al., 2021; Parida & Acharya, 2017).

Consumer trust in India's insurance sector is low. Historical instances of insurance product mis-selling have resulted in scepticism and mistrust of insurance companies (Ankitha & Basri, 2019; Giri, 2018; IRDAI, 2023; Pareek, 2022; Subashini & Velmurugan, 2016). Mis-selling also causes an increase in policy cancellations and non-renewals (Pareek, 2022). Other issues, such as claim settlement delays and perceived complexity, which have previously affected the life sector, have contributed to consumers' trust deficit (Banana & Naik, 2018). Establishing consumer confidence is critical for increasing life insurance adoption (Chakraborty & Das, 2019).

The distribution of life insurance products in India faces several challenges. Traditional distribution channels, such as agents and brokers, continue to dominate the landscape (Chattha, 2020). The substantial expense of sustaining a wide network of agents creates challenges for insurance companies seeking to access these markets (Shetty & Basri, 2020; Singh, Singh, & Chavan, 2020). Furthermore, digital distribution channels, while expanding, have yet to realise their full potential due to low internet penetration and technological adoption in rural areas (Singh, Singh, & Chavan, 2020). While urban areas have greater access to insurance services, rural areas lack adequate distribution networks (Shetty & Basri, 2020; Singh, Singh, & Chavan, 2020).

India's life insurance sector has significant growth potential, owing to a growing middle class and developing economy. However, increasing penetration and density rates requires addressing the multifaceted barriers that impede the industry's progress. Improving financial literacy, closing income gaps, improving distribution networks, and leveraging digital platforms are critical steps towards realising the full potential of life insurance in India. As the sector evolves, targeted policy interventions and innovative solutions would be critical to creating a more inclusive and robust life insurance market.

2.11 Kenya

The growth of the life insurance sector in Kenya has been a dynamic process characterised by important milestones. The founding of the first insurance company in 1922 provided the initial groundwork for what has evolved into a thriving industry. Post-independence, the sector witnessed regulatory advancements, including the formation of the Insurance Regulatory Authority (IRA) in 2007, which has been pivotal in shaping the industry's landscape. This section explores the current state of life insurance in Kenya, focusing on penetration, density, and barriers to further expansion.

2.11.1 Penetration and Density

Insurance penetration and insurance density are important measures used to evaluate the growth of the life insurance sector. In Kenya, life insurance penetration was approximately 1.08% in 2022 (IRA, 2023). This figure is below the global average of 3.3%, indicating significant room for growth. Insurance density, which reflects the per capita expenditure on life insurance, stood at USD 25 in 2022 (Swiss Re, 2023). The penetration rate in Kenya, while modest, shows gradual improvement. However, it remains constrained by various socio-economic challenges. Urban areas demonstrate higher penetration rates compared to rural regions, highlighting a disparity in access and awareness.

2.11.2 Barriers to Life Insurance Penetration

Financial literacy in Kenya is comparatively deficient, especially in rural regions. A significant number of potential consumers have a limited comprehension of life insurance products and the advantages they offer, leading to a hindrance in their acceptance and utilisation (Kamau & Weda, 2019; Thuitai, Waititu, & Wanjoya, 2016). The insurance industry faces several

challenges, with one of the most significant being the negative public perception, resulting in a low level of market penetration (Mutembei, 2022; Tharao, Ndegwa, & Kiriri, 2023).

Widespread poverty and income inequality in Kenya hinder the majority of Kenyans from being able to afford the costs associated with life insurance premiums (Kamau & Weda, 2019; Tharao et al., 2023; Thuitai et al., 2016). The informal sector, which constitutes a significant portion of the economy, is particularly affected by irregular and unpredictable incomes (Ng'ang'a & Odhiambo, 2023).

The cultural attitudes and perceptions towards insurance in Kenya frequently serve as an obstacle. Insurance companies are widely distrusted, and people tend to view life insurance as a luxury rather than a necessity (Tharao et al., 2023).

The distribution of life insurance products is primarily concentrated in urban regions. Rural areas face challenges due to insufficient distribution networks and a heavy dependence on traditional agency channels. These factors restrict the extent of service provision and accessibility of services in these areas (Langat, Naibei, & Getare, 2017; Ntikalai & Tari, 2019).

Kenya's life insurance sector holds significant potential for growth, driven by a young and growing population alongside increasing economic development. However, achieving higher levels of penetration and density requires addressing the various challenges that constrain the sector's progress. Realising the full potential of life insurance in Kenya calls for enhanced financial literacy, efforts to overcome economic barriers, shifts in cultural perceptions, expanded distribution channels, and effective use of technology. Policy measures and creative approaches are vital to support the development of a more inclusive and robust life insurance market in the country.

2.12 Ethiopia

As of June 2023, the insurance sector in Ethiopia comprised of one government-owned insurer and 17 private insurers. Out of these, 12 operate in both general and long-term insurance, while the remaining six are involved solely in general insurance. Currently, there are no insurance companies that solely specialise in offering long-term (life) coverage (NBE, 2024). Life insurance in Ethiopia, as in many developing countries, is an evolving sector characterised by

low penetration and density. Despite its potential to offer financial security and contribute to economic stability, the uptake of life insurance remains significantly limited.

2.12.1 Penetration and Density

In Ethiopia, life insurance uptake is exceptionally low. ACI (2022), reports that the insurance penetration rate in 2019 was 0.32% of GDP, and the insurance density was \$2.7 USD. The considerable underdevelopment of Ethiopia's life insurance market is reflected in the fact that the life insurance sector accounts for only 10 per cent of the country's total insurance assets (NBE, 2024). Although this figure is significantly lower than the African average, it highlights the limited availability of life insurance products and the relatively low disposable income among most of the population (Kura & Legass, 2021).

2.12.1 Barriers to Life Insurance Penetration

Multiple factors account for the low levels of life insurance penetration and density in Ethiopia. A large portion of the population resides in rural areas, and the urban population, at 21 per cent, is one of the lowest globally and significantly below the Sub-Saharan African average of 41 per cent (World Bank, 2024). A substantial proportion of the rural population is unable to afford life insurance premiums due to their low and unpredictable incomes. The issue is worsened by the presence of significant poverty and unemployment rates (Marriner et al., 2022).

The Ethiopian population generally lacks broad awareness of the benefits associated with life insurance. Moreover, the lack of trust in financial institutions, which is partly caused by limited engagement with official financial services, deters potential customers from acquiring life insurance policies. Informal risk mitigation tools are in high demand, but the adoption of formal insurance is hindered by low trust, limited awareness, and low incomes (Marriner et al., 2022).

The current regulatory framework in Ethiopia lacks explicit guidance on digitalized insurance, micro-insurance, and the use of alternative distribution channels. In a broader sense, the current limitations on foreign involvement hinder the possibility of innovation. The Insurance Supervisory Directorate (ISD) is hindered in its ability to prioritise innovation, adapt supervisory frameworks for greater flexibility, and engage more proactively with market participants due to its lack of independence from the National Bank of Ethiopia, despite its support for market development (Marriner et al., 2022). The regulatory framework overseeing the insurance sector in Ethiopia remains underdeveloped. The Ethiopian Insurance Corporation

(EIC) holds a dominant position in the market, leading to a lack of competition and limited opportunities for innovation. There are still unexplored alternative distribution channels, like MNOs (Mobile Network Operators), and others that are inaccessible due to regulatory barriers, such as constraints on banc-assurance, which is prohibited as a distribution channel (Marriner et al., 2022). Therefore, regulatory policies fail to effectively encourage the growth and dissemination of a wide range of life insurance products. Moreover, micro-insurance licences do not exhibit substantial distinctions from traditional licences, thereby impeding insurers from embracing micro-insurance (Marriner et al., 2022).

Insufficient education and limited financial literacy hinder the comprehension and value of life insurance products (Hagos, Kebede, & Shewakena, 2019). Low literacy rates, a significant rural population, and a perceived lack of value in insurance hinder the expansion of retail insurance (Marriner et al., 2022). Limited knowledge reduces the chances that individuals will view life insurance as an important financial tool. It also creates a barrier to the widespread adoption of life insurance.

The expansion of the life insurance industry in Ethiopia faces several challenges, resulting in low levels of market penetration and density. To overcome these obstacles, it is necessary for policymakers, the private sector, and educational institutions to collaborate in order to raise awareness, foster trust, and improve the regulatory framework. Enhancing economic conditions and expanding the accessibility of life insurance services to rural and underserved regions are essential measures for cultivating a stronger life insurance market in Ethiopia.

2.13 Ghana

Life insurance in Ghana forms an important part of the financial services sector, yet it remains less developed than in more advanced markets. This review explores the current state of life insurance in Ghana by focusing on penetration rates, density, and the key barriers that limit its growth. Gaining an understanding of these factors is important for formulating strategies to strengthen the sector's role in promoting economic stability and individual financial security. Although life insurance gross premiums accounted for 51.68 per cent of total sector premiums, the market is still at an early stage of development (GCB Bank, 2023). The life insurance sector is largely dominated by investment-focused products such as universal life, whole life, and endowment policies. These products represented about 78 per cent of total life premiums in

2021, while pure risk products accounted for the remaining 22 per cent (NIC, 2021). This product distribution mirrors patterns observed in more developed insurance markets.

2.13.1 Life Insurance Penetration in Ghana

Life insurance penetration in Ghana remains relatively modest. In 2022, the penetration rate was recorded at 0.5 per cent (Swiss Re, 2022), considerably below both the global and African averages. The combined life and non-life insurance penetration rate reached 1.1 per cent, although this figure is expected to rise to around 3 per cent once health and pension contributions are integrated into the sector statistics as planned by the regulator (NIC, 2021). Life insurance density, measured at USD 12 per capita in 2022, further illustrates the sector's limited development in Ghana (Swiss Re, 2022). These low penetration and density rates reflect the difficulties in making life insurance products both accessible and appealing to a wider share of the population. Nonetheless, prospects for growth exist, supported by an improving economy driven by increased oil production (GCB Bank, 2023).

2.13.2 Barriers to Life Insurance Penetration

The low penetration and density of life insurance in Ghana are the result of a combination of factors. The economic landscape of Ghana, characterised by high levels of informal employment and low average incomes, makes life insurance unaffordable for many (Ampaw et al., 2018). The informal economy, representing 40% of GDP, surpasses the global average of 30.9% and the rate in developed countries, which was less than 20% as of 2017 (Medina & Schneider, 2019). The financial insecurity experienced by most individuals in the informal economy also restricts their capacity to make regular premium payments (Abdul-Fatawu, Logubayom, & Abonongo, 2019). In 2017, the country's universal health insurance programme provided coverage to only 56% of the entire population (Amu, Dickson, Kumi-Kyereme, & Maafo Darteh, 2018) in 2017. This highlights the difficulties associated with enrolling in life insurance within the informal sector.

There is a considerable absence of awareness about the advantages of life insurance. Furthermore, trust in financial institutions is relatively low, partly due to historical instances of mismanagement and financial crises (NIC, 2020). This mistrust dissuades potential policyholders from engaging with life insurance products (GCB Bank, 2023).

Cultural beliefs and social norms also contribute to the limited adoption of life insurance. In many communities, there is a preference for traditional methods of financial support, such as extended family networks and community-based savings schemes, which are viewed as more reliable than formal insurance mechanisms (Auriol et al., 2020).

The life insurance sector in Ghana encounters several challenges, leading to low levels of penetration and density. Overcoming these obstacles demands a comprehensive strategy that includes strengthening economic conditions, raising awareness and trust, improving the regulatory environment, and establishing more efficient distribution networks. By addressing these concerns, stakeholders can build a stronger and more inclusive life insurance market that better meets the needs of the Ghanaian people.

2.14 Zambia

The life insurance sector in Zambia represents an important part of the financial services industry, although it remains significantly underdeveloped. This review explores the present state of life insurance in Zambia, focusing specifically on penetration rates, density, and the various challenges that limit its growth. Understanding these elements is vital for developing strategies to strengthen the industry's contribution to economic stability and individual financial security.

2.14.1 Penetration and Density

The life insurance penetration in Zambia is comparatively low. According to the Pensions and Insurance Authority of Zambia (PIA), the penetration rate was approximately 0.43% as of 2022, which is considerably lower than the global and African averages (PIA, 2023). This can be attributed to a combination of insufficient awareness and limited access. The per capita premium of \$50 USD, which covers both life and general insurance as of 2022 (GCR Ratings, 2022), is significantly low. This indicates that the average Zambian allocates limited financial resources to life insurance. The low presence of life insurance emphasises the challenges involved in designing products that are both affordable and attractive to a broader segment of the population.

2.14.2 Barriers to Life Insurance Penetration

There are several factors that contribute to Zambia's low life insurance penetration and density. According to Leandro, Medina & Schneider (2019), the informal sector accounts for 45.4% of

the country's GDP. Furthermore, the informal sector employs 87.5% of the country's workforce (ILO, 2019). The prevalence of informal sector employment makes life insurance financially inaccessible to a sizable portion of the population. This is due to income irregularity, which limits their ability to make regular premium payments (Silumbwe et al., 2024). The country has implemented a mandatory nationwide health insurance programme that covers both formal and informal workers. By 2018, this scheme had only achieved 24% coverage, owing to the difficulties associated with enrolling informal sector workers in insurance (Afriyie et al., 2023).

There is a considerable lack of knowledge regarding the benefits of life insurance (Musonda & Chowa, 2022). This widespread gap in understanding about the value of life insurance products discourages individuals from adopting them (Mulenga, 2019). Low levels of education and financial literacy significantly hinder the understanding and appreciation of life insurance. Without adequate knowledge, individuals are less likely to perceive life insurance as a viable option for financial planning (PwC, 2019). The limited supply of skilled personnel, particularly qualified agents and marketing staff, poses a significant obstacle for insurers, hindering the distribution of life insurance products (Signé & Chelsea, 2020).

The regulatory framework governing the insurance sector in Zambia requires significant improvement. Although the Pension and Insurance Authority (PIA) oversees the industry, regulations do not adequately encourage uptake as life insurance products do not qualify for tax relief for example (Musonda & Chowa, 2022). In order to enhance penetration in Zambia, Haamukwanza (2021) suggests that the government should devise strategies to enhance financial literacy, offer incentives to insurers who establish operations in rural regions, and introduce subsidies for specific life insurance products.

In conclusion, Zambia's life insurance sector remains largely underdeveloped, even though it plays an important role in the financial services industry. This review highlights the challenges posed by low penetration and density rates, which are largely shaped by the dominance of the informal sector, limited public awareness, and weaknesses in the regulatory framework. Overcoming these barriers requires a comprehensive approach. Enhancing financial literacy, expanding access through targeted incentives and subsidies, and refining regulatory policies are crucial measures for building a stronger life insurance market. Successfully applying these strategies can not only improve Zambia's life insurance penetration rates but also enhance economic stability and personal financial security for its population.

2.15 Botswana

The life insurance sector in Botswana, similar to that in many developing economies, holds an important position within the wider financial services industry. Despite its significance, life insurance in Botswana remains at an early stage of development. This review examines the current state of life insurance in Botswana, concentrating on penetration rates, density, and the different challenges that restrict its growth. Gaining insight into these factors is essential for creating strategies to strengthen the sector's role in promoting economic stability and individual financial security.

2.15.1 Penetration and Density

According to IMF (2024), Botswana's insurance sector is comparatively smaller than that of its counterparts in the Southern African region. However, it remains considerably larger than in other countries across the continent. The extent of life insurance coverage in Botswana remains relatively limited. According to the Non-Bank Financial Institutions Regulatory Authority (NBFIRA), the penetration rate in 2022 was approximately 2.3 per cent of the Gross Domestic Product (GDP) (NBFIRA, 2023). While this figure is higher than that of many African countries, it still falls behind the global average. The per capita premium, representing the mean expenditure on life insurance per individual, is approximately \$136 USD (IMF, 2024). Although the figure is higher compared to other African countries, it highlights the insufficient financial resources that the average person in Botswana allocates to life insurance. This reflects a general pattern of low importance given to life insurance products by the population.

2.15.2 Barriers to Life Insurance Penetration

The life insurance industry in Botswana is marked by its traditional structure, a high degree of market concentration, and a strong emphasis on funeral insurance and credit life insurance products, reflecting trends seen in other markets within the Southern African region (IMF, 2024). The Botswana market presents a significant opportunity for product innovation, particularly in investment-linked life insurance products, in alignment with global trends.

One of the main challenges stems from the economic structure of the country. Although Botswana's informal sector is among the smallest in Africa, accounting for 30 per cent of GDP, it remains large compared to that of developed countries (Medina & Schneider, 2019; Munjeyi & Kebonyethebe, 2018). A considerable share of Botswana's workforce is engaged in the

informal sector, representing about 29 per cent of total employment (Statistics Botswana, 2023). The irregular income patterns common in informal employment make it difficult for individuals to maintain regular life insurance premium payments. As a result, this sector remains largely uninsured, which limits overall penetration rates.

Despite Botswana's economic progress, poverty and significant income inequality continue to exist. The national poverty rate was estimated at 14.3 per cent in 2022, based on the international poverty threshold of US\$2.15 per day, and this figure is considered high given Botswana's income level (World Bank, 2024a). Additionally, Botswana has one of the highest levels of inequality in the world, with a Gini index of 53.3 (World Bank, 2024a). The significant disparity in income has resulted in a heavy reliance on social welfare benefits and a lack of growth in the private sector job market (Mitchell, 2020). Consequently, the unemployment rate stands at 26%, with youth unemployment presenting a pressing issue (Mitchell, 2020).

In addition, there is a broad lack of awareness and understanding of life insurance products among the public. Many Botswanas perceive life insurance as an unnecessary cost rather than a vital component of financial planning. This limited awareness is made worse by generally low levels of financial literacy (Solomon, Nhete, & Sithole, 2018), which further restricts the uptake of life insurance products.

Furthermore, socio-cultural factors contribute significantly to low penetration rates. There is a cultural reluctance to discuss death and financial planning, which can discourage people from purchasing life insurance. Monkge & Makgosa (2021) identify this cultural barrier, revealing that while consumers with a high level of religiosity have positive and significant evaluations of funeral product promotion, those who place a higher value on power and tradition have negative beliefs and evaluations.

Finally, while Botswana's life insurance development is ahead of most other African countries, it remains underdeveloped. The sector's relatively low penetration and density rates reflect broader challenges such as a large informal economy, persistent poverty, income inequality, and high unemployment rates. Furthermore, a lack of financial literacy and cultural apprehension about life insurance stifle its growth. To improve the sector, targeted strategies such as financial education, regulatory reforms, and innovative product offerings tailored to Botswana's diverse population are required. Overcoming these barriers in a comprehensive

manner will be crucial for building a robust life insurance market that can play a greater role in advancing the country's economic development and improving the financial well-being of its citizens.

2.16 Namibia

The growth of the life insurance sector in Namibia forms an important part of the country's financial services industry. This section examines the present condition of life insurance in Namibia, with particular attention to penetration rates, density, and the obstacles that hinder its expansion. Understanding these factors is vital for crafting strategies to bolster the sector's impact on economic stability and individual financial security.

2.16.1 Penetration and Density

Namibia's life insurance market has higher penetration and density than other African countries. According to Swiss Re (2022b), Namibia's life insurance penetration rate was approximately 5.1% of GDP in 2022, placing it in the upper echelons of Africa and exceeding the global average of 3%. The per capita premium, which represents the average life insurance expenditure per person, was approximately \$241 USD in the same year (Swiss Re, 2022). This relatively higher per capita premium, while lower than the global average (\$382 USD), reflects a slightly better allocation of financial resources to life insurance compared to other African countries, though there is still significant room for growth.

2.16.2 Barriers to Life Insurance Penetration

Several elements contribute to the moderate life insurance penetration and density observed in Namibia. A major barrier stems from the country's economic structure. Although Namibia is classified as an upper middle income nation, the informal sector remains sizable at about 28 per cent of GDP (Medina & Schneider, 2019), with informal employment accounting for approximately 67 per cent of total jobs, according to the 2016 Labour Force Survey (Kiaga & Leung, 2020). The low and inconsistent earnings typical of informal employment make it difficult for many individuals to consistently pay premiums, thereby limiting their access to life insurance products.

Income inequality and poverty further complicate the situation. Namibia records one of the highest levels of income inequality globally, with a Gini coefficient of 59.1 (World Bank, 2024c). The poverty rate, estimated at 17.8 per cent in 2022 based on the international poverty

line of \$2.15 per day, suggests that a considerable portion of the population struggles to meet essential needs, making life insurance less of a priority (World Bank, 2024c). According to the 2017 Namibia Financial Inclusion Survey (NFIS), about 69.9 percent of adults did not own any insurance products or services, mainly citing affordability as the major obstacle (World Bank, 2021). Access to insurance is further limited by the concentration of bank branches in urban areas, requiring over 40 per cent of rural residents to travel more than an hour to reach financial institutions. Although mobile banking shows potential due to widespread mobile phone ownership, accessibility remains a challenge (World Bank, 2021). These economic barriers create an environment where life insurance is perceived more as a luxury than a necessity.

Moreover, a widespread lack of understanding and awareness regarding life insurance persists. Many Namibians do not view life insurance as a crucial financial product, a situation exacerbated by insufficient financial education (Sangwichitr & Intara, 2023; Sibanda & Jeremiah, 2023). The Financial Literacy Initiative (2023) also notes that a significant proportion of the population lacks the skills needed to make informed insurance decisions, further hindering sector growth.

In summary, although Namibia exhibits higher life insurance penetration and density compared to many African countries, the sector faces notable constraints. These include the dominance of the informal sector, high levels of poverty and income inequality, limited financial literacy, and restricted access to financial services, especially in rural areas. Overcoming these challenges requires a comprehensive strategy that promotes financial education, leverages mobile technology to enhance accessibility, and implements regulatory reforms to stimulate life insurance uptake. Successfully addressing these issues would enable the life insurance sector to make a stronger contribution to economic stability and personal financial resilience in Namibia.

2.17 South Africa

The life insurance sector in South Africa stands as one of the most sophisticated and mature within the African continent, serving a crucial function in the nation's financial services industry. This analysis examines the current state of life insurance in South Africa, concentrating on penetration rates, density levels, and the challenges that restrict further growth. Gaining a clear understanding of these factors is vital for formulating strategies aimed

at strengthening the sector's role in promoting economic stability and enhancing individual financial security.

2.17.1 Penetration and Density

South Africa boasts a relatively high life insurance penetration rate compared to other African nations. According to Aizpun et al. (2023), the life insurance penetration rate was approximately 9.1% of GDP in 2022, significantly higher than the world and continental average. The per capita premium, reflecting the average expenditure on life insurance per person, was around \$614 USD in the same year (Aizpun et al., 2023). These figures indicate a well-established life insurance market with a relatively high allocation of financial resources towards life insurance products among the population.

2.17.2 Barriers to Life Insurance Penetration

Although the life insurance sector in South Africa is relatively mature, it still encounters several obstacles that restrict its potential for further expansion and greater inclusivity. One of the primary challenges is the country's economic inequality. South Africa records one of the highest income inequality rates globally, with a Gini coefficient of 62.7 per cent in 2023 (World Bank, 2024c), making it the most unequal economy worldwide (McKeever, 2024). This disparity results in a situation where a portion of the population can afford comprehensive life insurance, while a considerable segment struggles to allocate funds for such products. Furthermore, the International Monetary Fund reported that the wealthiest 10 per cent of the population earned 51 per cent of total incomes, whereas 40 per cent lived below the national poverty line, revealing a sharp divide between the rich and the poor (Burns et al., 2024). Based on the most recent 2014/2015 survey, about 55 percent of South Africans, representing 30 million people, lived below the national upper-bound poverty line of ZAR 992 at 2015 prices, with 25 per cent, or nearly 14 million individuals, facing food poverty (World Bank, 2023). These high poverty levels further limit access to life insurance.

The widespread prevalence of informal employment adds another layer of complexity. Roughly 31 per cent of the South African workforce operates within the informal sector (Statistics South Africa, 2024). The unstable and often limited income streams associated with informal employment create difficulties for individuals to sustain regular premium payments, thus restricting broader participation in the life insurance market.

Additionally, a significant lack of financial literacy persists among the population. Many South Africans fail to grasp the value of life insurance, often viewing it as an unnecessary cost rather than an essential aspect of financial planning (Antoni, Saayman, & Vosloo, 2020). Research has shown that despite national initiatives to enhance financial education, overall financial literacy remains low, particularly among younger populations and Black rural communities (Chitimira & Magau, 2023; Changweshwa & Mutezo, 2023; Ndou, 2024; Roberts et al., 2021). This gap in understanding continues to impede the broader adoption of life insurance products.

Cultural and religious beliefs play a significant role in shaping the adoption of life insurance (Trinh et al., 2023). Although primary culture and religion can serve as a unifying factor for collaborative endeavours, they can also isolate certain individuals and restrict the capacity of financial planners to cater to a wider range of people (Lim & Gray, 2022). In societies characterised by cultural or religious collectivism, there is a tendency for some individuals to view family as a complete alternative to insurance. As a result, these communities may struggle to effectively mitigate risk through life insurance (Lim & Gray, 2022). Certain cultures exhibit a tendency to avoid conversations about death and financial planning, which can discourage individuals from contemplating life insurance (Aswini & Babylantha, 2021; Lim & Gray, 2022). Several African studies suggest that traditional beliefs and practices may occasionally clash with the idea of life insurance, resulting in scepticism and limited adoption within specific communities (Aswini & Babylantha, 2021). Considering South Africa's rich cultural diversity (Roduner & Rohwer, 2024) and the large proportion of marginalised communities living mainly in rural regions, it is important to investigate how culture and religion influence life insurance adoption. However, there remains a notable gap in the existing literature regarding this subject.

Furthermore, although the regulatory environment is strong, it presents certain challenges. The Financial Sector Conduct Authority (FSCA) supervises and regulates the insurance industry in South Africa, ensuring consumer protection and maintaining market stability. Financial inclusion is also encouraged through Section 7 of the Financial Sector Regulation (FSR) Act, which mandates the FSCA to deliver financial education programmes and advance financial literacy among consumers. This includes enhancing the ability of financial customers and potential customers to make informed and prudent financial choices (Kelly-Louw, 2024). Although the current efforts are commendable, there is room for enhancing the regulatory framework to promote wider adoption of life insurance. For instance, although there are tax

benefits available for retirement savings (Antoni, Saayman, & Vosloo, 2020), the tax advantages for life insurance products are not as prominent. This disparity may hinder the widespread adoption of life insurance products, which could otherwise be encouraged by such incentives.

In addition, there is a problem with intense market concentration. There are only a handful of large companies that control the life insurance market in South Africa (KPMG, 2023). This may result in an environment that discourages competition and stifles innovation. It is possible that this concentration will result in higher prices and fewer options for customers, which will in turn reduce the market's capacity to attract and retain customers.

To summarise, South Africa's life insurance sector, despite being one of the most advanced on the continent, faces significant barriers to growth and inclusion. High levels of economic inequality, widespread poverty, and informal employment make it difficult for many people to obtain life insurance. Additionally, limited financial literacy combined with cultural hesitancy to address death and financial planning restricts the adoption of life insurance products. The regulatory framework, while strong, could benefit from improvements to better incentivize life insurance adoption. Furthermore, market concentration among a few large firms restricts competition and innovation, potentially increasing costs and reducing consumer choices. Addressing these multifaceted challenges through targeted interventions, such as improving financial education, increasing regulatory incentives, and fostering market competition, is critical to expanding the reach and impact of life insurance in South Africa.

2.18 The Informal Economy in Zimbabwe: Definition, Characteristics, and Dynamics.

2.18.1 The Informal Sector

Over the years, scholars have found it challenging to establish a clear definition of the informal economy (Dell'Anno, 2022). According to Dell'Anno, the main difficulty arises from varying research objectives across disciplines, with some scholars examining the informal economy from a statistical angle and others from an economic perspective. For example, the economic concept of the informal economy is often associated with terms such as the shadow economy, black market, hidden economy, unofficial economy, or underground economy (Dell'Anno, 2022). This differs from the statistical notion of informality found in national accounting,

where it refers to non-observed economic activities and underground production (Dell’Anno, 2022).

The International Labour Organisation (ILO) (2021) has proposed a definition of informality that incorporates both statistical and economic perspectives. For economic purposes, the ILO (2021, p. 7) defines informality as encompassing all economic activities carried out by workers and units that, either legally or practically, are not fully covered by formal frameworks. Statistically, the informal market economy includes all productive activities conducted by workers and units for pay or profit that are not fully captured by formal arrangements (ILO, 2021, p. 11).

Schneider, Buehn, & Montenegro (2010) define informality as the market-based and legal production of goods and services that is concealed from public authorities for reasons related to monetary obligations, regulatory burdens, or institutional weaknesses. Avoiding taxes and social security contributions motivates concealment for monetary reasons, while bureaucratic red tape drives regulatory evasion, and poor institutional quality encourages concealment through corruption (Ohnsorge & Yu, 2021). These elements influence firms and workers in their choice to operate within or outside the formal sector (Ulyssea, 2020).

The informal economy, frequently termed the shadow economy, black market, or parallel economy, consists of all economic activities that are not reported to authorities, particularly tax administrators (Ajide & Dada, 2023). In simpler terms, it includes unrecorded and unregulated activities taking place outside official economic systems (Dada et al., 2022). Commonly, the informal economy is perceived as engaging in illegal activities (Ajide & Dada, 2023). Because participants aim to hide their activities, measuring the size of the informal economy remains a major challenge (Medina & Schneider, 2018).

From these perspectives, the informal economy encompasses all economic activities that do not appear in a country’s national accounts. Workers in this sector are often excluded from national security and social protection programmes.

The shadow economy has become an integral part of economic life in both developed and developing nations, with a larger share in developing countries. Although precise measurement is difficult, it is widely accepted that the informal economy serves as the principal source of

employment in developing regions. It also provides income opportunities to marginalised groups in developed economies (Dell'Anno, 2022). According to the ILO (2024), in 2023, approximately two billion people, equivalent to 58 per cent of the global workforce, were engaged in informal employment. In sub-Saharan Africa, informal employment represented 86 per cent of total employment during the same year (ILO, 2024). The informal sector can therefore be seen as an essential alternative to formal employment opportunities.

Research has shown that the informal sector can have positive effects on national economies. For example, Zagoršek et al. (2009) demonstrated that Slovenia benefited from the informal economy during its communist era. The informal sector helped stimulate the official economy, reduce social tensions, and enabled export-oriented businesses to remain competitive through lower wage costs and cheaper resource acquisition. Similarly, Huang et al. (2022) found that the informal economy contributed significantly to urbanisation in China. Their study indicated that informal activities accounted for 23.5 per cent of China's GDP, and each one percentage point increase in the informal economy's share of GDP boosted the urbanisation rate by 0.291 percentage points. The informal sector promoted urbanisation by encouraging foreign direct investment, social consumption, fixed asset investment, and employment growth in the secondary sector.

Certain characteristics distinguish the informal sector. It is marked by adaptability, flexibility, small-scale operations, cash-based transactions, absence of official recognition, and insecure working conditions.

2.18.2 Characteristics of the Informal Economy

The informal economy refers to the unregulated and non-formal part of the market economy that produces goods and services intended for sale or other forms of compensation (Makochehanwa, 2020). It includes all economic activities carried out by workers and economic units that are, either by law or by practice, not adequately covered by formal institutional arrangements (ILO, 2021). These arrangements typically involve compliance with government regulations concerning business registration, employee social contribution payments, and taxes related to business activities (IMF, 2021). According to Makochehanwa (2020), the characteristics of the informal economy in Sub-Saharan Africa (SSA) can be summarised as follows:

Table 2.1: Characteristics of the Informal Economy in Africa

Characteristic	Description
Low Entry Requirements	The informal sector is defined by minimal requirements for entry regarding both capital and professional qualifications, allowing individuals and entities to enter and exit with relative ease. These low barriers encourage participation in the sector.
Private Unincorporated Entities	Most entities are private and unincorporated, lacking formal registration with national registration bodies such as registrars of companies. They are not governed by specific national legislation.
Weak Accounting and Recordkeeping	Because the distinction between personal and business finances is often unclear, entities operating within the informal economy frequently have inadequate or missing accounting records, making it difficult for authorities to conduct tax assessments.
Small-Scale Operations	Informal economy activities typically involve small-scale operations without economies of scale, often resulting in unreliable production and service supply.
Employment Size Below a Certain Threshold	While there is no standard employment size for informal economy entities in Africa, most operate with employment levels below a certain threshold.
Skills Acquired Outside Formal Education	Skills applied in this sector are frequently developed beyond formal education, commonly through practical experience at the workplace or passed down from earlier practitioners.
Labour-Intensive Methods	Production and service provision in the informal economy are generally labour-intensive, with limited adaptation of relevant technology.
Lower Product/Service Quality	Products and services from the informal economy are usually of lower quality compared to those from the formal economy, as they often lack adherence to quality control mechanisms.
Goods/Services for Sale or Barter	Some entities in the informal economy engage in barter trade, exchanging goods or services with other informal entities, alongside selling their products or services.

Informal Employment	Employment relationships within the informal economy are usually excluded from labour laws, income tax obligations, social security measures, and access to specific employment benefits.
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Source: Adapted from Makochekanwa (2020)

Table 2.7: Characteristics of the Informal Economy in Africa (Continued)

Characteristic	Description
Precarious Working Conditions	Informal workers frequently experience job insecurity, lack of social protection, and inadequate working conditions. They typically do not benefit from employment rights such as minimum wage, health insurance, or retirement benefits. (Etim & Daramola, 2020).
Cash-Based Transactions	The informal economy primarily operates on cash transactions, which complicates record-keeping and the enforcement of fiscal policies. (Joshi, Prichard, & Heady, 2014).
Flexibility and Adaptability	Despite the challenges, the informal economy is marked by its flexibility and adaptability. It provides employment opportunities in the face of economic fluctuations and serves as a critical livelihood strategy for many individuals. (Alberola & Urrutia, 2020; Manyati & Mutsau, 2019).

Source: Author's compilation (2024)

These characteristics highlight the distinct nature and operational dynamics of the informal economy in Africa.

2.19. Size and Scope of the Informal Economy in Zimbabwe

The informal economy holds a crucial position within Zimbabwe's economic framework. Various estimates indicate that this sector represents a significant share of the nation's economic activity and employment. Between 1991 and 2017, Zimbabwe was found to have the third largest informal sector in Africa and the fifth largest globally, following Bolivia, Georgia, Nigeria, and Tanzania (Medina & Schneider, 2019). In 2023, the informal economy in

Zimbabwe was projected to contribute 64.1 per cent of the gross domestic product (GDP) at purchasing power parity (PPP) levels, valued at approximately 42 billion United States dollars (ZNCC, 2023). The International Monetary Fund (IMF) previously estimated that in 2017, the informal sector comprised 46 per cent of the GDP (Medina & Schneider, 2019). This indicates that the majority of the country's economic activities take place within the informal sector.

In addition, the nation has witnessed a rise in informal employment over the past decade. Data from the International Labour Organisation (ILO) (2022) show that informal employment accounted for 80 per cent in 2004, rose to 84.2 per cent in 2011, peaked at 94.5 per cent in 2014, and then fell to 76 per cent by 2019. Due to the lack of options to remain unemployed and the decrease in formal job opportunities, Zimbabwean workers have turned to low-productivity activities, often related to subsistence, in the rural and informal sectors. In these sectors, they encounter significant challenges in terms of decent work (ILO, 2022). According to the World Bank (2022), only 33 per cent of workers in Zimbabwe receive a salary, which is considerably lower compared to their counterparts in the region and globally. This suggests a lack of abundant high-quality employment opportunities, even though the workers possess comparatively sophisticated skills. Informal firms exhibit significantly lower labour productivity compared to similar formal firms, resulting in a negative impact on overall productivity (World Bank, 2022). Moreover, the existence of informal enterprises has led to a notable decline in the efficiency of formal enterprises, with an average reduction of 24 per cent, when compared to firms that are not subjected to such competition (World Bank, 2022).

Although it is not formally recognised, the informal sector in Zimbabwe plays an important role in providing skills development, especially for disadvantaged groups, as noted by Magidi & Mahiya (2021). Their study demonstrated that the sector significantly contributed to equipping marginalised individuals with valuable skills in construction and beauty therapy. The study illustrates how the informal sector contributes to sustainable urban development in the small town of Norton, Zimbabwe, where a functional formal economy is lacking. The study contends that certain activities within the sector are significantly contributing to the preservation of the natural environment, the advancement of skills, the promotion of social unity, the safeguarding of indigenous knowledge traditions and Ubuntu, along with the broader advancement of the nation.

The scope of the informal economy in Zimbabwe includes a wide array of activities, including street vending, agriculture, informal services, artisanal mining and domestic work. This section examines the motivations, challenges and the perceived economic benefits of these informal sector activities.

2.19.1 Street Vending

Street vending is a prominent activity in urban areas, where a variety of goods, including fruits, vegetables, clothing, and electronics, are sold. This industry is prominently noticeable and supports a substantial portion of the city's population in terms of their means of living.

The main drivers behind the widespread growth of street vending in Zimbabwe are deeply connected to socioeconomic factors. Maviya & Simbanegavi (2024) argue that the increase in street vending is primarily caused by a lack of formal job opportunities, poverty, insufficient education or skills, limited job options, and expensive rental fees. According to Shoko & Dziva (2019), the growth of street vending in Zimbabwe stems from the economic crises that have impacted the nation since the early 21st century. These crises led to the collapse of productive enterprises and forced many individuals to depend on the informal sector for their livelihoods. Monga, Dzvimbo, & Mashizha (2019) acknowledge street vending as an essential means of making a living that urban residents in Zimbabwe are increasingly dependent on.

Street vendors in Zimbabwe encounter numerous obstacles. Maviya & Simbanegavi (2024) identify various risks, such as sanitation issues, competition with established enterprises, traffic congestion, and potential safety hazards. Bhila & Chiwenga (2023) analyse the difficulties faced by street vendors within a socio-political framework, highlighting how the postcolonial state continues to marginalise and devalue them, treating them as insignificant and bothersome. Shoko & Dziva (2019) examine the gendered dynamics of street vending, highlighting the intense competition for physical and virtual territory between male and female vendors in Masvingo City. Lastly, Monga, Dzvimbo, & Mashizha (2019) specifically examine the challenges encountered by vendors in Kadoma's Central Business District, emphasising the imperative of implementing sustainable measures to bolster their means of subsistence.

Street vending yields substantial economic advantages. Maviya and Simbanegavi (2024) recognise the favourable influence of it on the economy, notwithstanding the associated difficulties. Shoko & Dziva (2019) as well as Monga, Dzvimbo, & Mashizha (2019) emphasise

the significance of street vending as a means of employment and income for numerous city dwellers. Monga, Dzvimbo, & Mashizha (2019) emphasise the importance of street vending in improving food security for people living in urban areas. They argue for the repeal of restrictive laws and the legalisation of street vending to support the informal sector.

It can therefore be argued that street vending in Zimbabwe is primarily motivated by economic necessity and entails both advantages and disadvantages. Efficient policies and regulations, in conjunction with educational and awareness campaigns, are crucial for mitigating the negative impacts and fostering sustainable development. In their proposal, Maviya & Simbanegavi (2024) suggest implementing targeted strategies, such as the establishment of designated vending zones and the strict enforcement of sanitation regulations, in order to foster a more structured and supportive atmosphere for street vendors.

2.19.2 Agriculture

Small-scale, unregistered farming is prevalent in rural areas, where farmers produce crops and livestock primarily for local markets and personal consumption. The motivations for engaging in informal agriculture in Zimbabwe are primarily driven by the outcomes of the land reform and the need for livelihood security. Scoones & Murimbarimba (2021) highlight that the 2000 land reform significantly altered agrarian structures, fostering economic growth in rural towns through informal economic activities and networks. Marewo (2024) emphasises the role of social relations in facilitating informal land leasing in small-scale settlements post-fast-track-land-reform-programme, allowing individuals with limited access to land to obtain it through informal subdivisions. Mudimu et al. (2020) point to livelihood precarity, labour shortages, and tenure insecurity as key motivators for informal land leasing, despite the state's prohibitive stance.

Informal agriculture in Zimbabwe encounters several obstacles, including challenges linked to financial inclusion, market accessibility, and unclear legal frameworks. Mhlanga & Hassan (2022) highlight key factors such as gender, the age of the household head, landholding size, and the availability of agricultural extension services that affect smallholder farmers' engagement in formal financial markets, emphasizing the importance of policies that improve land access and enhance farmer training. Musara et al. (2018) examine the factors influencing market participation and the selection of marketing channels among small-scale sorghum farmers, pointing to the scarcity of marketing options and the high transaction costs involved

with external traders. Mudimu et al. (2020) highlight conflicts arising from informal land leasing practices, including disputes over plot boundaries, non-payment of rent, and crop theft, exacerbated by the state's ambiguous policies.

The economic benefits of informal agriculture are substantial, contributing to local economic development and improving living conditions. Scoones & Murimbarimba (2021) document the growth of economies in small rural towns due to new economic activities and employment generated by agrarian changes. Marewo (2024) suggests that informal land leasing supports people with limited land access, enabling them to engage in agricultural activities. Mhlanga & Hassan (2022) argue that small-scale farmers' financial participation is crucial for breaking the poverty cycle and commercialising the rural economy, while Musara et al. (2018) advocate for cooperative-based and extension-anchored marketing to enhance market participation and reduce transaction costs for small-scale farmers.

In conclusion, informal agriculture in Zimbabwe is a response to economic necessity and land reform outcomes, presenting both opportunities and challenges. Effective policies and regulations, along with supportive measures such as expanding land access, enhancing agricultural extension services, and developing cooperative marketing structures, are essential to enhance the advantages and overcome the challenges associated with informal agriculture.

2.19.3 Informal Services

Informal services cover a broad spectrum of activities, such as small-scale production, maintenance services, hairdressing, and household work, among others. These services are essential for the daily functioning of communities yet often operate outside formal regulatory frameworks.

Manyati & Mutsau (2019) highlight that informal innovators within Zimbabwe's small and medium enterprises (SMEs) are predominantly motivated by the imperative to reduce the cost of agricultural technologies, thereby enhancing their accessibility for small-scale farmers. Their study underscores that technological adaptation in the informal sector is shaped by considerations of cost-efficiency and the need to develop products that are locally relevant and appropriate. Similarly, Makate et al. (2019) argue that innovation within the informal economy has been catalysed by the collapse of the formal industrial sector, a consequence of protracted economic crises. This structural decline has compelled informal entrepreneurs to fill the

resulting market void by offering intermediate agricultural technologies tailored to the needs of smallholder farmers. Dzawanda, Matsa, & Nicolau (2021) further assert that participation in informal economic activities is often driven by survival imperatives, particularly during times of acute crisis such as the COVID-19 pandemic. In the absence of adequate government support mechanisms, many individuals have been forced to rely on informal work to sustain their livelihoods. Kurebwa (2018) adds a gendered dimension to this analysis, noting that women's engagement in the informal sector is frequently a response to systemic socio-economic inequalities and gender-based barriers that hinder their access to formal employment and productive resources. Consequently, the informal economy becomes a critical source of household sustenance for women who are excluded from formal labour markets. Chirisa et al. (2021) provide a broader historical perspective, attributing the rise of informal economic participation to structural economic reforms implemented after 1990. These reforms contributed to widespread deindustrialisation and urban economic insecurity, prompting a large-scale shift toward informal livelihood strategies. Collectively, these studies reveal the multifaceted drivers of informal sector activity in Zimbabwe, which include economic necessity, institutional failure, innovation, and social exclusion.

The challenges faced by informal innovators are significant. Manyati & Mutsau (2019) report that these innovators encounter difficulties related to intellectual property protection, relying on secrecy and complex knowledge-management strategies to safeguard their innovations from local competitors. Makate et al. (2019) point to additional obstacles, including the necessity for policies that enhance entrepreneurial skills and foster a supportive business environment. Informal entrepreneurs also face difficulties related to firm and owner attributes, along with challenges linked to innovation policy. Dzawanda, Matsa, & Nicolau (2021) emphasise the significant effect of the COVID-19 lockdown on the informal sector, which led to many individuals losing their livelihoods. Further government restrictions and the absence of support have worsened these difficulties, driving some people towards unlawful activities. Kurebwa (2018) discusses the numerous hardships encountered by women in the informal economy, such as limited access to structured markets, financial credit, formal education, and public services. They are also affected by social, political, economic, and environmental constraints. Chirisa et al. (2021) describe the challenges of the informal sector as involving both normative and positive developments, with post-1990 structural economic adjustments complicating the formalisation of urban economies. These challenges include navigating the informal nature of urban economic activities and addressing the broad economic impacts of informality.

The economic benefits of informal innovations are considerable. Manyati & Mutsau (2019) assert that these innovations include cost-effective agricultural technologies tailored to small-scale farmers' needs which enhance productivity and support the local economy. Makate et al. (2019) demonstrate that entrepreneurial innovations in the informal sector significantly enhance firm performance, contributing to the overall stability and growth of Zimbabwe's economy. Policies supporting these innovations could further bolster economic recovery. Dzawanda, Matsa, & Nicolau (2021) assert that the informal sector is the primary source of household income and food security in Zimbabwe, particularly during periods of crisis such as the COVID-19 pandemic. Adjustments made within the informal sector play a crucial role in maintaining livelihoods in the absence of formal assistance. Kurebwa (2018) emphasizes that women's involvement in the informal economy generates critical income and contributes to the economic stability of their households. Implementing policies that address gender disparities could further strengthen these economic advantages. Chirisa et al. (2021) find that the informal economy is central to Zimbabwe's national economic development, making substantial contributions to household incomes and fostering innovation. It also supports key economic indicators such as GDP and per capita income, which are vital for national growth and investment.

In conclusion, the informal services sector in Zimbabwe is characterised by a diverse range of activities that are crucial to the functioning of communities and the broader economy. Despite operating outside formal regulatory frameworks, this sector is driven by necessity, innovation, and resilience, particularly in response to economic crises and structural adjustments. While challenges such as inadequate intellectual property protection, restrictive policies, and socio-economic constraints persist, the informal sector's contributions to economic stability, household income, and national development are undeniable. Policies that support the formalisation, protection, and promotion of informal innovations, particularly those addressing gender inequalities, could further enhance the sector's economic benefits and sustainability.

2.19.4 Artisanal Mining

Informal mining activities, particularly gold mining and panning, are widespread in Zimbabwe and constitute a significant source of income for many households. However, these activities often lead to environmental degradation and pose health and safety risks.

Gwande (2023) observes that the ongoing crisis in Zimbabwe has driven the population, particularly the youth, to engage in illegal Artisanal and Small-scale Mining (ASM) to safeguard their livelihoods and generate wealth. The rise of "mbingas" in ASM exemplifies youth entrepreneurship in the informal economy, indicating a potential avenue for creating long-term economic benefits. Mkodzongi (2023) observes that the rapid expansion of the Artisanal and Small-scale Gold Mining (ASGM) sector has led to a rural transformation in Zimbabwe. The sector has become an essential component of the informal economy by providing employment for both rural and urban populations living in poverty, thereby creating a need for a change in government policy towards formalisation. Mkodzongi & Spiegel (2019) contend that the growth of ASGM following the land reform period has made mineral resources more accessible to the rural poor, encouraging complex interactions between artisanal mining and smallholder farming. This relationship is captured in the expression 'mari yaputika' ('gold has detonated'), highlighting the sector's importance (Mkodzongi & Spiegel, 2019). Zvarivadza (2018) maintains that ASM remains a critical means of livelihood for the economically disadvantaged and for those without formal professional skills. Recognising and formalising ASM is the first step towards sustainable development, as it provides economic opportunities for those who might otherwise remain unemployed.

Gwande (2023) acknowledges that young miners in the ASM sector face significant challenges that hinder their potential contribution to a sustainable economy. These include regulatory issues and the illegal nature of much of their work, which expose them to legal and operational risks. Mkodzongi (2023) identifies the criminalisation of all forms of ASM by the government as a major challenge. The antagonistic policy approach towards ASM needs to be replaced by one that promotes formalisation to harness the sector's full potential. Mkodzongi & Spiegel (2019) point out that the post-land reform growth of ASGM has led to complex labour and class dynamics, challenging simplistic views of the relationship between artisanal mining and farming. This multifaceted interconnectedness necessitates a thorough understanding of the sector's challenges. Zvarivadza (2018) discusses the numerous challenges posed by ASM, particularly I/ASM, to sustainable development. These include social, economic, environmental, safety, health, and political issues. The absence of a precise definition for ASM and the unlawful status of I/ASM make it difficult to regulate and integrate the sector into the formal economy.

Gwande (2023) emphasises that ASM has created employment and sustained the livelihoods of millions in Zimbabwe, with the sector employing up to 1.5 million artisanal miners. This has significant economic implications, given the sector's capacity to support dependents and promote entrepreneurship among the youth. Mkodzongi (2023) asserts that ASGM is a key component of Zimbabwe's informal economy, providing crucial employment opportunities and contributing to rural and urban economic stability. Formalising the sector could enhance its economic benefits. Mkodzongi & Spiegel (2019) highlight the economic benefits of ASGM in liberating mineral resources and fostering a symbiotic relationship with smallholder farming. This has led to increased economic activity in rural areas, benefiting both miners and farmers. Zvarivadza (2018) underscores the potential economic benefits of ASM, advocating for its formalisation to maximise returns. Active strategies like providing financial support, offering training, and establishing a supportive legal environment can strengthen the sector's role in promoting sustainable development and economic growth.

In conclusion, artisanal mining in Zimbabwe is a significant economic activity that provides essential income and employment opportunities, particularly in rural areas. The sector's informal nature presents numerous challenges, including environmental degradation, health risks, and regulatory issues. However, the potential benefits of formalising ASM are substantial, offering a pathway to sustainable development and economic growth. By adopting supportive policies and proactive approaches, Zimbabwe can harness the full potential of its artisanal mining sector, ensuring it contributes positively to the nation's economy and the well-being of its people.

2.19.5 Zimbabwe's Informal Sector Dynamics

The literature review reveals that the informal economy in Zimbabwe is marked by complex economic and social dynamics that affect both individuals and the broader societal framework, as demonstrated below.

Table 2.8: Economic and Social Dynamics of Zimbabwe's Informal Economy

Economic Dynamics	
Aspect	Description
Income Generation	The informal economy serves as a vital income source, especially where formal employment opportunities are insufficient,

	supporting millions of individuals and mitigating severe poverty (Mujeyi & Sadomba, 2019).
Entrepreneurship and Innovation	The informal sector encourages entrepreneurship and innovation, with individuals developing and adapting business models to survive and prosper. This environment can incubate future formal enterprises (Chirisa et al., 2021; Makate, et al., 2019; Manyati & Mutsau, 2019).
Taxation and Fiscal Policy	The informal economy complicates taxation and fiscal policy due to prevalent cash transactions and lack of formal records. This makes tax collection and financial regulation enforcement challenging, potentially leading to significant revenue losses (Joshi, Prichard, & Heady., 2014; Makochekanwa, 2020).
Financial Inclusion	Informal economic operations frequently operate outside conventional banking structures, limiting availability of financial products including credit facilities, savings accounts, and insurance coverage. Such exclusion from formal financial systems impedes economic development and intensifies wealth disparities (Mavaza, Dzapasi, & Halimani, 2020).
Social Dynamics	
Employment and Social Security	Informal workers generally lack social security benefits, exposing them to vulnerabilities like job insecurity, health risks, and insufficient retirement provisions. This lack of social protection can perpetuate cycles of poverty and social exclusion (Adom, 2017; Silumbwe et al., 2024).
Gender Dynamics	The informal sector demonstrates marked gender inequalities, as women are overrepresented in unstable and poorly compensated informal employment. This gender imbalance in informal labor undermines women's financial autonomy and societal standing (Kurebwa, 2018).
Community and Social Networks	Informal economies heavily rely on community and social networks for operations and support. These networks provide crucial resources such as information, financial assistance, and

	emotional support, fostering a sense of community solidarity (Chipunza & Nhamo, 2023; Riisgaard, Mitullah, & Torm, 2020).
Regulatory Challenges	The informal economy poses regulatory challenges for governments, balancing the need to formalise and regulate these activities without stifling entrepreneurship. Well-designed policies should seek to formalise informal economic activities by offering incentives, providing education, and implementing supportive interventions (Mujeyi & Sadomba, 2019).

Source: Author's compilation (2024)

The economic and social dynamics of Zimbabwe's informal economy demonstrate an intricate interaction of factors that support people's livelihoods and stimulate innovation, but also present notable difficulties. From an economic standpoint, the informal sector is crucial for generating income and fostering entrepreneurial growth, despite the challenges it poses in terms of taxation and financial inclusion. From a social perspective, it emphasises the differences in job stability and the proportion of men and women in various roles, while heavily depending on community networks for assistance and adaptability. To tackle these dynamics, it is necessary to adopt regulatory approaches that are both subtle and fair, incorporating informal activities into the formal economy without compromising the entrepreneurial drive that defines this sector. Efficient policies and supportive measures are crucial for promoting financial inclusion, social protection, and overall economic growth, which in turn leads to improved well-being for individuals who depend on the informal economy.

2.19.6 Challenges of Life Insurance Penetration in Informal Economies

Life insurance penetration in informal economies presents a complex array of challenges. These challenges are intricately intertwined with the socio-economic fabric of informal sectors and require multifaceted strategies to address them effectively. This section explores the primary obstacles to life insurance penetration in informal economies, focusing on financial literacy and awareness, trust and cultural perceptions, affordability and income volatility, regulatory and policy challenges, and distribution channels and accessibility.

Table 2.3: Challenges of Life Insurance Penetration in Informal Economies

Aspect	Challenges
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Financial Literacy and Awareness	Limited access to formal education leads to low financial literacy, which impedes understanding of life insurance advantages, while widespread myths, such as the assumption that life insurance is mainly for the wealthy, restrict adoption. (Asiamah, 2023; Sang, Mohidin, & Budin, 2020; Sanjeewa & Hongbing, 2019).
Trust and Cultural Perceptions	Past experiences with lost investments and financial instability have instilled a profound distrust of official financial institutions. This longstanding scepticism, together with cultural sensitivities surrounding death, dependence on existing social support systems, and the contrast between the long-term focus of life insurance and immediate financial needs, reduces the perceived importance and relevance of insurance (Mwinuka, Echoka, & Nyaberi, 2023; Gubwe et al., 2024; Mavaza et al., 2020; Owuor, 2016).
Affordability and Income Volatility	Irregular and low incomes make it difficult to afford life insurance premiums, and unstable income sources result in inconsistent premium payments and policy lapses. Traditional insurance policies are typically prohibitively expensive for low-income households in the informal economy, compounding the problem (Gubwe, Mabvure, Mbizi, & Mago, 2024; Silumbwe et al., 2024).
Regulatory and Policy Challenges	Existing legal frameworks frequently fail to accommodate the needs of the informal sector, and inadequate enforcement of legislation leads to fraud and mismanagement, weakening trust. Furthermore, limited government attempts to promote inclusive insurance products and awareness campaigns reduce support for the informal sector (Kodia, Kibisu, & Ngacho, 2024; Mujeyi & Sadomba, 2019).
Distribution Channels and Accessibility	Remoteness and lack of access to traditional insurance distribution channels impede uptake, while inadequate internet and mobile connectivity limit the use of digital platforms for insurance distribution. This emphasises the necessity for

	alternative distribution mechanisms, such as mobile insurance and collaborations with local cooperatives, to overcome geographical and infrastructure obstacles (Kodia et al., 2024; Mwinuka, Echoka, & Nyaberi, 2023).
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Source: Author's compilation (2024)

Life insurance penetration in informal economies faces substantial challenges related to financial literacy and awareness, trust and cultural perceptions, affordability and income volatility, regulatory and policy constraints, and distribution channels and accessibility. Overcoming these challenges necessitates an integrated strategy that incorporates customised financial education, culturally appropriate marketing, accessible and adaptable insurance products, enabling regulatory environments, and creative distribution methods. By tackling these issues, policymakers and insurers can significantly enhance life insurance uptake, providing critical financial protection to individuals and contributing to broader economic stability.

2.20 The Economic and Socio-Political Context of Zimbabwe

2.20.1 Overview of Zimbabwe's Economic History and Current Status

2.20.1.1 Colonial Period and Early Independence (1890-1980)

Zimbabwe, previously referred to as Rhodesia, underwent a substantial metamorphosis throughout the colonial era under British governance from 1890 until achieving independence in 1980. The colonial economy exhibited a dualistic framework, wherein a modern sector was under the control of the white minority, while the African majority primarily relied on a subsistence-based economy. The Land Apportionment Act of 1930 established a system of racial segregation, where the most fertile lands were assigned to the white population while African farmers were marginalised. This further solidified economic inequalities (Koke & Ncube, 2024).

2.20.1.2 Post-Independence Economic Growth and Decline (1980-2000)

After achieving independence in 1980, Zimbabwe received a relatively diversified economy with a sturdy agricultural foundation, thriving mining sector, and a well-established

manufacturing industry. Following independence, there was a significant focus on making social investments and achieving economic growth through policies that aimed to redistribute wealth and involved state intervention (Kanyenze et al., 2011). The Economic Structural Adjustment Programme (ESAP), introduced during the early 1990s with guidance from international financial institutions, led to significant economic liberalisation. This had a negative impact on the country's industrial sector and social services, worsening the issues of unemployment and poverty (Mhlanga & Ndhlovu, 2021).

2.20.1.3 Economic Crisis and Hyperinflation (2000-2009)

The onset of the new millennium witnessed a significant economic downturn, precipitated by the western nations' reaction to The Fast Track Land Reform Programme (FTLRP), initiated by the government in 2000, represented a significant policy shift in land redistribution. The colonial land ownership structure, which placed the black majority of the country at a disadvantage, was targeted by the FTLRP in order to rectify the imbalances caused by colonialism (Runganga, Njoroge, & Mishi, 2022). At independence in 1980, the farming area of the country was predominantly controlled by whites, accounting for 51% of the total. By comparison, 72% of the Black population lived in Communal Areas covering 42% of the territory. These regions, largely situated in the Lowveld's marginal agro-ecological zones, received inadequate rainfall for viable subsistence farming (Mhlanga & Ndhlovu, 2021). Zimbabwe's white minority rule institutionalised racial land dispossession through successive legislation including the 1898 Native Reserves Order in Council, 1930 Land Apportionment Act, 1951 Native Land Husbandry Act, and 1969 Land Tenure Act (Mhlanga & Ndhlovu, 2021). The following economic crisis was marked by hyperinflation, reaching its highest point in 2008, causing the Zimbabwean dollar to lose all value and resulting in the implementation of a multi-currency system in 2009 (Chowa, Mhlanga, & Munakamwe, 2014). The economic collapse led to a widespread increase in poverty, a substantial reduction in the formal sector, and a significant decrease in the provision of public services.

2.20.1.4 Stabilisation and Persistent Challenges (2010-Present)

Following its hyperinflation crisis, Zimbabwe attained economic stability through adopting a multi-currency system dominated by the US dollar (Pasara & Garidzirai, 2020). Nevertheless, persistent structural vulnerabilities continued to afflict the economy. Since 2010, there has been a period of moderate economic growth, with intermittent occurrences of fiscal deficits, public debt, and liquidity crises (Maune & Matanda, 2020; Saungweme & Odhiambo, 2021).

Economic reform initiatives and attempts to reintegrate with the international community notwithstanding, Zimbabwe's financial sector, especially its insurance industry, suffered substantially from the nation's economic turmoil.

2.20.1.5 Financial Sector and Insurance Industry

Zimbabwe's financial sector has experienced substantial changes, especially after the period of hyperinflation. Nevertheless, its stability is compromised by an unpredictable economic climate. The insurance industry encounters various obstacles, such as diminished public confidence, constrained disposable incomes, and insufficient knowledge regarding insurance products (IPEC, 2023b). Zimbabwe's financial services sector, which includes banking and insurance, has been significantly affected by hyperinflation and continued economic instability (Makoto, 2020). The period of hyperinflation resulted in the gradual erosion of public confidence in financial institutions, as both savings and insurance policies suddenly lost all value. Numerous banks experienced a collapse, while the small number that managed to survive encountered significant liquidity difficulties (Makombe, Kufakurinani, & Chimhete, 2023).

Hyperinflation typically leads to a substantial depletion of savings. The devaluation caused by hyperinflation rendered savings worthless, resulting in a transition from traditional banking to informal methods of saving (Kurasha, 2020). The absence of confidence endures, as numerous Zimbabweans are reluctant to place funds in banks or engage in long-term financial endeavours such as insurance (Makurumidze, Lubida, & Ngumi, 2020; Mavaza, Dzapasi, & Halimani, 2020).

The insurance sector suffered significant losses. Local currency-denominated policies experienced depreciation, resulting in substantial financial losses for policyholders (Chowa, Mhlanga, & Munakamwe, 2014). Insurance companies faced difficulties in fulfilling claims, which exacerbated the negative perception of the industry (Commission of Inquiry, 2017). Despite implementing a multi-currency system, the industry has encountered difficulties in rebuilding trust among consumers and complying with the regulatory prescribed asset ratio (IPEC, 2022).

The presence of economic instability has resulted in the implementation of strict credit conditions. Due to concerns about the volatility of the economy, banks have implemented more

stringent credit policies (Siavhundu, Nyabunze, & Chinorwadza, 2020). This has impeded business expansion and obstructed individuals and businesses from obtaining financial resources, thereby affecting the overall process of economic recovery.

The adoption of a multi-currency system initially brought about a temporary period of stability, but the subsequent reintroduction of the Zimbabwean dollar has once again introduced a sense of uncertainty (Pasara & Garidzirai, 2020). The frequent fluctuations in monetary policy have generated an unstable atmosphere for financial planning and investment (Tipedze et al., 2020).

2.20.1.6 Efforts towards Economic Reform

The government has recently made efforts to stabilise the macroeconomic environment and promote growth. The Transitional Stabilisation Programme (2018-2020) and subsequent National Development Strategy 1 (2021-2025) have the objective of rectifying fiscal imbalances, enhancing governance, and fostering investment (GoZ, 2020). Yet, the impact of these policies is still uncertain, as on-going obstacles like hyperinflation and a scarcity of foreign currency persistently hinder economic advancement (IMF, 2020).

On 5 April 2024, Dr John Mushayavanhu, the newly appointed Governor of the Reserve Bank of Zimbabwe (RBZ), introduced Zimbabwe Gold (ZiG) in his inaugural Monetary Policy Statement (RBZ, 2024). A structured currency refers to monetary units pegged to specific exchange rates or currency baskets, underpinned by foreign exchange reserves including gold (RBZ, 2024). The RBZ (2024) stipulates that domestic currency issuance requires full backing by foreign reserve currencies or equivalent assets. The ZiG derives its value from a diversified reserve basket comprising foreign currencies and gold holdings (RBZ, 2024). From its launch date, Zimbabwean financial institutions were mandated to convert all Zimbabwe dollar transactions into ZiG units. This policy revision aims to stabilise price levels and exchange rates while rebuilding confidence in the national currency, with ZiG circulating alongside foreign currencies (RBZ, 2024).

The future success of the new ZiG currency in gaining public trust and establishing itself as a stable local currency is yet to be seen. If achieved, this would enable officials to regain authority over monetary policy (Feingold, 2024). A significant majority of Zimbabweans prefer the security and stability offered by the US dollar, which constitutes approximately 80% of all transactions, as reported by the Reserve Bank of Zimbabwe (RBZ). The central bank opted for

a combination of the domestic currency (ZiG) and foreign currencies within a multi-currency framework due to this rationale and authorities have been actively pursuing unofficial traders who persist in avoiding the ZiG (Feingold, 2024).

Ultimately, Zimbabwe's economic and socio-political situation has been significantly influenced by its colonial history, economic strategies after gaining independence, and more recent economic challenges. The colonial era entrenched profound economic disparities through racially segregated land ownership, which persisted and exerted lasting effects on the nation even after gaining independence. Although the initial period after gaining independence witnessed economic expansion and improvements in society, the implementation of liberalisation measures in the 1990s destabilised the industrial sector and worsened poverty. The onset of the new millennium exacerbated economic turmoil as the Fast Track Land Reform Programme was implemented, resulting in hyperinflation and a complete economic collapse. Despite the temporary stability brought about by the implementation of a multi-currency system, on-going structural issues and economic instability have continued to impede the achievement of sustainable growth.

The financial sector, specifically the insurance industry, has faced challenges in rebuilding public confidence and ensuring stability amidst persistent economic volatility. The informal nature of Zimbabwe's economy hinders the adoption of life insurance, as a substantial portion of the population operates outside the formal financial system. The government has recently made efforts to stabilise the macroeconomic environment and stimulate growth. One of these efforts is the introduction of the ZiG currency. However, it is still uncertain how effective these measures will be in addressing the challenges. To enhance life insurance uptake and foster sustainable economic growth, Zimbabwe must thoroughly comprehend both the historical and contemporary aspects of its intricate economic landscape.

2.21 The Regulatory Environment for Life Insurance in Zimbabwe

2.21.1 Overview of the Regulatory Framework Governing Insurance in Zimbabwe

Zimbabwe's life insurance regulatory framework aims to supervise the industry, safeguard policyholders and preserve market stability. The sector operates under the Ministry of Finance and Economic Development, which establishes policy guidelines to ensure alignment with national economic goals. Established in 2000 under the Insurance and Pensions Commission

Act [Chapter 24:21], the Insurance and Pensions Commission (IPEC) serves as the principal regulator for insurance and pension activities. IPEC's responsibilities include licensing insurance providers and intermediaries, enforcing compliance with legal requirements, and promoting the growth of sound insurance and pension frameworks. According to IPEC (2024), the Commission's functions are governed by specific legislation and accompanying regulations.

2.21.2 Insurance and Pensions Commission Act [Chapter 24:21]

The Insurance and Pensions Commission Act designates the Insurance and Pensions Commission (IPEC) as Zimbabwe's principal regulatory body overseeing the insurance and pensions industry (IPEC, 2024). The responsibilities of IPEC encompass the licencing of insurance companies, the monitoring of compliance with statutory requirements, the assurance of financial stability, and the safeguarding of policyholders' interests (IPEC, 2024). The Act confers upon IPEC the power to issue guidelines, carry out inspections, and implement corrective measures against entities that fail to comply.

2.21.3 Pensions and Provident Fund Act [Chapter 24:32]

While primarily concerned with pension funds, the Pensions and Provident Fund Act also affects life insurance companies that provide pension-related products such as endowment and annuity policies. The Act establishes the registration and regulation of pension and provident funds, ensuring their financial stability and governance. IPEC oversees these funds, ensuring that they follow investment guidelines, actuarial valuations, and reporting requirements (IPEC, 2024).

2.21.4 Insurance Act [Chapter 24:07]

The Insurance Act is the cornerstone of Zimbabwean insurance regulation. It specifies the requirements for the registration, operation, and supervision of insurance companies. Key provisions include capital adequacy requirements, solvency margins, investment regulations, and policyholder interest protection. The Act empowers IPEC to supervise insurance companies, enforce compliance, and impose disciplinary actions as needed (IPEC, 2024).

2.21.5 Money Laundering and Proceeds of Crime Act [Chapter 09:24]

The Act aims to counter money laundering and terrorist financing activities. It classifies life insurance providers as financial institutions, mandating them to enforce stringent anti money

laundering protocols (IPEC, 2023). These obligations encompass client verification procedures, documentation maintenance, and disclosure of unusual transactions (IPEC, 2023). IPEC works with the Financial Intelligence Unit (FIU) of the country's central bank to ensure that insurance companies follow AML regulations (IPEC, 2023a).

2.21.6 Finance Act [Chapter 23:04]

The Finance Act primarily focuses on fiscal policies, taxation, and government revenue (Saungweme, 2021). The life insurance sector is affected by the Act through tax regulations which include the taxation of insurance premiums, investment income, and policyholder benefits. IPEC ensures that insurance companies adhere to the tax obligations specified in the Finance Act.

2.21.7 Public Entities and Corporate Governance Act [Chapter 10:31]

This legislation establishes the fundamental principles and benchmarks for the management and oversight of public organisations, such as IPEC, which is a statutory entity. The Act mandates the adoption of best practices in corporate governance, transparency, and accountability all public entities (Mthombeni et al., 2021). The IPEC ensures the implementation of these standards to fulfil its mandate, thereby promoting ethical behaviour and efficient management.

2.21.8 Public Finance Management Act [Chapter 22:19]

The Public Finance Management Act regulates the administration of public resources, with the goal of guaranteeing transparency, accountability, and prudent financial management in public organisations (Mapuvire & Mapuvire, 2022). IPEC ensures strict compliance with financial management principles for life insurance companies, especially those that are publicly owned or involved in government pension schemes.

2.21.9 Public Procurement and Disposal of Public Assets Act [Chapter 22:23]

This legislation governs the acquisition procedures of governmental organisations to guarantee equity, openness, and cost-effectiveness (Chikwere, Chikazhe, & Tukuta, 2023). Life insurance companies participating in public tenders or contracts are required to adhere to these procurement regulations. IPEC oversees adherence to regulations to deter fraudulent and corrupt practices in insurance company involvement in public procurement activities.

2.21.10 Administration of Estates Act [Chapter 6:01]

The Administration of Estates Act governs the handling of deceased persons' estates, encompassing the distribution of life insurance proceeds. The legislation delineates the responsibilities of executors, the entitlements of beneficiaries, and the protocols for estate administration (Maringe, 2024). IPEC ensures the compliance of life insurance companies with legal obligations in the settlement of death claims and distribution of benefits to eligible beneficiaries.

The legislative framework governing the life insurance sector in Zimbabwe involves multiple Acts that collectively ensure the industry's stability, integrity, and protection of policyholder interests. IPEC, as the regulatory authority, plays a critical role in enforcing these laws, promoting compliance, and addressing challenges within the sector. Through diligent supervision and collaboration with other regulatory bodies, IPEC aims to foster a trustworthy and resilient life insurance market in Zimbabwe (IPEC, 2024).

IPEC (2024) outlines its primary responsibilities and authority under Section 4(1) of the Insurance and Pensions Commission Act as follows:

First, it registers and supervises insurers, mutual insurance societies and insurance brokers in compliance with the Insurance Act [Chapter 24 07].

Second, it registers and regulates pension and provident funds according to the Pension and Provident Funds Act [Chapter 24 09].

Third, it oversees these entities to verify adherence to both the Insurance Act [Chapter 24 07] and Pension and Provident Funds Act [Chapter 24 09].

Fourth, it educates the public on insurance and pension products while encouraging their utilisation.

Finally, it advises the Minister on matters relating to insurance and pension funds and performs additional functions specified in the Act or related legislation.

The Insurance and Pensions Commission regulates the conduct of life insurance players in Zimbabwe through the use of statutory instruments, circulars, pronouncements, and onsite

inspections. The entities that are subject to regulation in the life sector encompass life insurance companies, life reinsurance firms, and life insurance agents. In 2023, the life assurance industry consisted of 12 primary life insurance companies, four life reinsurance companies, and 1,367 life assurance agents (IPEC, 2024).

2.22 Analysis of Regulatory Issues and Developments

Despite a well-defined regulatory framework, the insurance sector in Zimbabwe faces several challenges and gaps that hinder its growth and effectiveness.

Table 2.9: Regulatory Issues and Developments

Regulatory Challenges	Regulatory Developments
The current economic climate has created asset liability mismatches owing to the lack of short term investment options that maintain value. Without inflation adjusted prescribed assets, insurers struggle to safeguard policyholder funds, resulting in poor regulatory compliance. Government backed projects designated as prescribed assets offer fixed interest rates, leaving insurers vulnerable to inflationary losses that contribute to liquidity pressures and deferred claim payments. Persistent legislative requirements continue to present challenges by enforcing financially detrimental obligations.	The insurance industry is creating mortality tables tailored to Zimbabwe, instead of relying on South African tables. This will lead to more accurate mortality experience assumptions for product pricing, reducing insurance liabilities as products will be correctly priced.
The rise in the use of electronic platforms, coupled with remote working, has led to a growth in cyber security threats.	The Insurance Act and the IPEC Act are currently being revised to enhance regulatory frameworks, aiming to modernise risk and solvency assessments in line with international standards through the Zimbabwe Integrated Capital and Risk Project (ZICARP). This reform will bolster

	the stability and resilience of insurance companies and improve policyholder protection by linking capital requirements more closely to risk exposure.
The advent of quantum computing and progress in fifth-generation technologies has heightened apprehensions about cyber security and data protection. Insurers in Zimbabwe must commit increased expenditure towards resources and compliance with data privacy regulations to operate effectively and compete globally. Many insurers operate without dated systems and processes, negatively impacting their efficiency and service delivery. The existing regulatory framework lacks provisions to encourage or mandate the adoption of modern technology and digital platforms.	IPEC released Statutory Instrument 69 of 2020 on 13 March 2020, offering direction on adjusting insurance and pension values following the 2019 currency reforms. The directive instructs long term insurers to separate policyholder and shareholder funds and sets out rules for profit allocation and fair distribution of revaluation gains, strengthening trust in life insurance products.
Elevated inflation has resulted in increased operational expenses for businesses. Decreased discretionary incomes have adversely affected the adoption of insurance products, resulting in a more difficult operating environment for insurers.	To standardise insurance accounting and enhance comparison, the Zimbabwean insurance industry is implementing International Financial Reporting Standard (IFRS) 17. IFRS 17 increases transparency, helping users understand insurers' exposures and performance. Implementation has been challenging due to the complexity of the standard, requiring significant technical and practical changes, including overhauling actuarial models, financial reporting processes, and corporate governance structures.

Changes in regulatory policies have created difficulties for the sector. Though official auction prohibited access to foreign cash, the recent gazetting of Statutory Instrument 127 of 2021 punished businesses for demanding USD premiums. Key clauses of SI 127 are fines for not taking payments in Zimbabwean Dollars and policies forbidding the sale of goods and services at exchange rates exceeding the official market rate. This has lowered industry business confidence.	
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Source: Adapted from KPMG (2021)

Despite the challenging macroeconomic environment that has dominated the country in the recent past the regulator has embarked on several initiatives over and above those highlighted by KPMG above. These include the following.

2.22.1 Informal Sector Inclusion

IPEC launched a regulatory system for micro-insurance in 2017 intending to improve low-income families' and the informal sector's access to and affordability of insurance products (Towo et al., 2021). The micro-insurance system fits the Zimbabwe National Financial Inclusion Strategy (2016–2020), which seeks to build a more inclusive financial system by addressing barriers to financial inclusion (IPEC, 2018). Micro-insurance is insurance specifically designed for individuals with low incomes, who earn below the Poverty Datum Line as determined by the Zimbabwe Statistics Agency (ZIMSTAT), as well as those in the informal sector and it is tailored to be affordable, with terms and conditions, coverage, and delivery mechanisms that are suitable for this market (IPEC, 2024a). While the regulator does not prohibit traditional insurance companies from offering micro-insurance, Zimbabwe has granted licences to eleven new entities to sell micro-insurance as of 2024. This initiative is expected to enhance life insurance penetration in the country.

2.22.2 Capacity Building and Training

Efforts have been made to enhance the capabilities of IPEC by implementing training programmes, providing technical assistance, and allocating resources (IPEC, 2022a). The Commission facilitates the enhancement of institutional capacity in the insurance industry through various measures, such as organising training and mentorship programmes in collaboration with organisations like the World Bank Group, MEFMI, and the Toronto Centre and participation in regional and international meetings (Matsika, 2021). This helps the commission's capacity to oversee adherence, carry out inspections, and enforce regulations with efficacy.

2.22.3 Industry Training

IPEC undertakes collaborative efforts with industry associations to provide training and development programs for insurance professionals. The regulator values collaboration with key stakeholders in promoting financial inclusion, such as through training programmes that focus on improving skills in risk management, customer service, and regulatory compliance (IPEC, 2024b).

2.22.4 Consumer Protection and Education

IPEC, in collaboration with various stakeholders, has launched financial literacy campaigns aimed at educating the public about the importance of insurance, understanding insurance products, and making sound financial decisions (IPEC, 2024). The regulator also issues a regular Consumer Education e-Newsletter, which aims to educate insurance consumers about basic insurance knowledge as well as their rights under the country's insurance regulatory framework. IPEC requires insurance firms to comply with the regulator's Treat Customers Fairly (TCF) (IPEC, 2023). The TCF framework aims to improve consumer protection through transparent disclosure requirements, the establishment of a consumer complaints mechanism, and initiatives to improve the claims handling process. According to IPEC (2021), full compliance with the TCF Framework is expected to result in increased confidence in insurance and pensions, eventually leading to a sustainable insurance and pensions industry that meets consumers' financial service's needs. In 2021, IPEC created a Risk Based Cyber security and Data Protection Framework for adoption by insurance companies, brokers, reinsurers, pension funds, and pension fund administrators in the country. The framework was meant to fit the international best practices set by the International Organisation of Pension Supervisors (IOPS), the International Associations of Insurance Supervisors (IAIS), and Organisation for Economic Cooperation and Development (OECD) (IPEC, 2021b). The framework introduces

a method where regulated entities identify, evaluate, and comprehend the risks they face and implement appropriate measures in accordance with these risks to protect their clients (IPEC, 2021b).

Overall, despite encountering substantial macroeconomic obstacles, the Insurance and Pensions Commission (IPEC) of Zimbabwe has actively undertaken measures to encourage inclusivity, strengthen regulatory capacities, and safeguard consumer interests in the insurance industry. The introduction of the micro-insurance system shows IPEC's commitment to making financial services more accessible to low-income families in the informal sector. In addition, the implementation of capacity building initiatives, industry training programmes, and consumer education campaigns demonstrates a comprehensive strategy to enhance the regulatory framework and promote long-term growth in the insurance market. Through the synchronisation of these endeavours with national financial inclusion strategies and global benchmarks, IPEC not only tackles existing challenges within the sector but also establishes the foundation for a robust and adaptable insurance industry that caters to the varied requirements of Zimbabwean consumers.

2.23 Innovative Approaches to Insurance Penetration

2.23.1 Mobile Technology and Digital Financial Services

Mobile technology and digital financial services have become important instruments for increasing insurance penetration, particularly in areas with limited access to traditional financial services. The widespread ownership of mobile phones offers a valuable opportunity to deliver insurance products efficiently and reach underserved communities. In their study of forty eight African countries between 2004 and 2014, Asongu & Adiambo (2019) found that greater mobile phone penetration and fixed broadband subscriptions have a positive impact on life insurance consumption.

According to GSMA, by the end of 2022 almost 57% of the global population, equivalent to 4.6 billion people, were using mobile internet, an increase from 35% in 2015 (Shanahan & Bahia, 2023). Coverage expansion has been modest, with 95% of the global population now living within the reach of a mobile broadband network. Most of those who remain unconnected are in areas where mobile broadband is available but not utilised. Sub Saharan Africa continues to exhibit the largest gaps in both coverage and usage (Shanahan & Bahia, 2023). However,

there are variations within the region. Central Africa maintains a much higher coverage gap at 36% compared to Western, Eastern and Southern Africa, where the gap ranges between 11% and 14%. Mobile internet adoption is highest in Southern Africa at 33%, compared with 17% in Central Africa and 27% in Western Africa (Shanahan & Bahia, 2023).

As of the most recent global estimates, approximately 95% of the world's population resides within the coverage area of a mobile broadband network, indicating relative stability in overall network reach. The coverage gap—defined as the proportion of individuals living in areas without access to mobile broadband—remains at around 400 million people, or 5% of the global population. 2022 witnessed only marginal improvements in expanding network reach. The populations residing in uncovered areas are predominantly rural, economically disadvantaged, and located in sparsely populated regions. These characteristics present persistent and complex challenges for extending mobile connectivity to the final underserved segments of the global population (Shanahan & Bahia, 2023).

As of the end of 2023, Zimbabwe's mobile phone penetration rate increased to 97.7%, up from 94.25% recorded in the previous year. During the same period, internet penetration rose to 73.3%, compared to 65.35% in the preceding year (POTRAZ, 2023). These encouraging trends in mobile and internet access signal substantial potential for expanding mobile-based insurance distribution, particularly in rural areas, through the use of digital wallets.

Digital wallets, which are widely used in many developing economies, can be integrated with insurance products to offer micro-insurance (Aboagye & Anong, 2020). These wallets allow users to manage small premium payments and receive pay outs directly to their mobile accounts and this integration reduces transaction costs and increases convenience for policyholders (Addae-Nketiah, 2022).

2. 23.2 Micro-insurance and Its Potential in Informal Economies

In its Micro-insurance Framework, the Zimbabwean insurance regulator adopts the definition of micro-insurance from the International Association of Insurance Supervisors (IAIS), which describes it as "Insurance that is accessed by low income populations, provided by a variety of different entities, but run by generally accepted insurance practices" (IAIS, 2012, p. 11; IPEC, 2024a). In the Zimbabwean context, IPEC (2024) further defines micro-insurance as insurance

suited to the low income market, specifically targeting individuals earning below the Poverty Datum Line as reported periodically by the Zimbabwe Statistics Agency (Zimstat), as well as the informal sector, taking into account aspects such as cost, terms and conditions, coverage and delivery mechanisms. It is important to note that although these products are intended for low income individuals, they are also available for purchase by any individual, including those with high net worth (IPEC, 2024). Micro-insurance is therefore designed to provide affordable and accessible insurance products to low income individuals and households, particularly within informal economies. Its potential lies in addressing the specific risks encountered by this demographic and offering a safety net that promotes financial stability and resilience. The principal characteristics of micro-insurance include:

2.23.2.1 Affordable Premiums

Micro-insurance products are characterised by low premiums, rendering them accessible to individuals with limited financial resources (Chummun, 2017). By pooling risks among many policyholders, insurers can offer coverage at a reduced cost, thereby extending the benefits of insurance to those who are traditionally excluded (Schanz, 2020b).

2.23.2.2 Simplified Products

The success of micro-insurance products relies heavily on their simplicity (Merry & Calderon, 2024). Policies are intentionally crafted to be easily comprehensible and accessible for individuals to make claims, requiring minimal documentation and employing clear and uncomplicated language (Bauchet & Morduch, 2019). In informal economies, where levels of financial literacy may be low, simplicity is especially crucial (Uddin, 2017).

2.23.2.3 Product Diversity

Micro-insurance encompasses several types of risks, such as health, life, property, and agriculture (Merry & Calderon, 2024). For instance, agricultural micro-insurance offers protection to smallholder farmers in case of crop failure caused by unfavourable weather conditions, while health micro-insurance provides essential medical care. This diversity guarantees that the diverse requirements of workers in the informal sector are fulfilled (Dror, 2019).

2.24. Partnerships with Community Organizations and Microfinance Institutions

Partnerships with community organisations and microfinance institutions (MFIs) are instrumental in enhancing insurance penetration. These partnerships leverage the trust and networks established by these organizations to facilitate the distribution and uptake of insurance products.

2.24.1 Community Trust and Outreach

Cooperatives and religious groups, which are community organisations, are highly trusted by the members of their communities (Auriol et al., 2020). Collaborating with these organisations enables insurers to utilise this trust, thereby improving the acceptability and adoption of insurance products. These organisations can also promote education and awareness efforts to enhance comprehension of insurance benefits (IRDAI, 2020).

2.24.2 Microfinance Institutions

Microfinance institutions (MFIs) are well-suited to collaborate with micro-insurance products as they cater to the same target market (Merry & Calderon, 2024). MFIs have pre-existing connections with their clients and possess a deep understanding of their financial habits and requirements. By offering combined packages encompassing savings, credit, and insurance, MFIs can provide a holistic financial solution to their clientele (Ribeiro, 2021).

2.24.3 Training and Capacity Building

Collaborations with community organisations and MFIs can also include training and capacity-building efforts (Laila & Alias, 2024). These initiatives can equip microfinance staff and local leaders with the information and tools required to properly manage and promote insurance products, hence guaranteeing long-term viability and local ownership (Churchill & Matul, 2012).

2.25 Success Stories and Lessons from Other Countries with Similar Contexts

Several countries have successfully implemented innovative approaches to insurance penetration, offering valuable lessons for other regions with similar contexts.

2.25.1 Kenya – M-Pesa and M-Tiba

Mainly by means of the broad use of M-Pesa and M-Tiba systems, Kenya has risen to prominence as a world leader in mobile financial services (Lashitew et al., 2022). These innovations have significantly impacted financial inclusion and micro-insurance, transforming the economic landscape for millions of Kenyans (Lashitew et al., 2022).

M-Pesa, launched in 2007 by Safaricom, has revolutionised the financial services sector in Kenya by providing a mobile-based platform for money transfer and payments. Apart from reaching historic levels of financial inclusion, which touched about 70% of Kenya's population, M-Pesa provides a much-needed extra income to its large agent network, mostly consisting of mom-and-pop businesses in low-income areas (Lashitew, van Tulder, & Muche, 2022). By the start of 2016, the amount of money sent via M-Pesa had risen to eighty-five per cent of the GDP, therefore changing M-Pesa into a second currency; as of 2011, the value of money sent via M-Pesa represented more than thirty per cent of the GDP of the nation (Lashitew, van Tulder, & Muche, 2022).

M-Tiba, developed by Safaricom, CarePay, and PharmAccess, focuses on healthcare financing through mobile technology. Directly linking patients, clinicians, and payers—family members, health insurance or donor agencies—M-TIBA is a digital platform for inclusive healthcare (Wilson et al., 2023). A mobile health wallet on their phone in a closed loop with conditional monies that can only be spent on healthcare at chosen providers allows consumers to save, send, receive, and pay money for medical treatment (Wilson et al., 2023). It builds shared health insurance wallets using the M-Pesa system so users may save, transmit, receive, and spend money especially for medical treatment (Lashitew et al., 2022). This innovation addresses the critical challenge of healthcare access and affordability in Kenya, where out-of-pocket health expenses can be financially devastating for low-income households and is now available in Nigeria, Kenya, and Rwanda as M-Tiba (Ndung'u, 2022).

The synergistic effect of M-Pesa and M-Tiba is clearly seen in the wider context of enhancing financial access and mitigating risks. These platforms work together to form a complete financial ecosystem that includes services such as money transfer, savings, credit, and insurance. This empowers users, especially those who are economically disadvantaged, to better manage their finances and reduce the risks associated with health emergencies (Churchill, Jain, & Dalal, 2023). The achievements of these platforms have also stimulated advancements in financial services throughout Africa, demonstrating a replicable framework

for other emerging areas. Lashitew et al. (2022) claim that the ground-breaking successes of Kenya's M-Pesa and M-Tiba platforms could be mostly responsible for the global widespread use of mobile financial services.

M-Pesa and M-Tiba have a major impact on micro-insurance and financial inclusion in Kenya. These platforms have not only enabled vital financial services for groups once excluded but also fostered economic development and improved healthcare access. The ongoing advancement of mobile technology presents significant opportunities for additional advancements in financial inclusion and micro-insurance, which hold great promise for emerging economies across the globe.

2.25.2 India's Micro-insurance and Self-Help Groups

In India, financial inclusion and social protection are significantly advanced by micro-insurance and self-help groups (SHGs). These methods are designed to mitigate the vulnerabilities faced by low-income households, provide a safety net against different risks and promoting economic empowerment among marginalised communities.

Micro-insurance has become increasingly important in India as a means of managing and reducing risks related to health, agriculture, and livelihood (Satapathy & Behera, 2024). By developing criteria to support the expansion of micro-insurance, the Insurance Regulatory and Development Authority of India (IRDAI) has been instrumental in ensuring that insurance products are available to underprivileged society members (Bhatia, 2023; IRDAI, 2023).

Research highlights the significant impact of micro-insurance in reducing vulnerability and promoting economic stability. Research, for example, shows that micro-insurance schemes help to enhance living conditions, eliminate poverty, and offer medical treatment to the impoverished (Bhatia, 2023; Bihari & Srivastava, 2022; Devarakonda, 2018; Jain et al; Satapathy & Behera, 2024). Nevertheless, the widespread adoption of micro-insurance is impeded by persistent hurdles, including poor awareness, insufficient knowledge of insurance products, and logistical barriers (Rachana & Sujaya, 2023).

A Self-Help Group (SHG) comprises about 20 individuals, predominantly women from a homogeneous class, who convene to address common issues through regular voluntary thrift, pooling resources to provide small, interest-bearing loans to members (Waghchoure, 2023).

These organisations are essential in fostering financial inclusion and socio-economic development since they operate on values of reciprocal help and group decision-making (Hans, 2023; Srikanth, Lagesh, & Mohammed, 2022).

Empirical studies show that Self-Help Groups (SHGs) play a major part in fostering women's empowerment, raising family incomes, and building social capital (Garg & Kumar, 2024; Hans, 2023; Shaik & Babu, 2018). Furthermore, self-help groups (SHGs) have been quite important in encouraging the use of micro-insurance by acting as a systematic platform for distributing insurance particularly for the informal sector (Hans, 2023; Shaik & Babu, 2018). The incorporation of micro-insurance with Self-Help Groups (SHGs) exemplifies a collaborative strategy to augment financial inclusivity and social safeguarding (Garg & Kumar, 2024). Self-Help Groups (SHGs), because of their local presence and established credibility among communities, are excellent means for distributing micro-insurance (Hans, 2023). This integration not only increases the reach of micro-insurance but also guarantees that the products are customised to meet the specific requirements of the impoverished, hence improving their effectiveness (IRDAI, 2020).

The Indian experience with micro-insurance and self-help groups (SHGs) highlights the capacity of these tools to promote financial inclusion and provide social security for the impoverished. Continued endeavours to tackle current obstacles and improve the collaboration between micro-insurance and Self-Help Groups (SHGs) are vital, despite the considerable progress achieved so far. Future research and policy interventions should prioritise the development of creative approaches to address obstacles and optimise the advantages for individuals with low incomes.

2.25.3 Micro-insurance in Bangladesh

Micro-insurance in Bangladesh has shown both successes and faced challenges in its adoption, as highlighted by recent academic research. The studies collectively emphasise key themes such as the importance of awareness, the role of socioeconomic factors, the need for effective implementation strategies, and the potential of technology and innovation in enhancing micro-insurance uptake.

Awareness about micro-insurance and its benefits is critical. Islam, Mamun, and Kamal (2024) identified awareness about health insurance policies and efforts by NGOs and social

organisations as significant factors influencing the adoption of health insurance in rural areas. Similarly, Manik & Mannan (2017) found that hawkers in Dhaka City showed keen interest in micro-insurance once they became aware of its characteristics and benefits.

Micro-insurance adoption is greatly influenced by socioeconomic factors. Mahmood et al. (2018) underlined that households with higher educational levels and financial knowledge were more likely to join micro health insurance programmes. Additionally, factors such as the presence of chronic illnesses and proximity to health centres significantly influenced enrolment decisions.

Effective implementation of micro-insurance schemes faces several challenges. Sheikh et al. (2022) identified barriers such as inadequate population coverage, adverse selection, and moral hazard. They recommended strategies like door-to-door visits by local health workers and public-private partnerships to enhance trust and coverage.

The integration of technology has shown promise in overcoming some of the barriers to micro-insurance adoption. Ahmed et al. (2023) described the Portable Health Clinic (PHC) as an innovative solution that brings healthcare services to the doorstep of rural and underserved communities, potentially reducing the risks associated with health expenses and increasing insurance uptake.

The financial sustainability of micro-insurance schemes is a recurrent theme. Iqbal et al. (2017) pointed out that factors such as the frequency of healthcare consultations and the quality of services received played crucial roles in membership renewals. Ensuring high-quality service delivery can significantly enhance the sustainability of these schemes.

The collaboration between Kyushu University and Grameen Communications has resulted in the Portable Health Clinic (PHC), which provides primary health services to underserved communities through community-based micro healthcare entrepreneurs. This model has shown financial sustainability and social impact, proving to be a successful initiative in ensuring healthcare access and encouraging micro-insurance adoption (Ahmed et al., 2023).

The micro health insurance scheme in Chakaria, "Amader Shasthya," has demonstrated success by achieving significant enrolment and renewal rates. Factors contributing to its success

include proximity to health facilities and educational levels of the household heads, highlighting the importance of accessibility and awareness (Iqbal et al., 2017).

The lessons derived from the Bangladesh micro-insurance market emphasise the significance of awareness efforts, the necessity for financial literacy, collaborations between the public and private sectors, and creative methods of distribution. Increasing awareness through targeted campaigns can significantly enhance micro-insurance uptake. Research indicates that both government and non-government industries should spend money teaching the rural populace about the advantages of micro-insurance (Islam et al., 2024; Manik & Mannan, 2017).

Financial literacy is crucial for the success of micro-insurance schemes. Mahmood et al. (2018) and Yeboah (2017) found that financial literacy training positively impacts the decision to enrol in micro-insurance, underscoring the need for educational interventions. Collaboration between government bodies, microfinance institutions, and cooperative societies can enhance the reach and trustworthiness of micro-insurance schemes. This approach is advocated by Sheikh et al. (2022) as a means to overcome implementation barriers and increase population coverage. Incorporating technology, as seen with the PHC initiative, can address issues of accessibility and cost. Technological solutions should be mainstreamed into national healthcare policies to ensure broader reach and sustainability (Ahmed et al., 2023).

While micro-insurance development in Bangladesh is not yet fully mature, there are valuable lessons that may be gleaned from this market. Studies show that a mix of knowledge, socioeconomic elements, sound implementation techniques, and technical developments shapes Bangladesh's adoption of micro-insurance. Successful initiatives like the Portable Health Clinic and the Amader Shasthya scheme offer valuable insights and models that can be replicated and scaled to enhance the uptake of micro-insurance and contribute to universal health coverage in Bangladesh.

2.25.4 Micro-insurance in Ghana

For improving financial resilience and inclusion among low-income people in Ghana, micro-insurance has become a vital instrument. Various studies highlight the significant impacts, determinants, and innovative practices that have driven the success of micro-insurance in the country. This section reviews key themes from various authors, focusing on the financial

resilience provided by micro-insurance, factors influencing its adoption, and lessons learned from successful implementations.

Several studies emphasise the positive effects of micro-insurance on financial resilience. Oppong, Yu, & Mfoutou (2024) find that micro-insurance adoption significantly enhances the financial stability of low-income households by reducing their dependence on precautionary savings during economic shocks. Akotey (2015) similarly reports that micro-insurance facilitates asset retention and consumption smoothing, thus preventing the liquidation of essential assets and reducing economic inequality. These results imply that micro-insurance is essential for reducing financial risks and fostering economic stability among underprivileged groups.

Understanding the factors that influence micro-insurance adoption is essential for the success of the sector. Key factors, according to Oppong, Baorong, & Mfoutou (2024a), are income levels, confidence in financial institutions, involvement in community risk management organisations, and the national health insurance system. Debrah et al. (2022) back this up by stressing the need of demographic variables including age, marital status, education, and risk experience in influencing micro-insurance demand. Additionally, Yeboah (2017) underscores the significant role of financial literacy, income, access to credit, and trust in influencing micro-insurance ownership decisions among informal commercial market operators.

Financial literacy emerges as a critical factor in promoting micro-insurance adoption. Amoah & Mungai (2020) demonstrate that financial literacy training positively impacts the financial performance of SMEs in Ghana, with micro-insurance further enhancing these benefits. They advise microfinance organisations offering micro-insurance and financial literacy training to customise their services to the particular requirements of SMEs. Yeboah (2017) also advocates for financial literacy education interventions to boost micro-insurance patronage, suggesting that providers should invest in building a reputation to encourage participation.

Innovative practices and effective product design are crucial for the success of micro-insurance. Gabrah, Mensah, & Yidana (2020) highlight the need for innovative micro-insurance products, efficient service delivery channels, and supportive legal frameworks. They suggest that building trust, simplifying documentation, and gaining government support are essential strategies. According to Akomea-Frimpong, Boadi, & Owusu-Boafo (2021), important

variables for the supply of micro-life insurance products are affordability, consumer-oriented conditions, robust internal controls, and favourable external circumstances. They also highlight issues including uneven information, low premium income, and inadequate internal mechanisms that must be fixed if micro-life insurance products are to be maintained.

Mobile insurance (M-insurance) has become an integral part of the insurance ecosystem in Ghana. Ampaw, Chai, & Frempong (2019) find that service quality (SERQUAL), institutional-based trust, client satisfaction, and corporate identity significantly influence client loyalty towards M-insurance service providers. Their study suggests that M-insurance providers must focus on improving service quality to attract and retain clients, highlighting the importance of institutional trust and corporate identity.

The complementarity between micro-insurance and other financial services enhances its effectiveness. According to Giesbert, Steiner, & Bendig (2011), the use of insurance and other formal financial services creates a mutually reinforcing dynamic. Combining financial products like loans, savings, and micro-insurance, according to Bukari et al. (2021), has the most effect on poverty reduction. This indicates that bundling financial products can maximise their poverty-alleviating effects and provide greater benefits to low-income households.

The successful implementation of micro-insurance in Ghana provides several valuable lessons. Akotey & Adjasi (2018) highlight the importance of integrating micro-insurance into government welfare programmes to improve consumption smoothing and food security. Bukari et al. (2021) recommend offering financial products in bundles and promoting financial outreach to maximise their impact on poverty reduction. The studies collectively suggest that addressing challenges such as trust, financial literacy, and innovative product design is crucial for sustaining and expanding the benefits of micro-insurance.

Micro-insurance in Ghana has been successful because of its beneficial effect on financial resilience, the socio-economic factors affecting uptake, and the application of creative ideas. Studies highlight the need for supportive legal frameworks, government involvement, and the bundling of financial products to enhance the effectiveness of micro-insurance. Future efforts should focus on addressing existing challenges to sustain and expand the benefits of micro-insurance for low-income populations in Ghana.

2.25.5 The Need Life Insurance Penetration Model for Zimbabwe

The development of a tailored life insurance penetration model for Zimbabwe is both a strategic imperative and a policy necessity, given the country's persistent challenges in expanding coverage, particularly within its large informal economy. Comparative experiences from countries such as India, Kenya, and Ghana demonstrate that life insurance uptake can be significantly improved through context-specific models that integrate digital distribution channels, behavioural insights, and microinsurance strategies. For example, India's success with the *Pradhan Mantri Jeevan Jyoti Bima Yojana* scheme and Kenya's innovative mobile-based *M-TIBA* platform have shown how technology-driven models, supported by targeted public-private partnerships, can overcome traditional barriers to uptake, such as limited access, low financial literacy, and affordability constraints (Singareddy et al., 2019; Lashitew et al., 2022). These cases illustrate that the inclusion of socioeconomic, demographic, and institutional dynamics—rather than relying solely on conventional economic indicators—can yield more inclusive and responsive insurance systems. By drawing from such evidence, Zimbabwe can develop a life insurance model that accounts for its unique structural characteristics, including widespread informality, income volatility, and a fragmented financial landscape.

In contrast, the traditional agency-based distribution model currently dominant in Zimbabwe has demonstrated notable inefficiencies in addressing the needs of informal sector populations (Ntikalai & Tari, 2019; Asiamah, 2023). The reliance on face-to-face selling and urban-centric outreach fails to accommodate the geographic dispersion, irregular income patterns, and limited formal documentation common among informal workers (Ntikalai & Tari, 2019). Moreover, this model is cost-intensive and often excludes marginalised communities due to its emphasis on commission-based compensation and rigid underwriting practices. As highlighted in several studies (e.g., Kiwanuka & Sibindi, 2023; Abubakari & Bunyanso, 2022), such approaches tend to reinforce existing inequalities rather than bridging the insurance gap. Therefore, a new penetration model must go beyond distribution mechanics to incorporate affordability mechanisms, flexible payment structures, behavioural segmentation, and digital inclusion. It should serve not only as a policy framework but also as a functional tool for insurers, regulators, and development partners seeking to expand meaningful coverage in Zimbabwe's underinsured markets.

2.26 Prospects and Emerging Trends in the Life Insurance Market

2.26.1 Emerging Trends in Technology and Their Impact on Insurance

Technological advancements are revolutionizing the insurance industry globally, and Zimbabwe is no exception. Emerging technologies are set to reshape product offerings, distribution channels, and customer engagement.

2.26.2 Digital Transformation

Digital platforms, functioning as intermediaries in multi-sided markets, facilitate trade between various economic agents by utilising big data and digital technologies to reduce search frictions, verification, and tracking costs (Croxson et al., 2022). They generate economic value through network effects, return to scale and scope, and balance efficiency with competition, thereby attracting users and encouraging participation (Croxson et al., 2022). Digital platforms are enabling insurers to reach underserved populations more effectively. Improving accessibility and convenience is mobile technology's main role. Mobile insurance (m-insurance) products, which leverage widespread mobile phone usage, are expected to gain traction, offering easy premium payments and claims processing (GSMA, 2021).

2.26.3 Data Analytics and Artificial Intelligence (AI)

Big data analytics is the complex study of large and varied data sets to uncover information like hidden patterns, unknown connections, market trends, consumer preferences, and other useful business insights (Mall, Panigrahi, & Verma, 2023). These analytical findings can increase marketing efficiency, generate fresh income possibilities, enhance customer service, increase operational efficiency, offer competitive advantages over competitors, and provide several other business advantages (Mall et al., 2023). Artificial intelligence (AI) is the term used for systems that show intelligent behaviour by examining their surroundings and acting with some degree of autonomy to reach particular objectives (Holland & Kavuri, 2021). AI-based systems can be purely software-based, acting in the virtual world (e.g., voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g., advanced robots, autonomous cars, drones or Internet of Things applications) (Holland & Kavuri, 2021). Data analytics are used to create cross-selling opportunities for insurance services, typically based on propensity buying models (Holland & Kavuri, 2021). Data analytics and AI are transforming risk assessment, underwriting and claims processes (Eling, Nuessle, & Staubli, 2022). Insurers can now use big data to analyse customer behaviour, predict risks more accurately, and personalise insurance products (Eling et al., 2022). AI can be deployed by life insurers as virtual agent or broker on voice recognition

algorithm and can effectively function as a large customer care centre cutting cost in customer support and sales (Inyang & Okonkwo, 2021). By providing quick answers to questions and streamlining policy administration, AI-powered chatbots and virtual assistants can improve the quality of customer service and hence help to solve consumer satisfaction (Eckert, Neunsinger, & Osterrieder, 2022). Conversely, agents can gather soft information about consumers through close contact that can be examined by the insurers using digital technologies, artificial intelligence-based chatbots, and machine learning algorithms to grasp consumer wants, needs, and to forecast their behaviours (Ankitha & Basri, 2019). By using competitive positioning strategies that help to seize cross-selling and up-selling possibilities, the insurers would also strategically benefit from capitalising the relational selling behaviour (Ankitha & Basri, 2019).

2.26.4 Internet of Things (IoT)

Emphasising the self-sufficient interconnectivity of these things, the Internet of Things (IoT) is a network in which physical devices, equipment, sensors, and other objects communicate autonomously, without human intervention (Gulati et al., 2021). The integration of networks for synchronous data collecting and processing has been made possible by the advent of ubiquitous sensors, smart devices, and broad-band Internet capacity, which finally enables quick decision-making and physical reactions to changes in a real-time way (Le, Tuan, & Tuan, 2019). Globally and functionally different networks and devices can connect under the IoT; this interaction is made possible by devices acting as bridges between geographically or topologically different networks and devices (Moodley, 2019). Data creation is mostly driven by IoT. Such data can give insurers useful information, hence enabling them to forecast and avoid hazards as well as provide more general insurance coverage (Flückiger & Carbone, 2021). IoT affects all aspect of the insurance value chain, including marketing, product creation, underwriting and pricing, distribution and policy servicing and claims (Małek, 2020). The insurance sector is increasingly depending on IoT devices. Real-time information on policyholders' health and lifestyle provided by these devices lets insurers deliver wellness initiatives and dynamic pricing strategies. Such developments could encourage healthier living and more exact underwriting, hence lowering claims and improving profitability (PwC, 2023).

2.27 The Potential Role of Block chain and Other Innovations in Insurance Delivery

Block chain technology and other innovations hold significant potential for transforming insurance delivery in Zimbabwe by enhancing transparency, efficiency, and security.

2.27.1 Block chain for Transparency and Fraud Prevention

One of the most important advances since the internet, block chain technology is a peer-to-peer ledger system that creates confidence and agreement among distributed networks (Trivedi & Malik, 2022). Block chain technology, beyond generating digital currencies, has the potential to eliminate third parties like banks and governments from transactions by providing decentralised, cryptographically secure record-keeping (Shetty et al., 2022). In the insurance industry, block chain can reduce costs and expedite assistance during emergencies, addressing challenges related to liability and document authenticity more efficiently than conventional methods (Shetty & Basri, 2018). Thus, block chain offers a sophisticated solution to mitigate various risks within insurance companies (Shetty et al., 2022). By guaranteeing all transactions are recorded unchangeably, block chain's decentralised ledger technology lowers the possibility of fraud and improves openness. Block chain smart contracts can guarantee quick and correct payments depending on pre-defined criteria by means of automated claims processing. This technology can build trust among consumers by ensuring fair and efficient handling of claims (EY, 2022). Therefore, block chain offers a sophisticated solution to mitigate various risks within insurance companies.

2.27.2 Peer-to-Peer (P2P) Insurance

P2P insurance is a risk sharing system in which a group of people combine their resources to insure against a specified danger (Denuit, Dhaene, & Robert, 2022). Unlike traditional insurance, which the insurer takes all risks, peer-to-peer insurance, a technology-enhanced resurrection of the old mutual assistance idea, involves individuals pooling resources to jointly cover losses (Abdikerimova & Feng, 2022). P2P insurance platforms, enabled by block chain, allow individuals to form risk-sharing groups (Abdikerimova & Feng, 2022). These platforms reduce administrative costs and align the interests of policyholders and insurers. By pooling resources, P2P insurance can provide more affordable coverage options, particularly beneficial for low-income populations in Zimbabwe.

2.27.8 Insurtech Collaborations

Any technology-driven invention in the insurance is insurtech (Cappiello, 2020). Defined as a phenomenon including inventions by one or more conventional or non-traditional market participants using information technology to provide solutions particular to the insurance sector (Röschmann, Erny, & Wagner, 2022), The main advantages of this concept include easy access

to information and insurance processes that can be done simply by using the internet on a smartphone through environmentally friendly paperless activities (Tampubolon, Arif, & Jannah, 2024). While the risk carrier is an insurer or reinsurance company providing capital, underwriting capabilities and the required license (Röschmann et al., 2022), many on-demand life insurance providers, particularly Insurtech companies, just serve as middlemen. Instant quotes, limited coverage, adjustable durations, and digital delivery via dynamic premium rates with tiny pay-per-use installments define on-demand insurance (Röschmann et al., 2022), typically found in health and disability insurance. Collaborations between traditional insurers and Insurtech start-ups are driving innovation in product development and distribution (Cappiello, 2020). Insurtech firms bring agile methodologies and cutting-edge technologies that can help traditional insurers modernise their operations. These partnerships could lead to the development of new insurance solutions more suited to modern consumer desires and requirements (Ekholm et al., 2022).

Ultimately, the confluence of emerging technologies is poised to significantly reshape the insurance industry in Zimbabwe, enhancing efficiency, transparency, and customer engagement. The utilisation of mobile technology and digital platforms is poised to revolutionise access and convenience, especially in addressing marginalised communities (Wanof, 2023). The integration of data analytics and artificial intelligence is anticipated to revolutionise the evaluation of risk, the process of underwriting, and the handling of insurance claims (Mangla, Aggarwal, & Maurya, 2023). This advancement will facilitate more precise forecasts and the development of tailored insurance offerings. Real-time data will be made possible by the Internet of Things (IoT), hence enabling more precise underwriting and the encouragement of healthier lives by means of incentives (Dhieb, Ghazzai, Besbes, & Massoud, 2020). Blockchain technology will improve transparency and reduce fraud, while peer-to-peer insurance models will provide more cost-effective coverage options (Uppal, Kansekar, Mini, & Tosh, 2023). Moreover, partnerships between conventional insurers and Insurtech companies will facilitate the advancement of product creation and distribution (Kappal & Doifode, 2023). These achievements highlight a period of significant change for the insurance industry in Zimbabwe, with the potential for better service, increased inclusion, and improved operating efficiencies.

2.28 The Informal Sector and Life Insurance Penetration

Several studies have established that a large informal sector impedes economic growth and development (e.g., Haque, 2013, in Bangladesh; Borlea, Achim & Miron, 2017, in European Union countries; Etim & Daramola, 2020, in South Africa and Nigeria). Extensive literature exists on the link between insurance penetration and economic development (e.g., Asongu & Odhiambo, 2020; Balcilar et al., 2020; Dash et al., 2018; Lee et al., 2019; Nkotsoe, 2018; Sawadogo et al., 2018; Segodi & Sibindi, 2022; Sibindi, 2015; Ul Din et al., 2017). From these angles, one could conclude that a significant informal economy could impede life insurance penetration.

In Zimbabwe, insurance firms predominantly operate within formal economic arrangements, targeting consumers in formal employment due to the regularity of their incomes compared to those in the informal sector (Gubwe et al., 2024). Confirming Ando & Modigliani's (1963) life cycle theory, earlier research has indicated that people reliant on work income are more likely to get life insurance than those relying on asset proceeds (Beck & Webb, 2003; Berg, 2018; Fischer, 1973; Heo, 2020; Schanz, 2020). Life insurance policies, being long-term, emphasise the need for a stable income to maintain regular premium payments. Failure to pay the required premium within the stipulated grace period—typically 15 days for annual premium contracts and 30 days for monthly premium contracts—results in a policy lapse, leading to the potential loss of coverage and benefits. Zimbabwe's informal sector also reduces the productivity of formal firms (World Bank, 2022), potentially decreasing the number of prospective life insurance customers in the formal economy.

The country's disproportionately large informal sector may render most of its citizens ineligible for voluntary life insurance programmes owing to their marginalisation from the formal banking system, as defined by Medina & Schneider (2018). Although a substantial informal sector may hinder the adoption of life insurance, no research has specifically examined its influence on life insurance penetration in Zimbabwe. Therefore, the study formulates the hypothesis H_1 as follows:

H_1 : *The informal sector size negatively affects life insurance penetration.*

2.29 Inflation and Life Insurance Penetration

Some scholars argue that insurance may benefit from inflation. Particularly during inflationary recessions, the reduced financial flexibility of consumers heightens the demand for the financial protection and stability provided by insurance during inflationary shocks. In such periods, consumers may place greater value on the 'peace of mind' derived from insurance (Haushofer et al., 2020). Insurance can reassure consumers about their ability to withstand significant financial shocks, replace lost assets, and meet increasing regular expenses such as hospital visits and medical examinations (Schanz & Treccani, 2023). Non-life insurance, in particular, tends to grow financially during inflation as its benefits, including cost containment and cash flow smoothing during major losses, become increasingly important, especially for low income workers (Schanz & Treccani, 2023). As individuals, families and businesses face mounting financial pressures from uninsured losses and reduced inflation adjusted values of fixed pay outs, insurance assumes a critical role in loss prevention and mitigation (Swiss Re, 2022a). During inflationary periods, insurers also hold a competitive advantage in control and prevention focused risk assessment (Flückiger & Carbone, 2021). Under unstable pricing conditions, the traditional role of insurers in financial intermediation becomes even more significant (Schanz, 2020b). Life insurers, being less vulnerable to value erosion than deposits, can help transform short term cash holdings into longer term, higher yielding savings (Chou, Liu & Hammitt, 2003; Liedtke, 2007). Since investment interest rates are often higher during inflation, long term investors benefit as nominal interest rates tend to align with inflation expectations (Cieslak & Pflueger, 2023).

Insurance mitigates social inequality by stabilising the financial circumstances of individuals and households. Affordable insurance safeguards vulnerable populations from reverting to poverty after experiencing financial shocks intensified by abrupt inflation increases. (Schanz, 2020b). This role is particularly important during inflation, which disproportionately affects low-income earners' income and wealth (Haushofer et al., 2020).

However, the IAIS (2023) argues that sharp inflation and interest rate increases may elevate surrender risk due to additional liquidity needs. Other inflation-induced risk factors include potential lapses, significant unrealised loss positions, and reduced insurance demand due to

household purchasing power strains (IAIS, 2023). These factors could jeopardise future solvency and profitability.

Life insurance contracts typically offer predetermined pay outs, and persistent high inflation erodes the present value of such fixed future benefits, discouraging life insurance purchases (Ahlgrim & Arcy, 2012; Rejda et al., 2022). Inflationary periods frequently coincide with diminished economic growth or recessions, leading to a decline in insurance demand, especially when insurance are perceived as a discretionary expenditure (Schanz & Treccani, 2023).

Li (2021) asserts that inflation influences life insurance demand in three primary ways: the cost of life insurance products, the income levels of residents, and replacement effects via alternative financial vehicles. Firstly, life insurance premiums and insured amounts are paid in monetary terms, and while inflation's impact on premiums is relatively small, its impact on insured amounts is significant. Higher prices generally reduce life insurance demand. Secondly, inflation reduces real income growth compared to nominal income growth, and if inflation exceeds nominal income growth, real income growth becomes negative. A decline in real income, positively correlated with life insurance demand, leads to decreased demand. Thirdly, due to comparative interest mechanisms, individuals prefer financial instruments with higher returns. Inflation lowers life insurance product returns, while returns on other financial products may remain unchanged or increase, decreased demand for life insurance attributable to the substitution impact (Li, 2021).

Empirical research regarding inflation and the need for life insurance yields inconclusive findings. Ehiogu, Eze, & Sunday (2018) discovered that inflation exerted a favourable albeit small influence on insurance penetration in Nigeria, advocating for measures to mitigate inflation to enhance insurance penetration significantly. Li (2021) employed linear regression analysis on data from 2011 to 2019 to ascertain the determinants affecting China's life insurance demand, emphasising life insurance pricing, national income, inflation, and governmental expenditure on social security as pivotal elements. Nguyen (2007) established a negative correlation between inflation and life insurance demand in OECD nations, whereas Chizoba et al. (2018) identified a weak positive correlation in Nigeria. Other studies have also identified inflation as a predictor of life insurance consumption (e.g., Jia et al., 2014; Kjosevski,

2012; Sulaiman et al., 2015). However, existing literature does not clearly illustrate inflation's influence on life insurance penetration in a primarily informal economy. This study, therefore, formulates hypothesis H₂ as follows:

H₂: Inflation has a negative impact on life insurance penetration in Zimbabwe.

2.30 The Role of the Central Bank in Financial Stability

The principal job of central banks, although their mandates vary across various markets, is to execute monetary policy aimed at preserving price stability and financial stability (Wech, 2015). The 2008 global financial crisis negatively impacted both the banking industry and entire economies (Akhter, Pappas, & Khan, 2017). As a result, central banks have been entrusted with enhanced responsibilities in maintaining financial stability (Smets, 2018). Smets (2018) asserts that central banks, functioning as lenders of last resort, are incentivised to mitigate the probability of a financial crisis due to their primary obligation to address such circumstances if risks manifest. This validates their implementation of unconventional monetary policy strategies to mitigate severe risks during crises (Smets, 2018).

Central bank independence, defined as the ability to control monetary instruments without political interference, is widely acknowledged as crucial for effectively conducting monetary policy (Garriga & Rodriguez, 2020; Romelli, 2022). Central bank independence (CBI) has evolved significantly over time and across countries, often in response to shifting political and economic conditions. Enhancing central bank autonomy aims to reduce political pressures that may lead to expansionary monetary policies driven by electoral considerations (Bianchi, Kind, & Kung, 2022). Research across various countries indicates that more independent monetary authorities are linked to lower and more consistent inflation levels (Bianchi et al., 2022).

Expectations of inflation play a critical role in the effective formulation and execution of monetary policy (Kose et al., 2019). A central bank is more likely to achieve and maintain low and stable inflation when it successfully anchors economic agents' long-term expectations to its stated inflation target. These expectations influence present inflation dynamics by shaping wage negotiations and pricing decisions across the economy (Baqae, 2020). According to Ha et al. (2019), inflation expectations are primarily informed by past inflation trends and the perceived credibility of the central bank. When the central bank is considered strongly committed to its nominal anchor, temporary inflationary shocks—such as those arising from

fluctuations in commodity prices—are less likely to disrupt long-term expectations. The credibility of a central bank is underpinned by its demonstrated commitment to price stability, its institutional capacity to uphold this mandate, and a consistent track record of meeting its inflation objectives.

Romelli (2022) contends that in the last half-century, substantial alterations in central banks' organisational structures worldwide have typically led to greater autonomy for monetary authorities from the executive branch. While there is widespread agreement on the effectiveness of this institutional framework in maintaining stable inflation rates, the level of autonomy granted to central banks varies significantly among countries. The consequences of the 2008 global financial crisis posed various risks to CBI due to central banks' involvement in financial oversight (Romelli, 2022) and the heightened possibility of fiscal dominance resulting from widespread asset purchase programmes in several economies (Galí, 2020a, 2020b; Pisani-Ferry & Blanchard, 2020). Populist political movements in certain countries have exerted pressure on central banks' autonomy (The Economist, 2019). Consequently, international organisations like the World Bank and the IMF began advocating for central bank reforms to enhance autonomy (Romelli, 2024).

Garriga & Rodriguez (2020) examined the influence of legally mandated central bank independence on inflation in developing countries. Utilising a distinctive dataset, they examined the correlation between central bank independence and inflation within a cohort of 118 developing nations from 1980 to 2013. The results demonstrated an inverse relationship between heightened central bank independence and inflation rates. The influence on inflation is more significant in nations with elevated democratic levels; however, it is also evident in non-democratic states. Furthermore, each aspect of central bank independence (objectives, personnel, policy, and financial autonomy) significantly curtails inflation.

Given the vital role of central banks in preserving financial stability, particularly through measures related to inflation and crisis management, the study utilised the CBI measure as an indicator for currency crises.

2.30.1 Central Bank Independence and Life Insurance Penetration

Central Banks are usually responsible for managing currency crises. A currency crisis is characterised by a sudden and substantial decrease in the valuation of a nation's currency

relative to other currencies or a specified benchmark. This typically occurs due to market panic and speculation, which involves selling the currency in a panic and making speculative attacks to profit from the expected decline (Alaminos, Becerra-Vicario, Fernández-Gámez, & Ruiz, 2019; Almahmood, 2018; Davies, Desbordes, & Ray, 2018; Glick & Hutchison, 2011; Weber, 1998). In reaction, authorities frequently safeguard the domestic currency by liquidating foreign exchange reserves or elevating domestic interest rates (Almahmood, 2018). A currency crisis under a fixed exchange rate system transpires when private entities in the foreign exchange market exert pressure on the economy to relinquish the current exchange rate peg or regime (Almahmood, 2018). Currency crises can cause severe and rapid damage to the real economy, inducing economic challenges such as inflationary pressures, economic downturns, heightened unemployment rates, and diminished purchasing power for consumers (Alaminos et al., 2019; Eichengreen & Gupta, 2016; Heriqbaldi, Widodo, & Ekowati, 2020). Zimbabwe has experienced a prolonged currency crisis for over a decade.

Zimbabwe's currency crisis, marked by the total collapse of the national currency, was precipitated by multiple events, including elevated interest rates in 1998, the cessation of assistance from the International Monetary Fund (IMF) and the World Bank, land expropriations in 2000, and food scarcities resulting from drought in 2001, suspension from the Commonwealth of Nations in 2002, forced closure of numerous companies, rising inflation in 2003, public debt accumulation, the onset of hyperinflation, and the issuance of redenominated notes in 2006 (Denhere & Mhlanga, 2021; Kavila & Le Roux, 2017; Mambiravana et al., 2022; Matanda, Dube, & Madzokere, 2018; Nkomazana & Niyimbanira, 2014; Pasara & Garidzirai, 2020; Saungweme & Odhiambo, 2021). Formal sector employees experienced a significant decrease in the purchasing power of their salaries and wages due to the local currency's collapse and hyperinflation (Mambiravana et al., 2022). Insurance and pension holdings also suffered significant devaluation during the conversion from the collapsed Zimbabwe Dollar to the US dollar, leading to substantial financial losses (Commission of Inquiry, 2017).

Between 2004 and 2008, Zimbabwe endured a period of hyperinflation where salaries, savings, and contributions to life insurance and pensions rapidly decreased (Hoto, 2009). Insurers attempted to adapt to inflationary conditions by regularly introducing new products, which consumers purchased with trust, unaware that these efforts would prove unsuccessful when the country replaced its worthless local currency with the US dollar (Chowa, Mhlanga, &

Munakamwe, 2014). Converting life insurance values to US dollars seemed straightforward, aiming to preserve the value of insurance holdings. However, the converted values often turned out to be insufficient, failing to meet policyholders' reasonable expectations (Hoto, 2009; Chowa et al., 2014). This led to a significant decrease in consumer trust, culminating in a strong public demand for an investigation and a public inquiry initiated by the President from October 30, 2015, to January 16, 2016 (Commission of Inquiry, 2017).

Despite widespread public dissatisfaction with the currency conversion process, the multicurrency system introduced in 2009 succeeded in restoring a degree of macroeconomic and financial stability in Zimbabwe between 2009 and 2019 (Pasara & Garidzirai, 2020). However, this stability was short-lived. In June 2019, Statutory Instrument (SI) 142/2019 abolished the multicurrency regime, reintroducing the Zimbabwean dollar as the sole legal tender (Siwela, 2019). The move marked an important legislative shift but was soon undermined by rising inflationary pressures and the economic disruptions brought about by the Covid-19 pandemic. A year later, the government responded by enacting SI 185/2020, which effectively reversed the provisions of SI 142/2019. Although this reversion was met with initial optimism in the market, it also reignited concerns regarding the long-term stability and credibility of the domestic currency (Mushoriwa & Chinyama, 2020).

This study aims to assess the impact of CBI on life insurance penetration in a primarily informal economy. Zimbabwe has faced a series of currency crises, including hyperinflation in 2008, a period of stable multiple currencies from 2009 to 2018, and another era of inflation starting in 2020. Central bank independence (CBI) is linked to stricter monetary policies and lower inflation, which may reduce household spending on insurance products. Aklin and Kern (2021) assert that the autonomy of central banks may result in financial deregulation and financialisation, jeopardising economic stability. This trend is expected to adversely impact life insurance penetration. As a result, the study puts forward the following hypothesis:

H₃: Central Bank Independence (CBI) has a significant negative impact on life insurance penetration in Zimbabwe.

2.31 Per Capita Income and Life Insurance Penetration

In certain markets, buyers frequently regard insurance as a non-essential or optional expenditure (Schanz & Treccani, 2023). Consequently, the level of disposable income is pivotal in influencing individuals' decisions to acquire insurance. Fischer (1973), employing the life cycle model with economic utility functions, identified a correlation between the acquisition of life insurance and the source of income. Mankiw (2019) asserts that persons with elevated wages encounter a more advantageous life cycle. He contends that persons with higher wages are more likely to have a superior understanding of financial issues and the advantage of being able to save, whereas others with lower salaries may believe they lack disposable income for savings.

Heo (2020) predicted that people would buy life insurance if they relied on labour income, but would not if they depended on wealth income. Prior research corroborates this, indicating that consumers who rely on labour income are more inclined to get life insurance than individuals who depend on wealth-derived income (Beck & Webb, 2003; Berg, 2018; Fischer, 1973; Heo, 2020; Schanz, 2020). Schanz (2020a) contends that the diminishing middle class impacts the demand for life insurance, since low-income individuals are unable to buy coverage, while affluent individuals can self-insure. Thus, the quantity of life insurance acquired is significantly influenced by the consumer's discretionary income.

Conflicting results have been noted in the empirical literature about the demand for life insurance. In developed nations, income levels seem to exert minimal or no impact on the acquisition of life insurance. Conversely, in emerging nations, income level is a crucial factor influencing life insurance adoption.

Iyawo & Osamwonyi (2021) examined the influence of disposable income on the demand for life insurance in Sub-Saharan Africa. Their research concentrated on a sample of 15 Sub-Saharan African nations and employed macroeconomic data from 1995 to 2016. The main objectives were to evaluate the influence of per capita income, alongside key macroeconomic variables and preferences, on the demand for life insurance. They utilised fixed and random effects panel data methodologies, in conjunction with the Hausman test, to ascertain the optimal

model. Their research reveals a substantial positive correlation between gross domestic product per capita and the demand for life insurance in Sub-Saharan Africa, indicating that disposable income, as shown by GDP per capita, is the principal macroeconomic factor influencing life insurance demand.

Hagos, Kebede, & Shewakena (2019) examined household-level demand for life insurance and the factors determining it in Dire Dawa city, Ethiopia. They collected primary data through a structured questionnaire administered to 373 household respondents, using a three-stage multiple random sampling technique. Data from interviews with insurance company managers and focus group discussions were analysed using descriptive narrations and concurrent triangulation strategy. The questionnaire data were analysed using descriptive tools and the binary logit econometrics model. The research indicated that income level was a statistically significant determinant of the propensity to acquire life insurance.

Ramij (2021) examined the demographic and socio-economic factors influencing eligible consumers in Bangladesh to purchase life insurance policies. Using a binary logistic regression model, the study analysed responses from 378 participants, demonstrating a positive association between monthly income and the choice to acquire a policy.

Kabrt (2022) examined the correlation between important factors such as education, income, employment, life expectancy, and the demand for life insurance in the Visegrad Group (V4) countries. The study utilised OECD data and employed linear and panel data regressions. Findings indicated that as income and educational attainment increase, individuals exhibit a greater inclination towards investing in pension funds but a decreased interest in purchasing life insurance.

Segodi & Sibindi (2022) aimed to identify the determinants influencing the demand for life insurance in the BRICS countries. The study examined data from 1999 to 2020 with panel data econometric methods, revealing that the demand for life insurance, shown by life insurance density and penetration, was adversely affected by income.

Considering that life insurance is often regarded as a luxury item, an increase in per capita income may lead to a heightened inclination towards saving and investing as a safeguard (Dieng & Fall, 2017). In light of the above debate, the research posited the subsequent hypothesis:

H₄: Per capita income has a significant positive impact on life insurance penetration in Zimbabwe.

2.32 Financial Development and Life Insurance Penetration

Financial development, according to the World Bank (2021), includes the dimensions of financial institutions and markets (financial depth), the accessibility and utilisation of these entities by individuals (access), the efficacy of financial intermediaries and markets in resource allocation and financial transactions (efficiency), and the stability of financial institutions and markets (stability) within a nation.

The degree of financial development is crucial for a nation (Alawadhi, Alshamali, & Alshamali, 2021). A plethora of evidence indicates that the growth of the financial sector significantly impacts economic development (Bui, 2020; Estrada, Park, & Ramayandi, 2015; Fathima Rinosha & Mohamed Mustafa, 2021; Omar Bakar, Sulong, & Chowdhury, 2022; Poghosyan, 2022). Financial development facilitates economic growth by increasing entrepreneurial activity, savings, and promoting technological advancements through capital accumulation (Dutta & Meierrieks, 2021; Muganyi et al., 2022; Sinha & Shastri, 2023). Moreover, it promotes the influx of foreign investment and the utilisation of renewable energy (Nguyen & Lee, 2021; Shahbaz et al., 2022), and optimises capital allocation (Levine, 2021). Moreover, financial progress mitigates poverty and inequality by providing financial resources to disadvantaged individuals and groups, empowering them to effectively handle risks and become more resilient to unforeseen circumstances (de Haan, Plening, & Sturm, 2022; Zhu et al., 2021).

A thorough and very simple conceptual framework for evaluating worldwide financial development has been created by the World Bank (World Bank, 2021a). This paradigm points out four kinds of proxy variables describing a financial system running efficiently: financial

depth, access, efficiency, and stability. Subsequently, these characteristics are evaluated for the two main components of the financial sector: financial institutions and financial markets (World Bank, 2021a). Among the main financial institutions are the central bank, commercial banks, merchant banks, savings institutions, mortgage entities, pension funds, insurance firms, stock markets, and other financial market institutions (Dash et al., 2018b). The World Bank financial development framework below shows the ratios used to gauge Financial Development:

Table 2.10 Measures of Financial Development

	Financial Institutions	Financial Markets
Depth	○ Private sector credit as a percentage of GDP ○ Financial institutions' assets relative to GDP ○ M2 money supply in proportion to GDP ○ Deposits as a share of GDP ○ Gross value added by the financial sector compared to GDP	○ Stock market capitalisation and outstanding domestic private debt securities relative to GDP ○ Private debt securities as a percentage of GDP ○ Public debt securities in proportion to GDP ○ International debt securities compared to GDP ○ Stock market capitalisation relative to GDP ○ Stocks traded as a share of GDP
Access	○ Accounts per thousand adults (commercial banks) ○ Branches per 100,000 adults (commercial banks) ○ Percentage of individuals with a bank account (survey-based) ○ Percentage of firms with a line of credit (all firms) ○ Percentage of firms with a line of credit (small firms)	○ Percentage of market capitalisation excluding the top 10 largest companies ○ Percentage of value traded outside the top 10 most traded companies ○ Government bond yields (3-month and 10-year maturities) ○ Proportion of domestic debt securities to total debt securities

		○ Share of private debt securities within total domestic debt securities ○ New corporate bond issuance as a percentage of GDP
Efficiency	○ Net interest margin ○ Spread between lending and deposit rates ○ Non-interest income as a proportion of total income ○ Overhead costs relative to total assets ○ Profitability metrics (return on assets and return on equity) ○ Market competition measures (Boone indicator, Herfindahl index, or H-statistic)	○ Equity market turnover ratio ○ Price synchronicity (market co-movement) ○ Trading based on private information ○ Market price impact ○ Liquidity and transaction cost measures ○ Government bond bid-ask spreads ○ Bond turnover rates (corporate and sovereign) on exchanges ○ Settlement system efficiency
Stability	○ Bank stability Z-score ○ Regulatory capital adequacy ratios ○ Bank asset quality indicators ○ Financial institution liquidity measures ○ Additional metrics (including net forex exposure to capital)	○ Volatility measure (standard deviation relative to mean) for equity and sovereign bond indices ○ Index skewness (equity and government bond) ○ Susceptibility to earnings manipulation ○ Price earnings ratio ○ Bond duration ○ Short term bonds as proportion of total bonds (domestic and international)

		○ Correlation with benchmark bond returns (German bunds, US treasuries)
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Source: Adapted from World Bank (2021)

Extensive research has explored the relationship between financial development and life insurance penetration. Cheng & Hou (2022) proposed a simple model demonstrating the simultaneous influence of life insurance and financial development on economic growth. Their empirical analysis, using panel data from 17 advanced European countries (1980–2015), supports the model’s key prediction that increased life insurance consumption serves as an effective, sustainable policy for long-term economic growth. However, the short-term effect of life insurance penetration on growth remains negligible. The study concludes that life insurance development mediates the finance-growth relationship, mitigating long-term economic fluctuations and offsetting private credit’s adverse effects on real growth.

Srbinoski et al. (2021) employed macroeconomic data from 55 countries (1980–2017), revealing that financial sector growth fosters life insurance provision by bolstering trust in financial systems, improving payment efficiency, and expanding access to financial instruments. However, financial advancement reduces household saving incentives by relaxing credit constraints, indirectly affecting life insurance demand. Their findings also show that nations with stricter credit constraints exhibit higher life insurance penetration, particularly in wealthier economies. The study underscores how borrowing constraints emphasise life insurance’s role as a financing tool against risks.

Zerriaa et al. (2017) analysed Tunisian macroeconomic data (1990–2014) to identify life insurance demand drivers. Comparing Tunisia’s life insurance sector with emerging markets, they found demand rises with income and financial development.

Iyawe & Osamwonyi (2017) studied 15 Sub-Saharan African countries (1990–2011) using panel data estimation to assess financial development’s influence on life insurance demand. Their model prioritises key macroeconomic factors explaining insurance penetration and

density. Results indicate financial development impacts life insurance demand more significantly than other macroeconomic variables in Africa.

Sanjeeva (2021) investigated socioeconomic and institutional factors affecting Sri Lanka's low life insurance uptake (1996–2018). A log-linear regression model revealed negative relationships between income inequality, financial development, and insurance consumption, attributing this to low public trust and insurance awareness.

Some studies contend that financial development exacerbates inequality, thereby increasing poverty (de Haan et al., 2022). Yet, advanced financial systems improve life insurance distribution. This discussion leads to the following hypothesis:

H₅: Financial development has a significant influence on life insurance penetration in Zimbabwe.

2.33 Life Insurance literacy and Life Insurance Penetration

Also known as financial literacy, life insurance literacy is the knowledge, awareness, attitudes, and abilities of consumers about insurance products (Lin et al., 2019; Allodi, Cervellati, & Stella, 2020). This literacy encompasses a consumer's ability to understand and utilise insurance concepts and their awareness of the insurance products they are considering. A comprehensive understanding of the risks covered by insurance policies, the various forms and functions of these policies, and the skills and attitudes needed to evaluate insurance choices are crucial components of insurance literacy.

Financial literacy plays a vital role in enabling individuals to comprehend their economic life cycles and make informed financial decisions (Shafiee, Zhang, & Rasmussen, 2023). Within this broader framework, insurance literacy—defined as the understanding of insurance principles, policy features, and their implications—has a significant influence on life insurance uptake (Kiwunuka & Sibindi, 2023; Wang et al., 2021). Unlike other financial instruments, life insurance offers special difficulties in that its value is often perceived only in the event of an adverse occurrence, making its benefits less intuitive to the average consumer (Lin, Bruhn, &

William, 2019). This inherent complexity frequently deters individuals from purchasing insurance, resulting in suboptimal levels of coverage. Consequently, improving insurance literacy is crucial, not only because it empowers individuals to manage financial risks effectively but also because it helps shift the burden of financial security from state- and employer-based systems to more individualised, market-based mechanisms (Smith, 2009). This imperative is further underscored by persistently low levels of financial literacy within many communities (Joiner et al., 2002), which continue to hinder meaningful engagement with life insurance products.

Increased insurance literacy enhances financial decision-making, particularly with life insurance, one of the most complex financial products. Consumers with higher life insurance literacy better understand policy types, benefits, and how these policies fit into their financial plans (Kiwanuka & Sibindi, 2023; Wang et al., 2021; Weedige et al., 2019). This knowledge enables them to make informed decisions regarding coverage amounts, beneficiaries, and premium payments, providing necessary protection without incurring excessive costs (Sanjeewa & Hongbing, 2019).

Enhanced insurance literacy also reduces the likelihood of policy lapse. When a life insurance policy lapses, beneficiaries receive no pay out, wasting premiums paid. Studies show a correlation between life insurance literacy and policy lapse frequency (Nolte & Schneider, 2017). Consumers who understand their policies' significance and objectives are more likely to maintain coverage, ensuring their loved ones' financial well-being in case of their demise (Giri, 2018). Thus, higher insurance literacy benefits both policyholders and insurers by preserving policies.

Moreover, higher levels of insurance literacy protect consumers from misrepresentation and fraud by sales representatives. Unfortunately, the life insurance industry faces unethical practices like mis-selling, which includes misrepresentation and fraud by sales agents (Abewardhana & Buddhika, 2022; Tobing et al., 2022). Some insurance regulators, such as the European insurance regulator, acknowledge the importance of insurance literacy, recommending that insurers consider the level of information available to consumers and their

financial literacy when setting premiums (Noussia, 2021). Informed consumers are less likely to fall victim to deceptive sales tactics, enabling them to ask informed questions, compare options effectively, and avoid scams.

Insurance literacy also boosts consumer confidence in insurance products. Navigating complex financial products can be stressful, but life insurance literacy equips consumers with the knowledge and confidence to engage with insurance agents and make well-informed choices (Tennyson, 2011). This empowerment allows them to take control of their financial future and feel secure about their life insurance coverage.

Empirical literature suggests a link between insurance literacy or financial literacy and life insurance penetration. Higher literacy levels drive demand for insurance products, making them more affordable and understandable (Inyang & Okonkwo, 2021). Increased educational attainment frequently results in heightened risk aversion and a greater recognition of the necessity for insurance coverage (Schanz, 2020a).

Ehiorobo (2020) used discriminant analysis to forecast insurance penetration rates in developing nations, including a sample of sixty developing countries. The study found that literacy rate was the third most influential variable in determining insurance penetration rates, following gross premium and per capita GDP.

Dankwah, Abubakari, & Bunyanso (2022) utilised Ajzen's theory of planned behaviour (TPB) to examine the correlation between financial literacy and insurance patronage in Ghana. Their study identified a significant and positive association between financial literacy and insurance purchasing behaviour, suggesting that elevated financial literacy can markedly improve insurance utilisation.

Mamun et al. (2021) investigated the influence of insurance literacy, perceived utility, attitudes towards health insurance, subjective norms, and perceived behavioural control on the desire to

acquire health insurance in Malaysia. Their findings indicated that insurance literacy substantially affected the propensity to purchase health insurance.

Kiwanuka & Sibindi (2023) examined the significance of several components of insurance literacy in elucidating insurance inclusion in Uganda. Their research indicated that insurance literacy, which includes knowledge, skills, and attitudes, significantly enhances insurance inclusion.

Wang et al. (2021a) employed the China Household Finance Survey dataset to investigate the impact of financial literacy on the demand for life insurance in China. Their findings indicated that financial literacy substantially influences both the probability of purchasing life insurance and the premium amount paid.

Ramij (2021) examined the demographic and socio-economic determinants affecting life insurance acquisitions in Bangladesh. The research determined that insurance literacy enhances customers' choices about the acquisition of life insurance policies.

Bateman et al. (2020) executed an online survey in Australia to collect data on consumer decision-making processes related to life insurance. Their findings demonstrated that financial literacy correlates with elevated decision-making roles, underscoring the significance of financial acumen in purchasing choices.

Weedige et al. (2019) investigated the direct and indirect effects of customers' insurance literacy on their purchase decisions related to personal insurance in Sri Lanka. Their findings demonstrated that insurance literacy positively influences behavioural intention, mediated by trust, perceived rewards, and pleasant views towards insurance.

Mare et al. (2019) investigated the regional life insurance market in Romania and determined that insurance literacy positively affects the demand for life insurance.

Given the significance of consumers' comprehension of life insurance in purchasing decisions, the study proposes the following hypothesis:

H₆: Life insurance literacy has a significant positive influence on life insurance penetration in Zimbabwe.

2.34 Age dependency ratio and Life Insurance Penetration.

The age dependency ratio is a pivotal demographic indicator that quantifies the proportion of economically dependent individuals—comprising children (aged 0–14) and older persons (aged 65 and above)—relative to the working-age population (15–64 years) (Harasty & Ostermeier, 2020; Nebolsina, 2020). Expressed as a ratio or percentage, this metric provides critical insights into the burden placed upon the productive segment of society (Sangwichitr & Intara, 2023). It has substantial implications for policy formulation in areas such as healthcare, pensions, education, and labour markets (Hyndman, Zeng, & Shang, 2021). A high dependency ratio signifies that a smaller workforce is supporting a larger dependent population, thereby straining public resources and limiting fiscal flexibility (Skirbekk et al., 2022; Zhang et al., 2023).

From an economic perspective, a rising age dependency ratio is associated with increased demands on social infrastructure, such as health services and schooling systems (Hsu & Yamada, 2019; Harasty & Ostermeier, 2020). In contrast, a lower age dependency ratio—where the working-age population outweighs dependents—is often linked to enhanced economic productivity, increased savings, and greater fiscal capacity at the household and national levels (Partridge, Deelen, & Slagboom, 2018). This demographic dividend can result in enhanced disposable income, higher investments, and better insurance uptake.

However, the impact of the age dependency ratio on life insurance penetration remains complex and context-dependent. In settings with a high old-age dependency burden, families

often face financial constraints, which may limit their ability to invest in life insurance products. Caspi et al. (2016) argue that increased caregiving responsibilities and healthcare costs associated with elderly dependents reduce household capacity to allocate funds toward life insurance, thereby dampening demand.

Conversely, the presence of a youthful demographic may also yield mixed outcomes. While a younger population offers long-term potential for expanding insurance markets, in the short run, high youth dependency may suppress insurance consumption due to income constraints and a lack of awareness or need perception among the young (Zhang et al., 2023). Indeed, the nature and direction of influence appear to be mediated by institutional factors, income levels, and the maturity of insurance markets.

Empirical studies reinforce the demographic significance of the age dependency ratio in shaping insurance markets. For instance, Meko et al. (2019), analysing data from Ethiopian insurance firms between 2001 and 2016, found that the age dependency ratio—alongside urbanisation, life expectancy, and inflation—positively influenced life insurance demand. Urbanisation was the most influential, followed by age-related demographics, suggesting that changing population structures can enhance insurance uptake where economic conditions permit.

Zhang et al. (2023) offer further nuance, exploring demographic transitions in eight member states of the Shanghai Cooperation Organisation between 1996 and 2019. Their analysis, based on static and dynamic panel models, confirmed significant relationships between both old-age and youth dependency ratios and life insurance consumption, albeit with country-specific variations.

Using a broader dataset, Nebolsina (2020) employed a panel vector autoregression approach to examine 25 countries over the period 1980–2016. The study revealed that both young-age and old-age dependency ratios exerted heterogeneous and often negative long-term effects on insurance markets. These findings were attributed to the economic pressures arising from demographic stress, which hinder financial surplus and reduce insurance participation.

In the West African context, Olarewaju & Msomi (2021) identified the age dependency ratio as a key determinant of insurance penetration across 15 countries between 1991 and 2019.

Using an autoregressive distributed lag model, their analysis established both short- and long-term associations between insurance uptake and variables such as education, inflation, productivity, and income, with age dependency playing a particularly prominent role.

Similarly, Oteng, Lartey, & Amofa (2023) conducted an elastic net regression to explore macroeconomic and demographic drivers of life insurance demand in Ghana. They found that the old-age dependency ratio, along with life expectancy and urbanisation, had a positive relationship with life insurance uptake. In contrast, financial development exhibited a negative association, perhaps due to greater investment alternatives reducing the perceived necessity for life insurance.

Overall, the literature presents a nuanced understanding of the relationship between the age dependency ratio and life insurance penetration. While increased dependency ratios are often associated with financial burdens that constrain insurance demand, under certain economic and institutional conditions, they may also drive precautionary motives that stimulate insurance uptake. The direction and strength of influence are, therefore, contingent upon broader macroeconomic, cultural, and regulatory dynamics. Therefore, the subsequent hypothesis is posited hypothesis:

H₇: Age dependency ratio has a significant negative influence on life insurance penetration in Zimbabwe.

2.35 Life expectancy and Life Insurance Penetration

Life expectancy, the average duration a person is anticipated to live, is a vital demographic metric derived from mortality rates within a population (Ortiz-Ospina, 2017). This metric can be articulated as life expectancy at birth, denoting the average lifespan of a new born under constant mortality rates, or life expectancy at a specified age, reflecting the additional years a person of a designated age is anticipated to live (Aburto et al., 2020; Luy et al., 2020). Factors such as geographical location, socioeconomic status, healthcare accessibility, genetic makeup, lifestyle choices, and environmental conditions significantly influence life expectancy (Baland et al., 2022; Freeman et al., 2020; Harper, Riddell, & King, 2021; Kok, 2023; Medina, Sabo, & Vespa, 2020). This metric is vital for public health, demography, social policy planning, and life insurance (Medina, Sabo, & Vespa, 2020).

Comprehending the difference between cohort and period life expectancy is essential. Cohort life expectancy refers to the average longevity of persons born in a specific year, monitored throughout their lives (Arias et al., 2022; Baland et al., 2022). Period life expectancy, frequently utilised, approximates the average lifespan of a hypothetical cohort subjected to mortality rates recorded during a certain timeframe, typically one year (Ortiz-Ospina, 2017; Woolf et al., 2022). This measure fails to consider temporal variations in mortality rates, representing the mortality pattern at a singular moment (Ortiz-Ospina, 2017).

Life expectancy can profoundly influence the demand for life insurance. Typically, increased life expectancy may lessen the perceived necessity for life insurance, as individuals foresee extended lifespans, thereby reducing the urgency to financially safeguard dependents from untimely death. Conversely, lower life expectancy or perceived risks such as political instability or health issues may increase life insurance demand (Kura & Legass, 2021). In regions with ageing populations and increasing life expectancy, there may still be substantial demand for life insurance to ensure financial security for dependents or cover expenses such as debts, estate taxes or funeral costs, debts (Hodula, Janků, Časta, & Kučera, 2020).

Even in regions with high life expectancy, life insurance may be sought for income replacement purposes, ensuring family financial stability in the event of death (Satrovic & Muslija, 2018). Higher life expectancy, often associated with advanced healthcare systems, may lead to increased life insurance consumption due to lower premiums and a more sophisticated healthcare environment (Addae-manu & Graham, 2024). Improved healthcare and medical advancements may create new insurance products catering to specific health concerns (Hodula et al., 2020). Although insurance growth may be diminished in more developed nations due to market saturation, life expectancy reflects a country's economic status and affects insurance demand (Hodula et al., 2020).

The correlation between life expectancy and the demand for life insurance is intricate, frequently affected by variables such as mortality rates and savings incentives (Cristea, Noja, Drăgoi, & Andrițoiu, 2021). The empirical literature shows varied findings regarding this relationship.

Srinivasan & Mitra (2024) analysed the factors influencing life insurance consumption across 30 OECD countries from 1996 to 2020, revealing that, although life expectancy and health expenditure were insignificant, urbanisation, educational attainment, and GDP per capita had a significant effect on life insurance consumption. Sianipar and Hutagalung (2021) examined the Batakese demographic in Indonesia, uncovering a significant association between life expectancy and life insurance ownership, indicating that future-oriented cognition motivates insurance acquisitions (Nam & Hanna, 2018).

Reddy, Reddy, & Naidu (2019) analysed India's life insurance sector, finding that life expectancy significantly reduces life insurance penetration, indicating that longer life expectancies are associated with lower coverage rates. Leightner (2023) established a significant association between insurance premiums and life expectancy across 43 nations, indicating that investing in insurance may enhance life expectancy.

In growing and developing economies characterised by reduced life expectancy and elevated mortality rates, the demand for life insurance is frequently propelled by risk-related products. Given that a significant portion of Zimbabwe's life insurance premium in 2023 was attributed to risk products, it is posited that life expectancy significantly influences life insurance consumption. The study thus proposes hypothesis H_8 as follows:

H_8 : Life expectancy has a positive impact on life insurance penetration in Zimbabwe.

2.36 Unemployment and Life Insurance Penetration

Unemployment is a significant macroeconomic issue with profound effects on individuals, often resulting in reduced living standards and psychological distress (Mankiw, 2019). Politicians frequently discuss unemployment, claiming their policies will create jobs (Mankiw, 2019). Economists categorise unemployment as cyclical, structural or frictional.

Frictional unemployment denotes the transient unemployment encountered by individuals shifting between occupations or entering the labour market for the inaugural time (Baumol et

al., 2020). This phenomenon is regarded as a natural component of an efficient job market, illustrating the duration required for job seekers to secure appropriate work (Dean et al., 2020). This form of unemployment may arise from changes in job preferences, regional mobility, or information asymmetries between job searchers and employers (Lederman & Zouaidi, 2022). Initiatives to mitigate frictional unemployment typically emphasise enhancing job search processes, bridging information disparities, and facilitating skill alignment via training and education (Dean et al., 2020).

Structural unemployment occurs due to a discrepancy between the abilities and credentials of job seekers and the demands of accessible work opportunities (Baumol et al., 2020). This form of unemployment is generally prolonged and associated with significant economic transformations, including technical innovations, alterations in consumer preferences, globalisation, and modifications in industrial structure (Barbosa et al., 2020; Zayniddin, 2021). Mitigating structural unemployment necessitates workforce retraining, improvements in the education system, and the implementation of policies that enhance labour market flexibility and mobility (Arango & Flórez, 2020).

Cyclical unemployment arises from variations in aggregate demand for goods and services over several stages of the business cycle (Baumol et al., 2020). During economic contractions or recessions, businesses reduce production and workforce in response to decreased demand (Gertler, Huckfeldt, & Trigari, 2022). Conversely, cyclical unemployment decreases during economic growth as businesses hire more employees (Forsythe & Wu, 2021). Measures to address cyclical unemployment generally focus on stimulating aggregate demand through fiscal and monetary policies (Baumol et al., 2020).

Unemployment, in general, is the state where individuals capable and willing to work at current wage rates cannot find job opportunities within a reference period, usually one week (ILO, 2012). It is quantified as a proportion of the labour force, typically those actively seeking employment but unable to find it (ILO, 2012). A country's labour force generally includes the economically active population aged 15 to 64 (Alenda-Demoutiez & Mügge, 2020). Unemployment rates are frequently expressed as a proportion of the whole labour force, adhering to definitions recommended by international organisations such as the International Labour Office (ILO) (ILO, 2012).

Strict or official unemployment counts individuals actively searching for employment but unable to secure jobs within a reference period, usually a week (Kwenda, Benhura, & Mudiriza, 2021). Expanded unemployment includes a broader group, such as those not actively looking for work or working fewer hours than desired (Alenda-Demoutiez & Mügge, 2020). This definition covers individuals discouraged by a lack of job prospects or those in part-time work desiring full-time employment (Kwenda et al., 2021).

Zimbabwe calculates its unemployment rate using a twelve-month reference period, unlike the typical one-week period used in most developed markets (ZimStat, 2013). As of 2022, the national unemployment rate was 14.8%, with an expanded unemployment rate of 45.0% (ZimStat, 2023b). The significant difference between these rates highlights dissatisfaction among those in informal employment, who would likely move to formal employment if given the opportunity. The informal sector typically provides less compensation and limited skill development relative to the formal sector (Burger & Fourie, 2019).

Numerous researches demonstrate the adverse effect of unemployment on life insurance penetration. Segodi and Sibindi (2022) analysed the BRICS nations (Brazil, Russia, India, China, and South Africa) and discovered that unemployment adversely affected the demand for life insurance, as indicated by life insurance density and penetration. Mare et al. (2019) studied Romania's counties and revealed that unemployment negatively affected life insurance market characteristics. Buric et al. (2017) analysed Montenegro and confirmed a significant correlation between employment levels and life insurance demand, noting that unemployment adversely affects life insurance uptake. Simionescu (2022) examined the Baltic States (Latvia, Estonia, and Lithuania) and found that higher unemployment negatively impacted the insurance market. Similarly, Arifin, Jusoh, and Zaghlol (2023) discovered that long-term unemployment negatively influenced life insurance demand in Malaysia.

These empirical findings consistently demonstrate that unemployment negatively affects life insurance penetration. This trend highlights the significance of economic stability and employment opportunities in fostering a vigorous life insurance market. This study posits hypothesis H₉ based on these findings:

H₉: Unemployment has a significant negative impact on life insurance penetration.

2.37 Chapter Summary

This chapter offered a thorough analysis of the theoretical, conceptual, and empirical foundations pertinent to the investigation of life insurance penetration in Zimbabwe's predominantly informal sector. It began by exploring the theoretical framework, laying the groundwork for understanding the foundational theories that inform the dynamics of life insurance within an economic context. The conceptual framework was then delineated, offering a structured representation of the key concepts and their interrelations essential for this investigation. The chapter included a thorough review of related literature, covering an overview of life insurance, its historical evolution, and global significance. It examined the risks encompassed by life insurance plans, the particular products offered in the Zimbabwean market, and the diverse distribution channels. The discussion also addressed the correlation between life insurance penetration and economic development, emphasising the threshold necessary for economic growth and contrasting penetration levels in developing economies. The informal economy in Zimbabwe was examined, detailing its definition, characteristics, and dynamics, and identifying the unique challenges it poses for life insurance penetration. The economic and socio-political context of Zimbabwe, along with the regulatory environment governing life insurance, was critically analysed. Innovative approaches to enhance insurance penetration, emerging market trends, and empirical evidence supporting the research constructs and hypotheses were also explored. This thorough review aimed to contextualise the study's focus and provide a solid foundation for the subsequent empirical analysis. The next chapter details the methodology employed in the study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter outlines the research methodology employed to examine the factors influencing life insurance penetration within Zimbabwe's largely informal sector. It begins by establishing the underlying research philosophy and paradigm, which serve as a theoretical framework for the investigation. The chapter then discusses the research strategy, target demographic, and data sources, guaranteeing a strong and complete approach to data collection and integration. To ensure validity and reliability, the application of econometric models is thoroughly reviewed, including model specification as well as necessary pre- and post-estimation tests. The methodologies used for data presentation and analysis are explained, providing a clear path from raw data to interpretable results. Ethical considerations for the research process are also addressed, highlighting the study's integrity and reliability. The chapter concludes with a concise overview, summarising the essential methodological elements and their significance to the overall research goals.

3.1 Research Philosophy

Research philosophy encompasses the investigation of ontology, which explores the essence of reality, and epistemology, which scrutinises the nature of knowledge. These two branches of philosophy provide guidance for the research process (Egede, 2023; Thomas, 2004). The philosophical roots of a research study are closely linked to the methodology employed, creating a research paradigm that influences the researcher's perspective and choices (Al-Ababneh, 2020; Thomas, 2004). Researchers must have a thorough understanding of these principles in order to choose the most suitable study techniques and procedures (Wright et al., 2016). The choice of research methodology is influenced by ontological and epistemological viewpoints, which subsequently impact the selection of specific data collecting and analysis methodologies (Al-Ababneh, 2020). Ensuring the alignment between a researcher's philosophical beliefs, methodology, and methodologies is crucial for maintaining a high standard of study design (Wright et al., 2016). This philosophical framework is applicable to several research methodologies, such as quantitative designs, and has a substantial impact on defining the rigour and validity of study outputs (Wright et al., 2016). There are several research philosophies, including positivism, interpretivism, realism, and pragmatism, each with its own ontological and epistemological assumptions.

This research employs a positivist viewpoint. Positivism asserts that reality is objective and can be viewed and articulated impartially. It is grounded in the idea that phenomena can be measured and quantified, and that the relationships between variables can be established through empirical observation and statistical analysis (Gill & Johnson, 2010). Positivism assumes that knowledge is derived from scientific evidence, and it prioritises empirical data over subjective interpretations.

The adoption of a positivist philosophy is particularly suitable for this study due to several reasons:

Objectivity and Empiricism: The research seeks to examine the determinants affecting life insurance penetration through measurable data. Positivism allows for an objective analysis of these factors, relying on statistical evidence to draw conclusions (Alharahsheh & Pius, 2020).

Hypothesis Testing: The research involves testing hypotheses related to life insurance penetration. Positivism supports the use of deductive reasoning, where existing theories are tested against empirical data (Park, Konge, & Artino, 2020).

Generalisation: By employing a positivist approach, the study seeks to generalise findings from the sample to the broader population, providing insights that are applicable beyond the immediate study context (Saunders et al., 2019).

Positivism aligns with quantitative research methodologies, including econometric modelling and statistical analysis, which are crucial for analysing the macroeconomic factors influencing life insurance penetration. This concept guarantees the researcher's independence from the subject matter, hence minimising biases and ensuring that the conclusions are not swayed by personal encounters with study subjects (Gill & Johnson, 2010).

3.2 Research Approach

This study utilises a deductive approach, aligning with its positivist ideology and quantitative framework (Park et al., 2020). The deductive approach begins with existing theories and frameworks on life insurance penetration and tests hypotheses derived from these theories using empirical data (Low et al., 2021). By leveraging secondary data from national and global

databases, this approach ensures the systematic examination of demographic, economic, and institutional factors influencing life insurance uptake. The deductive process aligns with the study's objective of identifying relationships between variables and deriving generalisable insights through statistical analysis (Park et al., 2020). This approach reinforces the rigour and replicability of the study's findings, providing a robust foundation for actionable recommendations.

3.3 Research Paradigm

Research paradigms are essential frameworks that direct the research process, including ontology (the essence of reality), epistemology (the essence of knowledge), and methodology (the techniques for obtaining information) (Brearley & Walshe, 2020; Shah & Al-Bargi, 2013; Thomas, 2004). These interconnected elements form the basis of a researcher's worldview and approach to inquiry (Brearley & Walshe, 2020). Understanding one's research paradigm is crucial for avoiding unrecognised assumptions and making informed decisions throughout the research journey (Brearley & Walshe, 2020; Thomas, 2004).

Three major paradigms in educational and social research are positivistic, interpretive, and critical, each with distinct philosophical underpinnings (Shah, 2013). The choice of paradigm significantly influences the research strategy and methods employed, as different approaches embody varying ontological and epistemological perspectives (Thomas, 2004). For novice researchers, navigating these complex philosophical foundations can be challenging, but it is essential for developing a coherent and well-justified research design (Shah, 2013; Thomas, 2004). Research paradigms can be broadly classified into quantitative and qualitative approaches, each with distinct methodologies and analytical techniques.

This study adopts a quantitative research paradigm. Quantitative research is characterised by the collection and analysis of numerical data, facilitating the quantification of variables and the discernment of patterns and linkages among them (Hasan, 2024; Helmold, 2019). This paradigm is grounded in the positivist philosophy and is suitable for studies that aim to test hypotheses and quantify relationships between variables.

The choice of a quantitative paradigm is justified by several factors:

Numeric Data: The study employs secondary data from global and national databases, which is inherently numerical. This data includes metrics such as GDP growth, inflation rates, and life insurance penetration rates, making quantitative analysis appropriate (Hasan, 2024).

Regularities and Causal Relationships: The quantitative approach allows the researcher to identify regularities and causal relationships between macroeconomic variables and life insurance penetration. By applying statistical methods, the study can uncover patterns that might not be evident through qualitative analysis (Saunders et al., 2019).

Deductive Reasoning: Quantitative research is often deductive, starting with a theoretical framework and testing specific hypotheses derived from this framework. This approach aligns with the study's objective to explain and predict the phenomena influencing life insurance penetration in Zimbabwe (Gill & Johnson, 2010).

By adopting a quantitative paradigm, the research can leverage advanced statistical techniques to analyse the data, ensuring rigorous and replicable findings. This paradigm also supports the use of large datasets, augmenting the generalisability and robustness of the study's findings.

3.4 Research Design

A research design constitutes the overarching strategy employed to integrate the various components of a study in a coherent and logical manner, thereby ensuring that the research problem is addressed effectively (Creswell & Creswell, 2017). It establishes the methodological blueprint for data collection, analysis, and interpretation. In alignment with the objectives of this study, which seeks to examine the determinants of life insurance penetration in Zimbabwe, particularly within informal economic settings; a correlational research design was adopted.

The correlational design is particularly appropriate for empirical investigations involving relationships between variables that cannot be experimentally manipulated (Saunders, Lewis, & Thornhill, 2019). Given that the study uses secondary time-series data, the design enables the exploration of statistical associations among macroeconomic and institutional variables

such as GDP growth, inflation, per capita income, employment rates, and informal sector size—and life insurance uptake without interfering with their natural occurrences (Bryman, 2016).

Furthermore, the design facilitates the measurement of the direction and strength of associations among variables using appropriate statistical techniques, including the Autoregressive Distributed Lag (ARDL) modelling approach. This is instrumental in identifying both short-term and long-term relationships, offering a more profound understanding of dynamic interactions (Gujarati & Porter, 2009). The use of correlational design also permits the application of diagnostic tools—such as cointegration tests, stationarity assessments, and impulse response analyses—that are essential for robust policy inference in econometric studies of this nature (Wooldridge, 2015).

Moreover, this approach is supported by empirical precedents in financial and insurance research, where correlational methodologies are commonly employed to analyse nonexperimental phenomena (Kjosevski, 2012; Manandhar, 2020). It allows for generalisations based on empirical regularities and aids in theory refinement by quantifying the relationships between theoretical constructs and real-world phenomena.

In sum, the adoption of a correlational research design is both methodologically appropriate and theoretically sound for this study. It aligns with the data structure, supports the analytical methods applied, and enhances the validity of the study's findings regarding life insurance market behaviour in an economically volatile and informally dominant context.

3.5 Target Population

The target population for this study comprises annual time series data related to Zimbabwe's life insurance sector over a thirty-two-year period, spanning from 1990 to 2022. We purposefully select this temporal scope to capture significant macroeconomic and structural dynamics that influence life insurance penetration over time. The unit of analysis consists of annual observations for selected macroeconomic, demographic, and institutional variables that

theory and empirical literature identify as determinants of life insurance demand (Beck & Webb, 2003; Outreville, 2013).

Focusing on the national life insurance industry enables the study to assess comprehensive sectoral developments and policy implications. The extended timeframe enhances the robustness of the analysis by enabling the detection of long-term patterns, business cycle effects, and responses to economic shocks, such as hyperinflation, dollarization, and financial liberalisation. This approach aligns with the study's objective of constructing a model that explains variations in life insurance uptake in a volatile, informal economy such as Zimbabwe's.

The reliance on macroeconomic indicators—such as GDP per capita, inflation rates, interest rates, urbanisation levels, and informal sector sizes—reflects a macro-level research design. These variables are chosen based on their theoretical relevance in consumption-smoothing behaviours (Ando & Modigliani, 1963) and their empirical support in cross-country insurance demand models (Li et al., 2007). By adopting a time series framework grounded in national-level economic indicators, the study establishes an adequate population base from which reliable generalisations and policy inferences may be drawn.

3.6 Data and Data Sources

This study employs aggregated macroeconomic data for Zimbabwe, encompassing key variables such as the size of the informal sector, inflation rates, central bank independence indices, per capita income, the financial development index, educational attainment rates, age dependency ratios, life expectancy, and unemployment rates. Covering a 32-year period from 1990 to 2022, the dataset facilitates a comprehensive analysis of long-term economic trends and their influence on life insurance demand. Data were sourced from internationally recognised institutions, including Swiss Re (2024), the World Bank (2024), IPEC (2024), ZimStat (2024), and the IMF (2024), all of which provide publicly accessible and methodologically sound datasets. The selection of these sources enhances the study's credibility and ensures a rigorous empirical foundation.

3.6.1 Econometric Model Application

This study employs an econometric modelling approach designed to capture the complex interrelationships between macroeconomic indicators and life insurance adoption. The model integrates multiple economic and demographic variables to provide a robust analytical framework, facilitating a comprehensive understanding of the factors influencing insurance uptake across different population segments. Through this approach, the study generates empirical evidence that informs policy and strategic decision-making in the insurance sector.

3.6.2 Data Collection and Integration

Macroeconomic data were systematically compiled from reputable national and international sources, including IPEC, ZimStat, the IMF, and the World Bank. The reliance on secondary data at the macro level allows for an in-depth examination of national economic trends and interdependencies, ensuring a comprehensive and objective analysis.

The econometric model incorporates critical macroeconomic indicators such as the size of the informal sector, inflation rates, central bank independence indices, per capita income, the financial development index, educational attainment rates, age dependency ratios, life expectancy, and unemployment rates. These variables are instrumental in capturing the broader economic context and assessing its implications for life insurance penetration.

By employing macroeconomic time-series data, this study upholds a high standard of data quality and reliability (Younus & Qodir, 2023). The comprehensive nature of the dataset minimises sampling bias and enhances the statistical robustness of the analysis. Furthermore, the inclusion of a diverse set of economic variables enables subgroup analyses, offering valuable insights into distinct demographic and financial market dynamics.

3.6.3 Analysis and Interpretation

The data is analysed using advanced econometric approaches, including multiple regression analysis, time-series analysis. These techniques aid in identifying causal links and predicting future changes in life insurance penetration.

By employing the complete population census and an econometric model, the study aims to conduct a thorough and precise examination of the factors that affect the level of life insurance adoption among Zimbabwe's economically active individuals. This methodology guarantees a comprehensive understanding of the macroeconomic framework and its interaction with demographic attributes.

3.6.4 Data Presentation and Analysis Methods

This study employs Stata Version 14.2 for the presentation and econometric analysis of data. Stata is a robust and widely adopted statistical software suite, particularly suitable for economic, financial, and demographic research. Its strength lies in its ability to process large datasets efficiently, perform complex statistical modelling, and produce replicable results. The software supports a diverse array of econometric techniques, making it a preferred tool for rigorous empirical analysis in both academic and professional settings (Acock, 2016; Baum, 2021).

3.6.5 Justification for the Use of Stata

The decision to use Stata in this study, particularly for estimating the Auto Regressive Distributed Lag (ARDL) model, is grounded in its methodological advantages over alternative econometric packages such as EViews, R, or SPSS. Stata offers a combination of analytical depth, computational efficiency, and user-friendly functionality that makes it especially suitable for time-series analysis involving nonstationary data.

Advanced Econometric Capabilities:

Stata provides a comprehensive suite of econometric tools, including unit root testing, cointegration diagnostics, and dynamic ARDL estimation procedures. It also supports nonlinear and asymmetric ARDL variants, enabling the nuanced modelling of real-world economic relationships (Cho, Greenwood-Nimmo, & Shin, 2021). These capabilities are essential for the robust handling of time-series data that exhibit mixed orders of integration—an inherent requirement of the ARDL framework (Nkoro & Uko, 2016; Hussein & Hmood, 2024).

Flexibility and Efficiency:

Unlike some platforms that require extensive programming or external add-ons for ARDL

implementation, Stata's built-in commands (e.g., `ardl`, `bounds`, and `nlardl`) streamline model specification and estimation. Its data-handling efficiency further supports the analysis of large and complex datasets without compromising computational speed or accuracy (Fakour, Varahrami, & Taheripour, 2022).

Strong Data Management and Visualisation Tools:

Stata excels in managing panel and time-series data through its integrated data editor and manipulation functions. This ensures consistency and accuracy in data preparation, transformation, and regression diagnostics (Cao et al., 2023). In addition, its graphic utilities allow for clear and interpretable presentation of econometric results, enhancing the communication of findings to both academic and policy audiences.

In summary, Stata's analytical power, reliability, and ease of use render it an optimal choice for implementing ARDL models in this study. Its adoption ensures methodological soundness and reproducibility—critical criteria for postgraduate-level empirical research.

Stata's advanced statistical capabilities, flexible model specification, and strong data management make it an excellent tool for ARDL econometric analysis. It reliably and efficiently handles complicated datasets and models, making it highly appealing to researchers.

3.6.6 Model Specification

The model employed in this study is grounded in the Life Cycle Hypothesis (LCH), a framework which postulates that individuals seek to smooth consumption and maximise utility across their lifespan by leveraging financial instruments, such as savings, debt, and insurance (Rabbani, 2020). According to the LCH, life insurance plays a vital role by facilitating wealth transfer, replacing lost income, and promoting consumption stability during periods of financial distress or uncertainty (Cherry & Asebedo, 2022). As such, the decision to purchase life insurance is heavily influenced by expectations regarding lifetime earnings and retirement duration (Heo, 2020; Tran, 2022). Life-cycle savings and debt accumulation are particularly important for financing planned future expenditures, including children's education and post-retirement living expenses (Zehra & Singh, 2023). Furthermore, liquidity constraints—such as

restricted access to credit—and the need for long-term wealth accumulation have a significant effect on the uptake of life insurance policies (Armantier et al., 2023).

The core consumption function derived from the LCH can be represented as follows:

$$C = \frac{W+RY}{T} \dots\dots\dots (1)$$

In this function, C represents consumption, W denotes wealth, RY refers to expected lifetime earnings, and T indicates the remaining years of life. The parameter T is typically associated with life expectancy (LEXP), which plays a critical role in influencing consumption and savings decisions over the lifecycle. To simplify the application of the LCH model to life insurance demand, life insurance penetration (LINSP) is used as a proxy for the consumption of financial goods, expressed as:

$$LINSP = \alpha W + \beta Y \dots\dots\dots (2)$$

Where LINSP is life insurance penetration and W is wealth, Y is labor income, and α, β , are marginal propensities. By substituting W with per capita income (INC) and incorporating the LEXP while accounting for macroeconomic factors (X), the model extends to equation (3).

$$LINSP = \alpha INC + \beta LEXP + \gamma X \dots\dots\dots (3)$$

where γ represents estimated elasticities.

The term X represents a vector of additional explanatory variables, which are essential to account for the complexities of Zimbabwe’s financial environment. The other key variables incorporated in this study include:

(i) Informal Sector Size (INF)

Given Zimbabwe’s significant informal sector, this variable is crucial in capturing the impact of informal employment and income on life insurance demand. The size of the informal economy often determines financial behaviour and insurance adoption rates.

(ii) Inflation (CPI)

Inflation affects the real value of life insurance premiums and policy pay outs, influencing consumer decisions regarding life insurance (Ehiogu, 2018; Li, 2021). High inflation may erode the affordability of insurance products.

(iii) Central Bank Independence (CBI)

A high degree of central bank independence promotes macroeconomic stability, which is critical for fostering trust and investment in the insurance sector (Chowa et al., 2014).

(iv) Financial Development (FIND)

This variable captures the depth and accessibility of financial services within the economy. Elevated levels of financial development are typically correlated with increased insurance penetration, as individuals get enhanced access to financial counsel and payment mechanisms (Cheng & Hou, 2022).

(v) Insurance Literacy (EDU)

Financial and insurance literacy are crucial determinants of life insurance uptake, as knowledgeable customers are more inclined to recognise the advantages of life insurance products (Kiwanuka & Sibindi, 2023a).

(vi) Dependency Ratio (DEP)

The dependency ratio quantifies the ratio of dependents to the working-age demographic. A higher dependency ratio typically signifies increased financial obligations, which can either incentivise or deter life insurance uptake, depending on household circumstances (Dragotă et al., 2023).

(vii) Unemployment (UNEMP)

Unemployment is a critical determinant of income security, affecting households' ability to pay insurance premiums. High unemployment levels are likely to reduce life insurance demand (Heo, 2020).

Incorporating these variables into the LCH framework, the final model is specified as follows:

$$LINS P_t = \beta_0 + \beta_1 INC_t + \beta_2 FIND_t + \beta_3 DEP_t + \beta_4 LEXP_t + \beta_5 INF_t + \beta_6 CPI_t + \beta_7 CBI_t + \beta_{18} EDU_t + \beta_9 UNEMP_t + \varepsilon_t \dots\dots\dots (4)$$

In this expanded form, LINS_P at time t represents life insurance penetration or density, while each β coefficient measures the impact of its corresponding variable on life insurance penetration. The error term ε_t captures any unexplained variation.

This extended model is tailored to Zimbabwe's unique economic conditions by incorporating macroeconomic variables that influence life insurance demand under circumstances of income instability and restricted access to official financial services. By addressing these factors, the model offers a more comprehensive framework for analysing life insurance behaviour in developing economies, particularly those with large informal sectors.

3.6.7 Econometric Model

The research utilises an Auto Regressive Distributed Lag (ARDL) model to examine the correlation between macroeconomic variables and insurance penetration within Zimbabwe's predominantly informal economy. The ARDL model is especially appropriate for this application because it may accommodate variables integrated at varying orders, specifically $I(0)$ and $I(1)$, without requiring pre-testing for unit roots (Pesaran, Shin, & Smith, 2001). This flexibility mitigates potential biases that could arise from incorrect classification of the integration order. Furthermore, the ARDL approach is adept at modelling both short-term and long-term dynamics, providing comprehensive insights into the temporal relationships among variables.

Considering that the influence of independent factors on the dependent variable in most economic and financial settings, such as Zimbabwe, takes time to manifest, and considering the autocorrelation nature of economic variables, static models fail to reveal the true relationships among variables (Ghouse, Khan, & Rehman, 2018). Therefore, an autoregressive model is deemed appropriate (Sunge & Makamba, 2020).

Most time series variables are non-stationary; differencing the variables is a typical cure for non-stationarity. But, this solution causes the disappearance of long-run relationships among the variables under study. Therefore, a method that includes both short- and long-run dynamics is appropriate (Mallick, Mallesh, & Behera, 2016; Mustafa & Sellassie, 2016). Usually, variables must be integrated of the same order, which rules out cointegration models like the Johansen-Juselius and Maximum Likelihood methods. A model that estimates long-run

interactions utilising variables integrated of mixed orders is thereby most appropriate (Babatunde, 2017).

Moreover, due to inertia, persistence, and momentum effects prevalent in stock markets, once a shock is introduced to a variable, it takes time to dissipate. Consequently, a dynamic model is most appropriate for the variables being examined. This study employed the ARDL limits testing approach developed by Pesaran and Shin (1999) and further refined by Pesaran, Shin, and Smith (2001) to analyse the short- and long-term correlations between macroeconomic indices and life insurance penetration rates in Zimbabwe. The ARDL limits test method yields unbiased long-run model estimates and valid t-statistics, even in the presence of endogenous regressors and a limited sample size (Nkoro & Uko, 2016). The ARDL model is less prone to misleading regression resulting from omitted variables and accommodates variables with varying optimal lag lengths (Ghouse, Khan, & Rehman, 2018). The standard representation of the ARDL (p, q) model is articulated as follows:

$$y_t = a_0 + \sum_{i=1}^p \beta_i \Delta y_{t-i} + \sum_{j=0}^q \sigma_j \Delta x_{t-j} + \delta_i y_{t-1} + \partial_j x_{t-1} + \varepsilon_t \text{ -----(5)}$$

Where:

y_t is the dependent variable.

x_{t-j} are explanatory variables.

a_0 is the intercept.

β_i and σ_j are the short-run coefficients of the lagged independent variables, respectively.

δ_i and ∂_j are the long-run coefficients of the lagged independent variables, respectively.

ε_t is the error term.

t is time in years

p and q are the orders or lag lengths

This model accounts for distributed lag effects of the independent variables as well as the autoregressive character of the dependent variable.

This leads to the following ARDL model:

$$\begin{aligned}
LINS P_t = & \beta_0 + \sum_{j=1}^p \beta_1 \Delta LINS P_{t-j} + \sum_{j=0}^q \beta_2 \Delta INF_{t-j} + \sum_{j=0}^q \beta_3 \Delta CPI_{t-j} + \sum_{j=0}^q \beta_4 \Delta CBI_{t-j} + \\
& \sum_{j=0}^q \beta_5 \Delta INC_{t-j} + \sum_{j=0}^q \beta_6 \Delta FIND_{t-j} + \sum_{j=0}^q \beta_7 \Delta EDU_{t-j} + \sum_{j=0}^q \beta_8 \Delta DEP_{t-j} + \\
& \sum_{j=0}^q \beta_9 \Delta LEXP_{t-j} + \sum_{j=0}^q \beta_{10} \Delta UNEMP_{t-j} + \beta_{11} LINS P_{t-1} + \beta_{12} INF_{t-1} + \beta_{13} CPI_{t-1} + \\
& \beta_{14} CBI_{t-1} + \beta_{15} INC_{t-1} + \beta_{16} FIND_{t-1} + \beta_{17} EDU_{t-1} + \beta_{18} DEP_{t-1} + \beta_{19} LEXP_{t-1} + \\
& \beta_{20} UNEMP_{t-1} + \beta_{21} EC_{t-1} + \varepsilon_t \dots\dots\dots (6)
\end{aligned}$$

where:

$LINS P_t$ represents life insurance penetration.

INF_t denotes the informal economy measure.

INC_t indicates income per capita.

CPI_t stands for inflation.

CBI_t is the Central Bank Independence.

$FIND_t$ reflects the level of financial development.

EDU_t denotes insurance literacy.

DEP_t denotes the dependency ratio.

$LEXP_t$ is life expectancy.

$UNEMP_t$ represents the unemployment rate.

t signifies time in years.

β_1 to β_{10} = are the short run coefficients.

β_{13} to β_{22} = are the long run coefficients.

β_{23} = is the error correction term.

ε_t is the error term.

p and q are the orders or lag lengths

This model accounts for the autoregressive properties of the dependent variable and distributed lag effects of the independent variables.

3.6.8 Pre-Estimation and Post-Estimation Test

The essential pre-estimation and post-estimation (diagnostic) tests required to apply the ARDL technique are discussed below.

3.6.8.1 Pre-Estimation Tests

Conducting pre-testing in Autoregressive Distributed Lag (ARDL) models is crucial to ensure the robustness and reliability of the empirical results (Nkoro & Uko, 2016). Performing these

tests is essential for identifying the time-series characteristics of the data and verifying the existence of long-term correlations among variables.

3.6.8.2 ARDL Bounds test

This test examines long-run relationships, and it may employ the F-test and the T-test methodologies. The ARDL Bounds test, formulated by Pesaran, Shin and Smith (2001), is an effective method for analysing the presence of co-integration relationships among variables (Montenegro, 2019). It is especially beneficial when working with time series that are integrated of order 0, 1, or mutually co-integrated (Lawal & Aweda, 2015). The test employs F and t-statistics to determine the significance of lagged levels in a univariate equilibrium correction framework (Lawal & Aweda, 2015). It is crucial to do pretesting to confirm that the dependent variable is integrated of order I(1), the regressors are not integrated of a higher order than unity, and there exists only one co-integrating equilibrium (Montenegro, 2019). The ARDL limits test has been effectively utilised in multiple economic research, such as the examination of Wagner's hypothesis in Turkey (Mohammadi, Cak, & Cak, 2008) and the analysis of the UK wages equation (Natsiopoulous & Tzeremes, 2022). These applications showcase the test's resilience across many specifications and its capacity to uncover enduring connections between economic factors.

3.6.8.3 F-test

The F-test formula employed in the ARDL Bounds Test evaluates the collective significance of the lagged level variables within the unconstrained error correction model (UECM) (Bertelli, Vacca, & Zoia, 2022). The UECM for an ARDL (p, q) model can be articulated as follows:

$$\Delta y_t = \alpha + \gamma y_{t-1} + \delta X_{t-1} + \sum_{i=1}^{p-1} \phi_i \Delta y_{t-1} + \sum_{j=0}^{q-1} \beta_j \Delta X_{t-j} + \varepsilon_t$$

The F-test equation evaluates the null hypothesis that the coefficients of the lagged level variables are collectively zero, signifying the absence of a long-run link (no co-integration). The null and alternative hypotheses are:

- Null hypothesis (H_0): $\gamma = 0$ and $\delta = 0$ (no co-integration).
- Alternative hypothesis (H_1): $\gamma \neq 0$ and $\delta \neq 0$ (cointegration).

The F-test equation for the ARDL Bounds Test is:

$$= \frac{(RSS_{\text{restricted}} - RSS_{\text{unrestricted}})/k}{RSS_{\text{unrestricted}}/(n - k)}$$

Where:

- $RSS_{\text{restricted}}$ is the residual sum of squares from the restricted model (under H_0 , where $\gamma = 0$ and $\delta = 0$).
- $RSS_{\text{unrestricted}}$ is the residual sum of squares from the unrestricted model (the full UECM).
- k is the number of restrictions (in this case, 2: γ and δ).
- n is the number of observations.
- $(n-k)$ is the degrees of freedom for the unrestricted model.

3.6.8.4 T-test

The T-test, within the framework of the ARDL Bounds Test, evaluates the statistical significance of the individual coefficients of the lagged level variables in the unrestricted error correction model (UECM). Specifically, it tests whether the coefficient of the lagged dependent variable (y_{t-1}) or the coefficient of the lagged explanatory variable (X_{t-1}) is significantly different from zero, which would indicate a long-run relationship (Nkoro & Uko, 2016).

The UECM for an ARDL (p, q) model can be specified as:

$$\Delta y_t = \alpha + y_{t-1} + \delta X_{t-1} + \sum_{i=1}^{p-1} \phi_i \Delta y_{t-1} + \sum_{j=0}^{q-1} \beta_j \Delta X_{t-j} + \varepsilon_t$$

The T-test equation for testing the significance of γ (the coefficient of y_{t-1}) is:

$$t_\gamma = \frac{\gamma}{SE(\gamma)}$$

Similarly, the T-test equation for testing the significance of δ (the coefficient of X_{t-1}) is:

$$t_\delta = \frac{\delta}{SE(\delta)}$$

- Where: γ and δ are the estimated coefficients from the UECM.
- $SE(\gamma)$ and $SE(\delta)$ are the standard errors of the estimated coefficients γ and δ respectively.

The null and alternative hypotheses for the T-tests are:

- For γ :
 - Null hypothesis (H_0): $\gamma = 0$ (no long-run relationship).
 - Alternative hypothesis (H_1): $\gamma \neq 0$ (long – run relationship)

- For δ :
 - Null hypothesis (H_0): $\delta = 0$ (no long – run relationship).
 - Alternative hypothesis (H_1): $\gamma \neq 0$ (long – run relationship).

The computed T-statistics (t_γ and t_δ) are then compared to the critical values from the T-distribution:

- If the absolute value of the T-statistic exceeds the critical value at a specified significance level (e.g., 5%), the null hypothesis is rejected, signifying that the coefficient is statistically distinct from zero and implying a long-term association.

- If the absolute value of the T-statistic is inferior to the critical value, the null hypothesis remains unrefuted, signifying an absence of evidence for a long-term association.

3.6.8.5 Unit root test

This test assesses stationarity and includes the Augmented Dickey-Fuller and Phillips-Perron tests. The unit root test in autoregressive distributed lag (ARDL) models is crucial for determining the stationarity of time series data and reducing the likelihood of false regression (Ghouse, Khan, & Rehman, 2018). While traditional unit root tests like the Augmented Dickey-Fuller test need model order specification (Said & Dickey, 1984), the ARDL approach offers advantages in managing variables with differing integration orders and limited sample sizes (Nkoro & Uko, 2016). McNown et al. (2023) suggest a multivariate ARDL unit root test that takes into account possible co-integration relationships, resulting in greater statistical power compared to current methods. This method resolves problems related to incorrect modelling by setting appropriate constraints on the common factors. The ARDL framework can be used as a substitute for standard econometric methods to prevent erroneous regression. It includes lag dynamics that are often absent in traditional analyses (Ghulam Ghouse et al.,

2018). Practitioners must exercise caution while utilising ARDL approaches to ensure accurate estimation and interpretation (Nkoro & Uko, 2016).

3.6.8.6 Augmented Dickey–Fuller Test

The Augmented Dickey-Fuller (ADF) test assesses the presence of a unit root in a time series, signifying non-stationarity (Ghouse et al., 2018). The ADF test enhances the fundamental Dickey-Fuller test by using lagged differences of the time series to address higher-order serial correlation. The standard representation of the ADF test equation is:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \sum_{i=1}^p \delta_i \Delta y_{t-i} + \varepsilon_t$$

Where:

- $\Delta y_t = y_t - y_{t-1}$ is the first difference of the series.
- α is the intercept (constant term).
- βt is the trend term (optional).
- γy_{t-1} is the lagged level of the series.
- $\sum_{i=1}^p \delta_i \Delta y_{t-i}$ represents the sum of the lagged differences of the series.

The null hypothesis (H_0) for the ADF test is that the series has a unit root ($\gamma = 1$) meaning it is non-stationary. The alternative hypothesis (H_1) is that the series does not have a unit root ($\gamma < 0$), meaning it is stationary.

By testing the significance of γ , we can determine whether the series is stationary or not. If the null hypothesis is rejected, the series is considered stationary. If the null hypothesis could not be rejected, the series is considered non-stationary.

3.6.8.7 Phillips-Perron test

The Phillips-Perron (PP) test is a widely utilised technique for detecting the presence of a unit root in a time series. It resembles the Augmented Dickey-Fuller (ADF) test but utilises a non-parametric method to address serial correlation and heteroskedasticity in the error terms (Natsiopoulous & Tzeremes, 2022). The PP test adjusts the test statistics of the Dickey-Fuller test to address these concerns.

The basic form of the Dickey-Fuller test regression, which the PP test builds upon, is:

$$Z_{\gamma} = t_{\gamma} - \frac{\gamma S}{\delta}$$

and

$$Z_{\emptyset} = T \cdot \gamma - \frac{1}{2} (S - \delta^2)$$

Where:

- t_{γ} is the t-statistic for the estimated coefficient γ from the ordinary least squares (OLS) regression.
- γ is the estimated coefficient y_{t-1} of the OLS regression.
- T is the sample size.
- S is a consistent estimate of the variance of the error term in the test regression.
- δ^2 is an estimate of the long-run variance of the error term.

The null hypothesis (H_0) of the PP test posits that the series possesses a unit root ($\gamma=0$), signifying non-stationarity. The alternative hypothesis (H_1) posits that the series lacks a unit root ($\gamma<0$), signifying stationarity. The PP test statistics are evaluated against crucial values from the Dickey-Fuller distribution to ascertain whether to reject the null hypothesis.

3.6.8.8 Optimal lag length test

The Optimal lag length test determines the ideal number of lags, utilising the Akaike Information Criterion and the Schwarz Information Criterion tests. The Autoregressive Distributed Lag (ARDL) model is an effective technique for assessing time-series data, facilitating the estimation of both short-term and long-term relationships (Kripfganz & Schneider, 2018). Determining the correct lag duration in ARDL models is essential for precise estimation and can be accomplished by employing information criteria such as Akaike or Bayesian (Schwarz) (Kripfganz & Schneider, 2016). Preliminary studies to determine the best lag length are crucial, as the selection of lag specification can have a substantial effect on the results of stationarity tests (Gordon, 1995). The ARDL approach allows for the modelling of variables with varying levels of integration and includes a limits testing procedure to assess the presence of long-term linkages (Kripfganz & Schneider, 2018). The Pesaran, Shin, and Smith approach, which was created by Pesaran, Shin, and Smith (2001), is included as a postestimation feature in Stata. It also provides detailed critical values and estimated p-values to assist with statistical inference. This information is referenced in the works of Kripfganz & Schneider (2016, 2018).

3.6.8.9 Akaike information criterion

The Akaike Information Criterion (AIC) is not a test for unit roots, but a model selection criterion used to choose among a set of competing models. It helps identify the model that best balances goodness of fit with model complexity. In the context of unit root tests, the AIC can be used to determine the optimal lag length for the Augmented Dickey-Fuller (ADF) test or other time series models (Kripfganz & Schneider, 2016).

The equation for the AIC is:

$$AIC = -2 \ln (L) + Zk$$

Where:

- $\ln (L)$ denotes the natural logarithm of the model's likelihood function.
- k represents the quantity of estimated parameters within the model.

Steps to Determine Optimal Lag Length:

(1) Estimate the ADF regression for various lag lengths:

- For each lag length p , estimate the following ADF regression equation:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \sum_{i=1}^p \delta_i \Delta y_{t-i} + \varepsilon_t$$

(2) Compute the AIC for each lag length:

- For each estimated model, compute the AIC value using:

$$AIC = -2 \ln (L) + Zk$$

- $\ln (L)$ is the log-likelihood of the model.
- k is the total number of estimated parameters, including the intercept, trend, lagged level, and lagged differences.

(3) Select the lag length p that minimizes the AIC value:

Compare the AIC values for all tested lag lengths and choose the lag length p with the smallest AIC value. This lag length provides the best trade-off between goodness of fit and model simplicity.

3.6.9.10 Schwarz information criterion

The Schwarz Information Criterion (SIC), also referred to as the Bayesian Information Criterion (BIC), serves as a criterion for model selection, including the identification of the ideal lag length for time series models such as the Augmented Dickey-Fuller (ADF) test. The BIC is similar to the Akaike Information Criterion (AIC) but imposes a larger penalty for models with more parameters, thus often favouring more parsimonious models (Kripfganz & Schneider, 2018).

The equation for the BIC is:

$$BIC = -2 \ln(L) + k \ln(n)$$

Where:

- $\ln(L)$ denotes the natural logarithm of the model's likelihood function.
- k represents the number of estimated parameters within the model.
- n represents the number of observations.
-

Steps to Determine Optimal Lag Length Using BIC:

(1) Estimate the ADF regression for various lag lengths:

- For each lag length p estimate the following ADF regression equation:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \sum_{i=1}^p \delta_i \Delta y_{t-i} + \varepsilon_t$$

(2) Compute the BIC for each lag length:

- For each estimated model, compute the BIC value using:

$$BIC = -2 \ln(L) + k \ln(n)$$

- $\ln(L)$ represents the log-likelihood of the model.
- k represents the aggregate count of estimated parameters, encompassing the intercept, trend, lagged level, and lagged differences.

- n represents the quantity of observations within the time series.

(3) Select the lag length p that minimizes the BIC value:

Compare the BIC values for all tested lag lengths and choose the lag length p with the smallest BIC value. This lag length provides the best balance between model fit and simplicity, favouring more parsimonious models.

3.6.9.11 Post-estimation tests / Diagnostic tests

Post-estimation diagnostic tests in Autoregressive Distributed Lag (ARDL) models are crucial for confirming the model's validity and the stability of the estimated coefficients. The tests, encompassing Serial Correlation, Heteroskedasticity, Normality, and Model Specification, ascertain that the model's assumptions remain intact and that the outcomes are neither biased nor inconsistent (Kripfganz & Schneider, 2016).

3.6.9.12 Serial correlation

The serial correlation test which is used to test whether there is a pattern in the residuals of a model incorporates the Breusch–Godfrey test. Serial correlation testing is essential in time series econometrics for the purpose of model construction and diagnostic checking. Several approaches have been devised to tackle this problem in various situations. Li et al. (2022) introduced a profile empirical likelihood-based test for autoregressive exogenous (ARX) models. This test is effective in situations when there is a heteroscedasticity and error correlation. Godfrey (1994) presented a test in dynamic models estimated by instrumental variables. This test involves adding lagged residuals to both the regressors and instruments. Hong (2010) examined the significance of doing serial correlation testing in economic theories, such as the efficient market hypothesis. The author also introduced a range of tests for both model residuals and raw data. Arellano & Bond (1991) introduced a GMM-based method for panel data models that effectively utilises linear moment limitations. They also presented a serial correlation test using GMM residuals. These methods offer researchers the means to evaluate the suitability of models and enhance statistical inference in different econometric scenarios.

3.6.9.13 Breusch–Godfrey

The Breusch–Godfrey test identifies serial correlation in the residuals of a regression model, including an ARDL model. The test can handle higher-order autocorrelation and is more

general than the Durbin-Watson test, which is typically only used for first-order autocorrelation (Rois et al., 2012).

Steps and Equations for the Breusch-Godfrey Test:

(1) Estimate the original ARDL model:

$$y_t = \alpha + \sum_{i=1}^p \beta_i y_{t-i} + \sum_{j=1}^p \delta_j x_{t-j} + \varepsilon_t$$

(2) Obtain the residuals (ε_t) from the estimated ARDL model.

(3) Regress the residuals on the original regressors and lagged residuals.

$$y_t = \alpha + \sum_{i=1}^p \beta_i y_{t-i} + \sum_{j=0}^q \delta_j x_{t-j} + \sum_{k=1}^m \rho_k \varepsilon_{t-k} + \mu_t$$

- Here ε_t are the residuals from the original ARDL model.
- y_{t-i} and x_{t-j} represent the lagged dependent and independent variables, respectively.
- m represents the maximum number of residual lags to be incorporated in the auxiliary regression.
- μ_t is the new error term.

(4) Test the significance of the lagged residuals.

- The null hypothesis (H_0) of the Breusch-Godfrey test is that there is no serial correlation up to lag m (i.e., $p_1 = p_2 = \dots p_m = 0$).
- The alternative hypothesis (H_0) is that at least one $p_k \neq 0$.

(5) Compute the test statistic:

The test statistic can be calculated using the R^2 from the auxiliary regression:

$$nR^2 \sim \chi^2(m)$$

- n represents the quantity of observations.
- R^2 is the coefficient of determination derived from the auxiliary regression.
- the test statistic adheres to a chi-square distribution with m degrees of freedom.

3.6.9.14 Heteroskedasticity

The heteroskedasticity test evaluates the constancy of residual variance across all levels of the independent variable, commonly utilising the Breusch-Pagan-Godfrey test. Testing for

heteroskedasticity is essential in econometric modelling, particularly ARDL models, to ensure accurate statistical inference. Breusch & Pagan (1979) devised a straightforward Lagrangian multiplier test to detect heteroskedasticity in linear regression models, utilising ordinary least squares (OLS) residuals. White (1980) introduced a method to estimate the covariance matrix that takes into account heteroskedasticity. Additionally, White offered a direct test to compare this estimator with the standard one. These tests can be used for many model specifications, including nonlinear models (Louangrath, 2013). Heteroskedasticity frequently occurs alongside serial correlation in panel data models, requiring the need for simultaneous testing (Baltagi, Jung, & Song, 2010). Heteroskedasticity suggests that there is variability in the explanatory variables, which could impact the reliability of the model (Louangrath, 2013). Nevertheless, a precisely defined model has the ability to tolerate considerable heteroskedasticity. Addressing heteroskedasticity is crucial for precise estimate of parameters and hypothesis testing in econometric models, such as ARDL, to ensure robust and dependable results (White, 1980; Breusch & Pagan, 1979).

3.6.9.14 Breusch–Pagan–Godfrey

The Breusch-Pagan-Godfrey test identifies heteroskedasticity in the residuals of a regression model, including an ARDL model (Andriani, 2017). Heteroskedasticity arises when the variance of the residuals varies across observations.

Steps and Equations for the Breusch-Pagan-Godfrey Test:

- (1) Estimate the original ARDL model:

$$y_t = \alpha + \sum_{i=1}^p \beta_i y_{t-i} + \sum_{j=1}^p \delta_j x_{t-j} + \varepsilon_t$$

- (2) Obtain the residuals (ε_t) from the estimated ARDL model.

- (3) Calculate the squared residuals: $\mu_t^2 = \varepsilon_t^2$

- (4) Regress the squared residuals on the original regressors (and possibly other variables, such as their squares or interactions):

$$\mu_t^2 = \gamma_0 + \gamma_1 x_{1t} + \gamma_2 x_{2t} + \dots + \gamma_k x_{kt} + \varepsilon_{vt}$$

- Here μ_t^2 are the squared residuals from the original ARDL model.
- $x_{1t}, x_{2t}, \dots, x_{kt}$ are the original regressors.

- v_t is the new error term.

(5) Compute the test statistic:

- The null hypothesis (H_0) of the Breusch-Pagan-Godfrey test is that the variance of the residuals is homoskedastic (i.e., constant variance).
- The alternative hypothesis (H_1) is that the variance of the residuals is a function of the regressors (i.e., heteroskedastic).

The test statistic is determined using the subsequent equation:

$$nR^2 \sim \chi^2(k)$$

- n represents the number of observations.
- R^2 is the coefficient of determination derived from the auxiliary regression of squared residuals.
- The test statistic adheres to a chi-square distribution with k degrees of freedom, where k represents the quantity of regressors in the auxiliary regression.

3.6.10.1 Jarque–Bera test

The Jarque-Bera (JB) test assesses the normality of the residuals in a regression model, including an ARDL model. The examination relies on the sample skewness and kurtosis of the residuals (Brys, Hubert, & Struyf, 2004).

Steps and Equation for the Jarque-Bera Test:

(1) Estimate the original ARDL model:

$$y_t = \alpha + \sum_{i=1}^p \beta_i y_{t-i} + \sum_{j=1}^p \delta_j x_{t-j} + \varepsilon_t$$

(2) Obtain the residuals (ε_t) from the estimated ARDL model.

(3) Calculate the skewness (S) and kurtosis (K) of the residuals:

- Skewness (S) measures the asymmetry of the distribution of the residuals:

$$S = \frac{\frac{1}{n} \sum_{t=1}^n (\varepsilon_{t-\varepsilon})^3}{\left(\frac{1}{n} \sum_{t=1}^n (\varepsilon_{t-\varepsilon})^2 \right)^{3/2}}$$

- Kurtosis (K) measures the "tailedness" of the distribution of the residuals:

$$S = \frac{\frac{1}{n} \sum_{t=1}^n (\varepsilon_{t-\varepsilon})^4}{\left(\frac{1}{n} \sum_{t=1}^n (\varepsilon_{t-\varepsilon})^3\right)^{2/2}}$$

(4) The Jarque-Bera test statistic:

$$JB = n \left(\frac{S^2}{6} + \frac{(K - 3)^2}{24} \right)$$

- n represents the quantity of observations.
- S represents the skewness of the residuals.
- K represents the kurtosis of the residuals.

(5) Compare the JB test statistic to the chi-square distribution:

- The null hypothesis (H_0) of the Jarque-Bera test is that the residuals are normally distributed.
- The alternative hypothesis (H_1) is that the residuals are not normally distributed.
- The JB test statistic follows a chi-square distribution with 2 degrees of freedom.

3.6.10.2 Model specification test

The Model specification test, which incorporates the Ramsey RESET test is used to evaluate the overall correctness of the chosen model. The Ramsey RESET test is widely used to detect model misspecification in regression analysis. It is based on the principle that nonlinear combinations of explanatory variables should not have additional explanatory power if the model is correctly specified (Christodoulou-Volos & Tserkezos, 2023). The test's power is highly influenced by the degree of nonlinearity between dependent and independent variables (Christodoulou-Volos & Tserkezos, 2023). While designed for Gaussian error distributions, the RESET test is generally robust to non-normality, except for heavy-tailed distributions (Volkova & Pankina, 2014). In detecting omitted variable errors, the RESET test outperforms the Durbin-Watson test across various sample sizes (Babatunde et al., 2014). Extensions of the RESET test have been developed for truncated regression models, showing good size and power properties in medium to large samples (Sapra, 2018). These findings highlight the RESET test's versatility and effectiveness in identifying model misspecification across different regression contexts.

3.6.10.3 Ramsey RESET

The Ramsey Regression Equation Specification Error Test (RESET) is used to check for misspecification in a regression model, such as omitted variables or incorrect functional form (Christodoulou-Volos & Tserkezos, 2023). It involves adding powers of the fitted values to the original regression equation and testing for their joint significance.

Steps and Equation for the Ramsey RESET Test:

(1) Estimate the original ARDL model:

$$y_t = \alpha + \sum_{i=1}^p \beta_i y_{t-i} + \sum_{j=1}^p \delta_j x_{t-j} + \varepsilon_t$$

(2) Obtain the fitted values (y) from the estimated ARDL model.

(3) Construct the auxiliary regression by adding powers of the fitted values to the original model:

$$y_t = \alpha + \sum_{i=1}^p \beta_i y_{t-i} + \sum_{j=1}^p \delta_j x_{t-j} + \varepsilon_t + \sum_{k=2}^m \gamma_k y_t^k + ut$$

- Here, y_t are the fitted values from the original ARDL model.
- y_t^k are higher-order powers (e.g., squares, cubes) of the fitted values.
- m is the maximum power to be included in the auxiliary regression.
- ut is the new error term.

(4) Test the joint significance of the added terms ($\gamma_2, \gamma_3, \dots, \gamma_m$):

- The null hypothesis (H_0) of the Ramsey RESET test is that the model is correctly specified (i.e., $\gamma_2 = \gamma_3 = \dots = \gamma_m = 0$).
- The alternative hypothesis (H_1) is that the model is mis specified (i.e., at least one $\gamma_k \neq 0$).

(5) Compute the F-statistic for the joint significance of the added terms:

$$F = \frac{(RSS_{\text{restricted}} - RSS_{\text{unrestricted}})/(m - 1)}{RSS_{\text{unrestricted}}/(n - k - m)}$$

- $RSS_{\text{restricted}}$ is the residual sum of squares from the original ARDL model.

- $RSS_{unrestricted}$ is the residual sum of squares from the auxiliary regression.
- n represents the quantity of observations.
- k represents the quantity of regressors in the original model.
- m represents the quantity of supplementary terms incorporated (exponents of the fitted values).

(6) Compare the F-statistic to the critical value from the F-distribution:

- If the F-statistic exceeds the critical value at a chosen significance level, reject the null hypothesis, indicating model misspecification.

3.7 Validity and Reliability

This study focused on ensuring the validity and reliability of the econometric model. Validity was confirmed using rigorous co-integration testing, utilising the Autoregressive Distributed Lag (ARDL) Bound Testing method (Pesaran et al., 2001) to establish a stable long-term link among the variables. The model was meticulously linked with the theoretical foundations of the study to ensure it appropriately represented the hypothesised relationships.

Robustness checks were essential for evaluating the model's reliability. The stationarity of the data series was assessed by the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests to confirm its suitability for the ARDL framework. Multicollinearity was mitigated by Variance Inflation Factor (VIF) analysis to ensure the predictor variables were adequately independent. The Breusch-Pagan and White tests were employed to assess heteroscedasticity, confirming that the residuals had constant variance. Adjustments, including robust standard errors, were implemented as needed to address any detected concerns.

Diagnostic assessments, comprising the Jarque-Bera test for normality and the Durbin-Watson statistic for autocorrelation, were performed to verify the sufficiency of the model specification. Varying lag lengths and alternative model specifications were tested to assess the consistency and robustness of the findings. To further bolster reliability, the results were cross validated with findings from prior empirical studies in the field (Wooldridge, 2010). This approach ensured the robustness and generalisability of the conclusions, enhancing the credibility and academic rigour of the study.

3.8 Ethical Considerations

Ethical considerations were meticulously observed throughout the research process. The use of secondary data, which is publicly accessible, mitigates concerns related to participant consent (Tripathy, 2013). However, the study adhered to strict ethical standards to ensure data confidentiality and integrity. The legal frameworks governing the use of such data were carefully considered to avoid any ethical breaches (Rojas-Avila & Reynaldos-Grandón, 2023). Ethical considerations were integrated into every phase of the research, from data collection to analysis and reporting, ensuring that the study was conducted responsibly and ethically (Robson & McCartan, 2016; Whiting & Pritchard, 2018).

3.9 Chapter Summary

This chapter has provided a thorough description of the research methodology that was employed to investigate the variables impacting the rate of life insurance adoption in Zimbabwe. The text has clearly explained the research philosophy, paradigm, and design that form the foundation of the methodological framework. The target group was explicitly delineated, and the data collection techniques were comprehensively explained. In addition, the chapter included a comprehensive description of the methodologies utilised for data presentation and analysis, the econometric model, and the estimating techniques employed. The research findings were extensively addressed in terms of validity, reliability, and ethical considerations, ensuring their robustness and integrity. The next chapter addresses the presentation, analysis, and interpretation of the data and results.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

This chapter examines and contributes to the discussion of collected data investigating life insurance penetration challenges within Zimbabwe's largely informal economy. The macroeconomic data analysis, conducted using Stata version 14.2, thoroughly explores relationships with informal sector size, per capita income, inflation, financial development, demographic factors and institutional determinants. The study employs advanced econometric techniques to investigate both short and long term dynamics through an autoregressive distributed lag framework. Subsequently, the findings are meticulously interpreted and contextualised within broader economic theory, with each hypothesis from Chapter 1 systematically evaluated against empirical outcomes. The data analysis determines acceptance or rejection of these hypotheses. Furthermore, the chapter considers the policy implications and practical significance of the results for both government decision makers and industry participants.

4.2 Descriptive Statistics

The descriptive statistics in Table 4.1 give some insight into the challenges of life insurance penetration in a largely informal economy like Zimbabwe. This analysis thus sheds light on the underlying factors which have suppressed the growth of life insurance coverage in the country. Each variable of the study is interpreted to its potential influence on life insurance penetration, with more emphasis being put into providing a comprehensive analysis.

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>LINSP</i>	32	1.486	0.573	0.300	2.600
<i>INF</i>	32	60.810	1.302	58.467	64.438
<i>INC</i>	32	10142.870	1967.796	5911.615	13003.930
<i>CPI</i>	32	45.870	122.607	-27.049	604.946
<i>CBI</i>	32	15.592	9.953	1.620	44.493
<i>FIND</i>	32	19.334	14.770	5.238	84.812
<i>UNEMP</i>	32	5.793	1.292	4.390	9.540
<i>DEP</i>	32	80.844	6.879	72.504	98.226

LEXP	32	54.378	7.153	42.487	63.862
EDU	32	5.239	5.686	0.571	19.763

Source: Author's Calculations in Stata 14.2 (2024)

4.2.1 Life Insurance Penetration (LINSP)

The mean value calculated for life insurance penetration is 1.486, which indicates that the population of the country under study is relatively underinsured. A standard deviation of 0.573 points to a moderate variation in life insurance throughout the dataset. The range from minimum to maximum goes by 0.300 to 2.600, respectively; that narrows the range considerably, with even the highest observed penetration rate considered low by international standards (Swiss Re, 2024). All these put together would indicate a very high underutilisation of life insurance services. A fact by itself that, considering the role insurance services play in providing financial security and stability, should raise an alarm.

4.2.2 Informal Sector Size (INF)

The share of the informal sector in Zimbabwe's economy is quite high, having a mean percentage value as high as 60.810%. Coupling such a dominant informal economy, together with a low standard deviation of 1.302%, implies that at any point in time, between 58.467% and 64.438%, informality is dominant and stable.

The huge size of the informal sector, therefore, acts like an enormous barrier to the permeation of life insurance, as those who largely operate in the informal structures find it hard to benefit from associated products. Besides, informality is often characterized by low levels of income stability, hence making it hard for households to afford the long-term commitments that come with insurance (Afriyie et al., 2023, Silumbwe et al., 2024).

4.2.3 Per capita Income (INC)

The average per capita income is \$ 10,142.87, which is rather even before the expenses from the life insurance premiums. A high value of standard deviation at 1967.80 indicates great variance in levels of income that this sample has, with values running between an average minimum of \$ 5911.615 and a maximum of \$ 13,003.930, respectively.

Considering this, unequal incomes within the country may be one of the reasons for the uneven uptake of life insurance, as the lower bracket of income may find it financially unfeasible to invest in the same, as pointed out by Schanz (2020a). Overall, these levels of income would indicate that a quite reasonable percentage of the population may arguably put more immediate financial needs ahead of long-term risk management.

4.2.4 Inflation (CPI)

In a similar vein, inflationary pressure is extreme, as denoted by the mean of 45.87%, while the standard deviation is very high at 122.607. The fact that inflation ranges from -27.049% in the case of deflation to a whopping 604.946% underlines the volatility in the macroeconomic environment. High inflation weakens the purchasing power of households and makes financial planning, including investment in life insurance, more uncertain (Chakraborty & Das, 2022). Such economic instability, along with variable price changes, which are highly volatile, may manage only to wreak havoc on consumer confidence in long-term financial products and further hold down insurance penetration.

4.2.5 Central Bank Independence (CBI)

The mean of 15.592 means that the index of independence of the central bank was rated rather low, a fact which could suggest that the monetary authority in Zimbabwe is likely to be relatively constrained in formulating and exercising independent policies. Non-independence may further lead to economic instability (Romelli, 2022), a condition which adversely affects the uptake of life assurance.

The mean standard deviation being 9.953 is an implication that there has been huge variability in the central bank independence, ranging from 1.620 to 44.493. Low independence of the central bank may cause, amongst others, problems with inflation in Zimbabwe and make conditions unfavourable for the development of the insurance sector (Garriga & Rodriguez, 2020).

4.2.6 Financial Development (FIND)

The financial development level appears similarly low, evidenced by a mean value of 19.334. The substantial standard deviation of 14.770 indicates significant disparities in financial development across regions or time periods. With values ranging from 5.238 to 84.812, the

data suggest that while certain areas or periods demonstrate advanced financial development, most remain underdeveloped. This limited financial development restricts access to formal financial services, including life insurance, thereby impeding insurance sector growth due to constrained financial infrastructure within the economy (Cheng & Hou, 2022).

4.2.7 Rate of Unemployment (UNEMP)

This is relatively low, considering the average unemployment rate of 5.793, but again this should be put into a context that may mask some of the problems since the informal sector is quite big. A small unemployment rate in a very informal economy can suggest that people may be employed in very low productivity or somewhat precarious employment. The standard deviation is 1.292, with a minimum unemployment rate of 4.390% and a maximum of 9.540%; hence, even low unemployment rates correspond to a diminished level of disposable income, so affecting the capacity to purchase life insurance.

It is worth noting that the International Labour Organisation (2022), had earlier estimated the informal employment of Zimbabwe at 76% as of 2019. The low unemployment rate indicates that a significant portion of the nation's work force in the informal sector is regarded as employed.

4.2.8 Dependency Ratio (DEP)

Having a mean dependency ratio as high as 80.844% would indicate that most of the portions of the population are either very young or elderly members who are dependent on the working age group financially. The standard deviation of 6.879 points reflects variability in the dependence ratios, ranging from 72.504% to 98.226%. The high dependency ratios reduce the ability for discretionary spending on products, like life insurance, and are thus a big financial burden on the household. In short, this acts as a deterrent to the growth of insurance markets. According to certain studies, an increase in the population in the dependency category results in a lower demand for life insurance (Zhang et al., 2023).

4.2.9 Life Expectancy (LEXP)

Particularly low, a life expectancy of 54.378 obviously affects the need and availability of life insurance products. This low life expectancy with a standard deviation of 7.153 shows immense health challenges among the people. The range from 42.487 to 63.862 indicates disparities in

health outcomes. In life insurance, a low expectancy can drive up perceived risk in the eyes of the insurance providers, thus leading to higher premiums and further deterring uptake. On the other hand, this may increase perceived risk in the eyes of the consumers thereby increasing demand for risk products (Hodula, Janků, Časta, & Kučera, 2020; Kura & Legass, 2021).

4.2.10 Insurance Literacy (EDU)

The mean for insurance literacy is 5.239, which is very low, hence alarmingly so for the average knowledge of the population toward life insurance products and their benefits. An even bigger illustration of the high dispersion of the literacy level would be its standard deviation being 5.686, while the minimum equals 0.571 and the maximum is 19.763. Poor insurance literacy prevents people from understanding the importance of life insurance and how to use it (Kiwanuka & Sibindi, 2023; Wang et al., 2021). This knowledge gap is a significant structural barrier to life insurance penetration, as consumers are typically unable to fully appreciate the utility of such financial instruments.

4.2.11 Descriptive Statistics Summary

The life insurance penetration of Zimbabwe is typically low due to structural and macroeconomic challenges, including the prevalence of informal activities, low per capita income, high inflation, and limited financial development, as indicated by the descriptive statistics. These also result in low life expectancy, high dependency ratios, and low levels of insurance literacy, which in turn exacerbates this issue for the insurance industry. These results would therefore tend to imply that any endeavour to increase the level of life insurance penetration among the Zimbabwean population is supportive, or rather complementary, to the general efforts to increase access to and knowledge of life insurance products. This includes the acquisition of financial inclusion and economic stability, as well as the provision of education that facilitates the increased awareness and accessibility of life insurance products in Zimbabwe.

4.3 Correlation Matrix

The correlation matrix in Table 4.2 provides a comprehensive overview of the interrelationships among the economic and social variables assessed in relation to life insurance penetration (LINSPI) in Zimbabwe. Each coefficient reflects both the strength and direction of association between variables, while the reported p-values indicate whether these relationships

are statistically significant. The results are critical for identifying which structural and macroeconomic factors may act as constraints or enablers of insurance uptake, particularly in the context of Zimbabwe's predominantly informal economy. Understanding these relationships is essential for developing targeted interventions aimed at improving penetration rates, as statistically significant associations provide more reliable insights into causally relevant dynamics.

Table 4.2: Correlation Matrix

	LINS P	INF	INC	CPI	CBI	FIND	UNEM P	DEP	LEXP	EDU
LINS P	1.000	-0.5706 *	0.5024 *	-0.2797	0.3378	0.4237 *	-0.1183	0.0256	-0.0466	-0.1366
INF	-0.5706 *	1.000	-0.6938 *	-0.0323	-0.1346	-0.2872	-0.0508	-0.3556 *	-0.1044	-0.0298
INC	0.5024 *	-0.6938 *	1.000	-0.2035	-0.0114	0.2476	0.0142	0.5102 *	0.1588	-0.1813
CPI	-0.2797	-0.0323	-0.2035	1.000	-0.4108 *	-0.3347	0.7058*	-0.3681 *	0.4245 *	0.7906 *
CBI	0.3378	-0.1346	-0.0114	-0.4108 *	1.000	0.5456 *	-0.4130*	-0.1592	-0.6024 *	-0.4637 *
FIND	0.4237 *	-0.2872	0.2476	-0.3347	0.5456 *	1.000	-0.3385	-0.0268	-0.4298 *	-0.4245 *
UNEM P	-0.1183	-0.0508	0.0142	0.7058 *	-0.4130 *	-0.3385	1.000	-0.4257 *	0.4308 *	0.8076 *
DEP	0.0256	-0.3556 *	0.5102 *	-0.3681 *	-0.1592	-0.0268	-0.4257*	1.000	0.2199	-0.3992 *
LEXP	-0.0466	-0.1044	0.1588	0.4245 *	-0.6024 *	-0.4298 *	0.4308*	0.2199	1.000	0.7076 *
EDU	-0.1366	-0.0298	-0.1813	0.7906 *	-0.4637 *	-0.4245 *	0.8076*	-0.3992 *	0.7076 *	1.000

* Correlation is significant at the 0.05 level (two-tailed).

Source: Author's Calculations in Stata 14.2 (2024)

4.3.1 Informal Sector Size and Life Insurance Penetration

The correlation between LINS_P and the informal sector size (INF) is -0.5706 , which is statistically significant at the 1% level ($p < 0.01$). This moderately strong inverse relationship confirms that a larger informal economy is associated with lower life insurance penetration.

The result aligns with studies such as Ampaw et al. (2018), which highlight how informality restricts access to regulated financial services. Informal sector workers often experience income instability, limited access to banking facilities, and lower financial literacy, all of which reduce their ability to purchase insurance (Gubwe et al., 2024; Silumbwe et al., 2024). In Zimbabwe's case, the structural dominance of informal employment remains a major barrier to expanding life insurance coverage, as a substantial proportion of the population operates outside formal wage and benefit systems.

4.3.2 Per Capita Income and Life Insurance Penetration

Per capita income (INC) is positively correlated with LINSP at 0.5024, with statistical significance at the 1% level ($p < 0.01$). This strong relationship indicates that higher income levels are associated with greater adoption of life insurance products. The finding is consistent with Iyawe & Osamwonyi (2021) and Kabrt (2022), who demonstrate that higher earnings increase disposable income available for long-term investments such as life insurance. In Zimbabwe's economic environment, characterised by income inequality and vulnerability to macroeconomic shocks, the affordability of insurance products remains a challenge for low-income households. Hence, income growth initiatives, alongside inclusive product design, could be central to increasing penetration rates.

4.3.3 Inflation and Life Insurance Penetration

The correlation between inflation (CPI) and LINSP is -0.2797 , though this result is not statistically significant ($p > 0.05$). While the absence of statistical significance suggests caution in interpretation, the negative coefficient is consistent with theoretical expectations. Inflation erodes purchasing power, leading households to prioritise immediate consumption needs over long-term financial commitments (Li, 2021). Furthermore, unless life insurance benefits are inflation-indexed, rising prices may reduce the perceived value of payouts (Schanz & Treccani, 2023). Even without statistical confirmation, these mechanisms remain economically plausible in explaining inflation's potential dampening effect on insurance demand.

4.3.4 Central Bank Independence and Life Insurance Penetration

Central bank independence (CBI) demonstrates a positive correlation of 0.3378 with LINSP, although this association is not statistically significant ($p > 0.05$). While not conclusive, the positive relationship supports literature suggesting that independent central banks contribute to

macroeconomic stability by controlling inflation and enhancing investor confidence (Galí, 2020a, 2020b; Pisani-Ferry & Blanchard, 2020). A more autonomous central bank in Zimbabwe could create a stable environment in which long-term financial products like life insurance can thrive.

4.3.5 Financial Development and Life Insurance Penetration

The correlation between financial development (FIND) and LINSPI is 0.4237, which is statistically significant at the 5% level ($p < 0.05$). This moderately strong positive relationship is consistent with prior findings (Sanjeewa, 2021; Srbinoski et al., 2021) showing that deeper financial markets facilitate greater access to diverse financial products, including life insurance. Well-developed financial systems not only improve distribution channels but also strengthen public trust in financial products, thus encouraging uptake.

4.3.6 Unemployment and Life Insurance Penetration

Unemployment (UNEMP) is negatively correlated with LINSPI at -0.1183 , though this relationship is not statistically significant ($p > 0.05$). While weak in magnitude, the negative direction aligns with evidence that higher unemployment reduces disposable income, limiting the ability to purchase insurance (Simionescu, 2022; Segodi & Sibindi, 2022). Unemployed individuals are more likely to allocate scarce resources to basic needs rather than discretionary financial products.

4.3.7 Dependency ratio and Life Insurance Penetration

The dependency ratio (DEPR) exhibits a negligible positive correlation (0.0256) with LINSPI, with no statistical significance ($p > 0.05$). This finding suggests that demographic dependency exerts minimal direct influence on insurance uptake in Zimbabwe. This contrasts with evidence from other contexts, such as Oteng, Lartey, & Amofa (2023), which suggests that higher dependency ratios may drive greater insurance demand as earners seek to protect dependants.

4.3.8 Life Expectancy and Life Insurance Penetration

Life expectancy (LEXP) has a very weak negative correlation (-0.0466) with LINSPI, which is not statistically significant ($p > 0.05$). This negligible association may reflect overriding

structural and economic constraints that hinder investment in life insurance, even when longevity increases.

4.3.9 Insurance literacy and Life Insurance Penetration

Insurance literacy (EDU) is negatively correlated with LINSP at -0.1366 , with no statistical significance ($p > 0.05$). This counterintuitive result contradicts studies such as Ehiorobo (2020) and Kiwanuka & Sibindi (2023), where higher literacy correlates with greater uptake. The finding may reflect that awareness alone is insufficient when affordability constraints and institutional mistrust persist.

4.3.10 Informal Sector and Income

The relationship between INF and INC is strongly negative (-0.6938) and statistically significant at the 1% level ($p < 0.01$). This suggests that as the informal sector expands, average income levels decline significantly. This is consistent with the view that informal employment often lacks the wage stability, benefits, and upward mobility associated with formal sector jobs (Gubwe et al., 2024; Silumbwe et al., 2024). Lower incomes, in turn, limit the financial capacity to invest in life insurance products.

4.3.11 Inflation and Literacy

Inflation (CPI) has a strong positive correlation (0.7906) with insurance literacy (EDU), statistically significant at the 1% level ($p < 0.01$). This suggests that inflationary pressures may heighten public awareness of financial protection mechanisms, possibly due to increased economic uncertainty. However, even with greater literacy, affordability remains a critical constraint on actual uptake.

4.3.12 Unemployment and Inflation

The pronounced negative correlation of -0.6938 between the informal sector's size and per capita income indicates that an expansion of the informal sector corresponds with a decrease in income levels. This conclusion aligns with the observation that informal work frequently lacks the stability, benefits, and higher remuneration characteristic of formal sector positions (Gubwe et al., 2024; Silumbwe et al., 2024). Consequently, individuals in the informal sector are less inclined to possess the financial means to invest in life insurance.

4.3.13 Life Expectancy and Literacy

The correlation between LEXP and EDU is 0.7076, statistically significant at the 1% level ($p < 0.01$). This strong positive relationship suggests that populations with longer life expectancy tend to have higher levels of insurance literacy, possibly due to a greater need for long-term financial planning. While this might be expected to boost insurance uptake, other economic and structural barriers may prevent literacy from translating into penetration.

4.3.14 Correlation Matrix Summary

The analysis identifies several statistically significant relationships—particularly between INF and LINSP, INC and LINSP, FIND and LINSP, and INF and INC—that have direct implications for policy interventions. The findings highlight that the informal sector, income levels, and financial development are key structural factors influencing life insurance penetration in Zimbabwe. While some relationships, such as those involving inflation, unemployment, and literacy, are theoretically important, their lack of statistical significance suggests they may be mediated by other unobserved factors. Importantly, all correlation coefficients fall below the (0.8) threshold recommended by Schreiber-Gregory (2018), indicating that multicollinearity is not a concern for subsequent regression modelling.

4.4 Lag Length Selection

Table 4.3, which presents the lag length selection, is crucial for identifying the ideal number of prior values (lags) of each variable to be incorporated in an Autoregressive Distributed Lag (ARDL) model (Kripfganz & Schneider, 2018). This decision is crucial for elucidating the dynamics of life insurance penetration (LINSP) in Zimbabwe, a nation marked by a predominantly informal economy. The ARDL model facilitates the examination of both short-term and long-term interactions between the dependent variable, life insurance penetration, and its determinants, while also considering the influence of historical values of each variable (Kripfganz & Schneider, 2018). Table 4.3 shows the lags that were applied by the research for Life Insurance Penetration throughout the study for estimation.

Table 4.3: Lag Length Selection: Life Insurance Penetration

Variable	Selected Lag	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval
LINSP	2	-2.337963	0.4670147	-5.01	0.015	-3.824212, -0.8517137

INF	1	0.6068946	0.1707302	3.55	0.038	0.0635549, 1.150234
INC	2	0.0005991	0.000128	4.68	0.018	0.0001918, 0.0010064
CPI	2	-0.004619	0.0011786	-3.92	0.030	-0.0083699, -0.0008681
CBI	2	0.0982556	0.022375	4.39	0.022	0.0270485, 0.1694627
FIND	2	0.0613334	0.0159564	3.84	0.031	0.010553, 0.1121137
UNEMP	2	-0.7281663	0.15157	-4.80	0.017	-1.21053, -0.245803
DEP	2	-2.477321	0.371385	-6.67	0.007	-3.659233, -1.295408
LEXP	2	0.4993684	0.076598	6.52	0.007	0.2555993, 0.7431375
EDU	1	0.388363	0.1357678	2.86	0.065	-0.0437108, 0.8204368

Source: Author's Calculations in Stata 14.2 (2024)

4.4.1 Interpretation of the Lag Length Selection Results from Table 4.3

The lag length for each variable has been determined using an information criterion, typically the Akaike Information Criterion (AIC) or the Schwarz Criterion (SC), which aims to balance model accuracy with parsimony (Kura and Legass, 2021). The ARDL model incorporates the best lag structure for both dependent and independent variables to effectively capture the dynamics of life insurance penetration in Zimbabwe's predominantly informal sector. Presented above is a comprehensive examination of the lag selection for each variable.

4.4.2 Dependent Variable: Life Insurance Penetration (LINSPI)

The optimal lag length for the dependent variable, life insurance penetration (LINSPI), is 2, indicating that the values of LINSPI from the previous two periods (t-1 and t-2) would be utilised to elucidate the present value. This suggests that life insurance penetration exhibits a degree of persistence, where its past behaviour influences its current state. Therefore, previous changes in life insurance penetration have lasting effects over two periods, and the model accounts for this by incorporating these lags.

4.4.3 Independent Variables

4.4.3.1 Informal Sector Size (INF)

The lag length for the informal sector size is 1, indicating that only the previous period's value (t-1) of the informal sector is included in the model to explain life insurance penetration. The relatively short lag length suggests that changes in the informal sector's size have an immediate

effect on life insurance penetration and do not require multiple periods to manifest. This may reflect the rapid adjustment of life insurance penetration in response to fluctuations in informal economic activity.

4.4.3.2 Per Capita Income (INC)

The model includes 2 lags of per capita income, meaning that the past two periods' values ($t-1$ and $t-2$) of income are considered necessary to capture its full effect on life insurance penetration. This indicates that changes in per capita income affect life insurance penetration over a longer time horizon, with the influence of income on life insurance uptake persisting over two periods.

4.4.3.3 Inflation (CPI)

The lag length for inflation is 2, indicating that the inflation rates from the previous two periods ($t-1$ and $t-2$) are needed to explain life insurance penetration. Inflation is a factor that can exert a delayed and enduring influence on economic choices, including the acquisition of life insurance. The incorporation of two lags signifies the enduring impact of inflationary pressures on life insurance penetration, presumably via its effect on disposable income and economic stability.

4.4.3.4 Central Bank Independence (CBI)

The optimal lag length for central bank independence is 2, indicating that the level of central bank independence in the two prior eras ($t-1$ and $t-2$) is utilised to elucidate current life insurance penetration. The influence of central bank independence on life insurance penetration across two periods indicates its stabilising role in the economy, with effects observed over an extended duration.

4.4.3.5 Financial Development (FIND)

The model incorporates two lags of financial growth, signifying that financial development from the preceding two eras ($t-1$ and $t-2$) is crucial for fully understanding its impact on life insurance penetration. This indicates that enhancements in the financial sector, including the accessibility of financial services and the advancement of capital markets, had a lasting and cumulative influence on life insurance penetration.

4.4.3.6 Unemployment Rate (UNEMP)

The optimal lag length for unemployment is 2, indicating that the unemployment rates from the preceding two periods (t-1 and t-2) are incorporated into the model. The enduring influence of the unemployment rate on life insurance penetration may result from the lagged nature of its effects. High unemployment may reduce disposable income and limit the ability of individuals to purchase life insurance, but these effects may take time to fully materialise.

4.4.3.7 Population Dependency Ratio (DEP)

The dependency ratio has a lag length of 2, meaning that the population dependency ratio from the previous two periods (t-1 and t-2) is necessary to explain life insurance penetration. This illustrates the demographic influence on life insurance demand, which may require time to impact the life insurance market, particularly since alterations in the dependency ratio affect the economic burden on the working-age population.

4.4.3.8 Life Expectancy (LEXP)

The model includes 2 lags of life expectancy, indicating that life expectancy from the past two periods (t-1 and t-2) influences life insurance penetration. The extended lag length indicates that variations in life expectancy influence the demand for life insurance over an extended duration, perhaps owing to alterations in individuals' long-term financial security planning.

4.4.3.9 Insurance Literacy (EDU)

The lag length for insurance literacy is 1, meaning that only the previous period's (t-1) value of insurance literacy is needed to explain life insurance penetration. This indicates that the influence of insurance literacy exerts a more direct effect on life insurance penetration, wherein enhancements in public comprehension of insurance are swiftly manifested in heightened demand.

4.4.3.10 Summary of Lag Length Selection

The majority of the independent variables (LINSPI, INC, CPI, CBI, FIND, UNEMP, DEP, LEXP) were allocated a lag length of 2, signifying that their impacts on life insurance penetration are not instantaneous but endure across two periods. This illustrates the intricate relationships between life insurance penetration and its determinants, wherein alterations in income, inflation, central bank policies, financial development, unemployment, dependency ratios, and life expectancy require time to fully materialise in life insurance penetration. In

contrast, INF (informal sector size) and EDU (insurance literacy) have a lag length of 1, suggesting that their effects on life insurance penetration are more immediate and do not persist over multiple periods.

The selected optimum lag lengths for the ARDL model provide a thorough analysis of the short-term and long-term impacts of diverse macroeconomic, demographic, and financial factors on life insurance penetration in Zimbabwe's predominantly informal sector. By integrating the appropriate number of lags for each variable, the ARDL model effectively captured the dynamic interactions between life insurance penetration and its principal determinants, yielding significant insights into the factors influencing the demand for life insurance in this economic context.

4.5 Pre-Estimation Diagnostic Tests

4.5.1 Unit Root Tests

The Unit Root Test results offer critical insights into the stationarity of each variable (Ghouse et al., 2018). The results are crucial for identifying the suitable econometric model, particularly the autoregressive distributed lag (ARDL) model, which allows for variables integrated of varying orders, namely I(0) and I(1), but excludes I(2) or higher (McNown et al. 2023). Below is a detailed interpretation of each variable and the implications for the ARDL model.

Table 4.4: Dickey-Fuller Test Results for Unit Roots

Variable	Level	Test Statistic (Z(t))	Critical Value (5%)	P-Value	Stationarity/Conclusion	Order of Integration
Life insurance penetration (LINSPI)	(Level)	-2.22	-2.622	0.1990	Non-Stationary (Fail to reject null hypothesis)	I(0)
	(First Difference)	-3.555	-2.623	0.0067	Stationary (Reject null hypothesis)	I(1)
Life insurance density (LIDENS)	(Level)	-2.452	-2.980	0.1275	Non-Stationary (Fail to Reject null hypothesis)	I(0)
	(First Difference)	-5.558	-2.983	0.0000	Stationary (Reject null hypothesis)	I(1)
Informal sector size (INF)	(Level)	-1.754	-2.980	0.4037	Non-Stationary (Fail to Reject null hypothesis)	I(0)
	(First Difference)	-6.219	-2.983	0.0000	Stationary (Reject null hypothesis)	I(1)
Per capita income (INC)	(Level)	-1.312	-2.980	0.6238	Non-Stationary (Fail to Reject null hypothesis)	I(0)
	(First Difference)	-3.981	-2.983	0.0015	Stationary (Reject null hypothesis)	I(1)
Inflation (CPI)	(Level)	-2.893	-2.980	0.0661	Stationary (Fail to Reject null hypothesis)	I(0)

	(First Difference)	-10.061	-2.983	0.0000	Stationary (Reject null hypothesis)	I(1)
Central Bank Independence (CBI)	(Level)	-2.497	-2.980	0.1163	Non-Stationary (Fail to Reject null hypothesis)	I(0)
	(First Difference)	-6.068	-2.983	0.0000	Stationary (Reject null hypothesis)	I(1)
Financial development (FIND)	(Level)	-2.860	-1.697	0.0038	Stationary (Reject null hypothesis)	I(0)
Unemployment (UNEMP)	(Level)	0.900	-2.980	0.9931	Non-Stationary (Fail to Reject null hypothesis)	I(0)
	(First Difference)	-3.005	-2.983	0.0345	Stationary (Reject null hypothesis)	I(1)
Dependency (DEP)	(Level)	-3.711	-2.980	0.0040	Stationary (Reject null hypothesis)	I(0)
Life expectancy (LEXP)	(Level)	-0.745	-2.980	0.8347	Non-Stationary (Fail to Reject null hypothesis)	I(0)
	(First Difference)	-3.646	-2.983	0.0049	Stationary (Reject null hypothesis)	I(1)
Insurance literacy (EDU)	(Level)	1.090	-2.980	0.9951	Non-Stationary (Fail to Reject null hypothesis)	I(0)
	(First Difference)	-3.173	-2.983	0.0216	Stationary (Reject null hypothesis)	I(1)

Source: Author's Calculations in Stata 14.2 (2024)

4.5.2 Interpretation of Unit Root Test Results

4.5.2.1 Life Insurance Penetration

The unit root test results, with a p-value of 0.0067, indicate that life insurance penetration is non-stationary in its level form but attains stationarity after first differencing, thereby classifying it as integrated of order one, I(1). This pattern suggests that the series follows a long-term trend, likely shaped by structural and macroeconomic developments in Zimbabwe. The I(1) nature implies that shocks—whether arising from policy reforms, market disruptions, or broader economic shifts—are likely to have enduring effects. In the ARDL modelling framework, the variable will therefore be expressed in first differences to accurately capture short-run dynamics while preserving its long-run equilibrium relationship with other determinants.

4.5.2.2 Informal Sector Size

With a p-value of 0.0000, the informal sector size is also found to be I(1), meaning it is non-stationary at the level but becomes stationary upon first differencing. This behaviour reflects its inherent volatility and long-term trend, which in Zimbabwe is driven by macroeconomic instability, regulatory constraints, and structural labour market deficiencies. The I(1) classification indicates that shocks to the informal sector—such as policy changes, currency reforms, or economic crises—are persistent rather than transitory. Accordingly, in the ARDL

model, it must be incorporated in differenced form to properly assess its long-run association with life insurance penetration.

4.5.2.3 Per Capita Income

The results show that per capita income, with a p-value of 0.0015, is non-stationary at the level but stationary after first differencing, thus also classified as $I(1)$. As a macroeconomic indicator, income typically reflects a nation's long-run growth trajectory, structural policy changes, and income distribution patterns. If left in non-stationary form, it could lead to spurious regression outcomes. Therefore, the ARDL model applies the first difference of income to ensure statistical validity while retaining the ability to assess its long-term influence on life insurance penetration.

4.5.2.4 Inflation

Inflation, with a p-value of 0.0461, is stationary at the level, $I(0)$. This indicates that it fluctuates around a stable mean without exhibiting a persistent upward or downward trend. Stationarity implies that inflation shocks—such as those triggered by commodity price changes or monetary policy adjustments—are likely to be temporary, with the variable reverting to its mean over time. Consequently, inflation can be directly incorporated into the ARDL model in its level form without differencing.

4.5.2.5 Central Bank Independence

The variable representing central bank independence (CBI) has a p-value of 0.0000 and is classified as $I(1)$, indicating non-stationarity at the level but stationarity after first differencing. This is consistent with the nature of institutional variables, which evolve gradually in response to governance reforms, legislative changes, or shifts in policy frameworks. Greater CBI can influence inflation control and macroeconomic stability over time. In the ARDL model, CBI will be entered in differenced form to reflect its long-run role in shaping life insurance penetration.

4.5.2.6 Financial Development

Financial development, with a p-value of 0.0038, is stationary at the level ($I(0)$), suggesting that its fluctuations are short-lived and revert to a long-term mean. This stability could be indicative of a relatively steady state in Zimbabwe's financial infrastructure or of cyclical

variations rather than a sustained trend. Its stationarity allows it to be included in the ARDL model in level form, avoiding the need for transformation.

4.5.2.7 Unemployment

The unemployment rate, with a p-value of 0.0345, is $I(1)$, confirming non-stationarity at the level and stationarity after first differencing. Given that unemployment is often influenced by cyclical and structural economic conditions, its persistence over time is unsurprising. In Zimbabwe, prolonged high unemployment could dampen demand for life insurance, making its inclusion in differenced form in the ARDL model necessary to capture these long-term effects.

4.5.2.8 Dependency Ratio

The dependency ratio, with a p-value of 0.0461, is stationary at the level ($I(0)$), indicating that it oscillates around a constant mean without trending over time. As a demographic measure, it tends to be relatively stable in the short to medium term, changing gradually with shifts in birth rates, mortality, and migration. Its stationarity allows it to be incorporated in the ARDL model in its level form.

4.5.2.9 Life Expectancy

Life expectancy, with a p-value of 0.0049, is classified as $I(1)$, implying non-stationarity at the level but stationarity upon first differencing. Improvements in life expectancy generally follow long-term trends, influenced by healthcare advances, economic development, and public health policies. In the ARDL framework, the variable will be included in differenced form to appropriately account for its persistent nature.

4.5.2.10 Insurance Literacy

Insurance literacy, with a p-value of 0.0216, is $I(1)$, showing non-stationarity at the level and stationarity after first differencing. This pattern suggests that public understanding of insurance evolves over time, possibly due to educational initiatives, market exposure, or policy interventions. As with other $I(1)$ variables, its first-differenced form will be used in the ARDL model to examine its long-run relationship with life insurance penetration while avoiding spurious correlations.

4.5.3 Justification for ARDL Model Usage

The ARDL model is especially appropriate for this investigation because to its capacity to handle a combination of variables integrated at $I(0)$ and $I(1)$ (Ghouse, Khan, & Rehman, 2018). In this instance, certain variables, including inflation, financial development, and dependence ratio, are fixed at level $I(0)$, whereas others, such as life insurance penetration, informal sector size, income, and unemployment rate, are integrated of order one $I(1)$. This adaptability is crucial for examining the short-term and long-term dynamics of life insurance uptake in Zimbabwe's predominantly informal economy.

4.5.4 Key Considerations for ARDL Modelling

4.5.4.1 Short-Run Dynamics: The ARDL model encapsulated the short-term impacts of the $I(1)$ variables via their first differences. This is particularly relevant for variables such as income, life expectancy, and unemployment, which may have immediate but transitory effects on life insurance penetration.

4.5.4.2 Long-Run Relationships: The ARDL model facilitated the calculation of long-run equilibrium relationships between life insurance penetration and its drivers, integrating both $I(0)$ and $I(1)$ variables. This is essential for comprehending how elements like financial development and inflation affect life insurance penetration over prolonged durations.

4.5.4.3 No $I(2)$ Variables: It is crucial to acknowledge that none of the variables were integrated of order two or higher, $I(2)$. The ARDL model is incapable of accommodating variables that necessitate more than first differencing to achieve stationarity, hence rendering the data appropriate for this modelling technique.

In conclusion, the findings of the Unit Root Test unequivocally supported the use of the ARDL model in this study, as the variables demonstrated a combination of stationary characteristics. The ARDL model effectively captured both the short-run and long-run factors of life insurance penetration in Zimbabwe's predominantly informal economy by incorporating $I(0)$ and $I(1)$ variables.

4.6 ARDL Model: Life insurance Penetration

The Stata results in Tables 4.5a and 4.5b offer a comprehensive analysis of the long-term and short-term dynamics influencing life insurance penetration (LINSPI) in Zimbabwe. An Autoregressive Distributed Lag (ARDL) model is employed to analyse both short-term volatility and long-term equilibrium linkages among variables within Zimbabwe's predominantly informal sector. The ARDL model facilitates the analysis of the impact of macroeconomic and demographic variables on life insurance penetration from 1992 to 2022. The discussions in Section 4.6.3 evaluate the model results in relation to the stated hypotheses (H1 to H9) and determine whether each should be rejected or not rejected, based on the statistical significance and the direction of the estimated coefficients.

Table 4.5a: Long-Run (LR) ARDL Model Results – Life Insurance Penetration

Variable	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval	Significance
INF	0.2517	0.0473	5.32	0.013	[0.1012, 0.4021]	**
CPI	-0.0014	0.0006	-2.13	0.123	[-0.0034, 0.0007]	
CBI	0.0190	0.0048	3.93	0.029	[0.0036, 0.0343]	**
INC	0.0002	0.0001	4.16	0.025	[0.0001, 0.0004]	**
FIND	0.0297	0.0031	9.62	0.002	[0.0199, 0.0396]	***
EDU	0.1176	0.0232	5.06	0.015	[0.0436, 0.1915]	**
DEP	-0.0080	0.0098	-0.81	0.475	[-0.0393, 0.0233]	
LEXP	0.0084	0.0109	0.77	0.498	[-0.0264, 0.0433]	
UNEMP	-0.3397	0.0351	-9.69	0.002	[-0.4513, -0.2281]	***

, **, *, denotes 10%, 5%, and 1% level of significance*

Source: Authors' Calculations in Stata 14.2 (2025)

Table 4.5b: Short-Run (SR) ARDL Model Results – Life Insurance Penetration

Variable	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval	Significance
LINSPI (LD.)	2.3380	0.4670	5.01	0.015	[0.8517, 3.8242]	**
INF (D1.)	-0.3988	0.1826	-2.18	0.117	[-0.9800, 0.1825]	
CPI (D1.)	0.0056	0.0022	2.61	0.080	[-0.0012, 0.0125]	*
CPI (LD.)	0.0010	0.0012	0.81	0.476	[-0.00289, 0.00488]	
CBI (D1.)	-0.0617	0.0231	-2.67	0.076	[-0.1351, 0.0118]	*
CBI (LD.)	0.0366	0.0099	3.70	0.034	[0.0051, 0.0680]	**
INC (D1.)	-0.0003	0.0002	-1.21	0.313	[-0.0010, 0.0004]	
INC (LD.)	0.0002	0.0001	1.56	0.217	[-0.00019, 0.00055]	

FIND (D1.)	-0.0928	0.0191	-4.86	0.017	[-0.1536, -0.0320]	**
FIND (LD.)	-0.0613	0.0160	-3.84	0.031	[-0.1121, -0.0106]	**
EDU (D1.)	-0.3884	0.1358	-2.86	0.065	[-0.8204, 0.0437]	*
DEP (D1.)	1.6555	0.2886	5.74	0.011	[0.7370, 2.5741]	**
DEP (LD.)	-0.8218	0.1624	-5.06	0.015	[-1.3387, -0.3049]	**
LEXP (D1.)	-0.5889	0.0913	-6.45	0.008	[-0.8793, -0.2985]	***
LEXP (LD.)	-0.4993	0.0766	-6.52	0.007	[-0.7431, -0.2556]	***
UNEMP (D1.)	1.1500	0.2196	5.24	0.014	[0.4511, 1.8489]	**
_cons	-60.7360	22.7568	-2.67	0.076	[-133.1583, 11.6862]	*

*, **, ***, denotes 10%, 5%, and 1% level of significance

Source: Authors' Calculations in Stata 14.2 (2024)

4.6.1.1 Adjustment Term

The adjustment term captures the speed at which life insurance penetration (LINSPI) returns to its long-run equilibrium after short-run deviations. The coefficient of -3.9960, statistically significant at the 5% level ($p = 0.011$), indicates a rapid adjustment process. The negative sign aligns with ECM theory, signifying corrective movement towards equilibrium, while the magnitude implies that approximately 399.6% of the disequilibrium is corrected within one period—reflecting overcorrection and potential short-term overshooting before stabilisation. The 95% confidence interval $([-6.2787, -1.7134])$ confirms the robustness of this effect.

In the short run, variables such as financial development (FIND), unemployment (UNEMP), and dependency ratios (DEP) exert significant immediate effects, which are moderated by the adjustment mechanism. Over the long term, determinants such as income (INC), inflation (CPI), and education (EDU) emerge as critical in shaping life insurance uptake. This strong adjustment reinforces the responsiveness of the sector to shocks, while highlighting the importance of policies that stabilise short-term volatility and sustain long-term growth. Overall, the ECM results affirm the ARDL model's capacity to capture the dynamic interplay between transitory disturbances and enduring structural drivers.

4.6.1.2 Overall Model Performance

The findings in Table 4.7 indicate a strong fit for the ARDL model in elucidating the dynamics of life insurance penetration (LINSPI). An R-squared value of 0.9971 signifies that 99.71% of the variation in life insurance penetration is accounted for by the model, highlighting its considerable explanatory capacity. The adjusted R-squared value of 0.9712, which considers

the number of predictors and sample size, is remarkably high, confirming the model's validity and reliability.

The Root Mean Squared Error (Root MSE) of 0.0848 indicates a negligible average discrepancy between the observed and projected values, implying a significant degree of predictive accuracy. The low Root MSE underscores the model's proficiency in accurately capturing both short- and long-term interactions. The strong model performance is supported by the preceding short-run and long-run findings. Key short-run determinants such as unemployment (UNEMP), dependency ratios (DEP), and financial development (FIND) exhibit significant immediate effects, while long-term structural factors, including income (INC), inflation (INF), and education (EDU), shape the trajectory of life insurance penetration over time. The model's substantial explanatory power underscores its efficacy in assessing the dynamic interactions among these parameters and elucidating the behaviour of life insurance penetration during the sample period from 1992 to 2022. Overall, the model's performance metrics validate its suitability for policy analysis and decision-making in the context of Zimbabwe's insurance sector, providing reliable insights into both short- and long-run determinants of life insurance uptake.

4.6.2 Long-Run and Short-Run Relationships

Using the unstandardised coefficients from Tables 4.5a and 4.5b of the ARDL Model combining both long-run and short-run dynamics into one equation can be simplified to Equation (7) as shown below:

$$\begin{aligned} \Delta LINS P_t = & -3.9960 LINS P_{t-1} + 0.2517 INF_t + 0.0002 INC_t - 0.0014 CPI_t \\ & + 0.0190 CBI_t + 0.0297 FIND_t - 0.0080 DEP_t + 0.0084 LEXP_t \\ & + 0.1176 EDU_t + 2.3380 \Delta LINS P_{t-1} - 0.3988 \Delta INF_{t-1} - 0.0003 \Delta CPI_{t-1} \\ & + 0.0002 \Delta CPI_{t-2} + 0.0056 \Delta CPI_{t-3} - 0.0617 \Delta CBI_{t-1} + 0.0366 \Delta CBI_{t-2} \\ & - 0.0928 \Delta FIND_{t-1} - 0.0613 \Delta FIND_{t-2} + 1.1500 \Delta UNEMP_{t-1} \\ & + 0.4218 \Delta UNEMP_{t-2} + 1.6555 \Delta DEP_{t-1} - 0.8218 \Delta DEP_{t-2} \\ & - 0.5889 \Delta LEXP_{t-1} - 0.4994 \Delta LEXP_{t-2} - 0.3884 \Delta EDU_{t-1} \\ & - 60.7360 \dots \dots \dots (7) \end{aligned}$$

The sections that follow explain the results and relationship shown by the slope coefficients. In each case, a statement about whether the hypothesis is rejected or cannot be rejected is given, followed by discussions from various scholars.

4.6.3 Informal Sector Size and Life Insurance Penetration

Hypothesis (H₁): The informal sector size negatively affects life insurance penetration.

Long-run coefficient: 0.2517 (p = 0.013)

Short-run coefficient: -0.3988 (p = 0.117)

The results reveal that in the long run, the size of the informal sector exhibits a positive and statistically significant effect on life insurance penetration. A coefficient of 0.2517 indicates that a one-unit increase in the size of the informal sector leads to an approximate 0.25-unit increase in life insurance penetration, holding other factors constant. The p-value (0.013) is within the conventional 5% significance level, suggesting that this long-run relationship is statistically robust and unlikely to have occurred by chance. However, in the short run, the relationship is negative, with a short-run coefficient of -0.3988, which is not statistically significant (p = 0.117).

These findings contradict the initial hypothesis and challenge conventional theoretical expectations. Typically, it is posited that a larger informal sector reduces engagement with formal financial systems, including life insurance. Prior research, such as that by Haque (2013), Borlea et al. (2017), and Etim & Daramola (2020), has consistently argued that a significant informal sector inhibits economic progress, leading to lower participation in financial markets. However, the positive long-run result observed here suggests that Zimbabwean insurers are engaging with the informal sector. This result may also indicate that over time, individuals in the informal sector may develop a greater propensity to engage with life insurance markets, possibly due to improving financial literacy or economic integration efforts.

Existing literature examining the relationship between insurance penetration and economic growth, including studies by Asongu & Odhiambo (2020), Balcilar et al. (2020), and Lee et al. (2019), substantiates the assertion that strong insurance markets favourably influence economic development. In this context, the findings of this study diverge from traditional expectations by demonstrating that a larger informal sector may not necessarily be a barrier to insurance penetration, particularly in the long run. This evolution in financial behaviour may

reflect the growing efforts to formalise informal sector activities, allowing participants to access life insurance as part of their financial planning. It could also be attributed to targeted marketing efforts by insurers who are tapping into Zimbabwe's large informal economy, recognising the potential demand among workers who lack other forms of financial protection. The findings may indicate that life insurance serves as a replacement for formal social safety nets in economies dominated by the informal sector, prompting informal workers to utilise life insurance as a protection against economic instability.

While the positive long-run relationship suggests that the informal sector can eventually support life insurance growth, the short-run negative relationship highlights the challenges that persist in the interim. Workers in the informal economy often lack access to formal employment benefits and financial services, limiting their immediate interaction with regulated financial institutions. This short-run effect may be explained by barriers to financial inclusion, such as limited access to credit or a lack of financial literacy, which reduce demand for life insurance products in the short term.

The findings suggest that reducing the informal sector's size through targeted policy interventions could help overcome short-term obstacles to financial inclusion, ultimately enhancing life insurance penetration. These short-term barriers may include economic volatility, which can discourage individuals from purchasing insurance products due to immediate financial pressures. However, as informal sector workers gain more stable incomes and access to financial services in the long term, their engagement with life insurance markets may improve.

The result provides partial support for both the Life Cycle Hypothesis (LCH) and Human Capital Theory (HCT). Under the LCH, individuals must manage their financial behaviour, including life insurance purchases, based on anticipated lifetime income and consumption needs. The positive long-run coefficient suggests that over time, individuals in the informal sector may perceive life insurance as a crucial tool for long-term risk management and financial planning, aligning with the principles of the LCH.

Human Capital Theory (HCT) offers an additional explanation for the positive long-term relationship. As individuals in the informal sector develop skills and enhance their economic opportunities, their financial conduct becomes increasingly sophisticated, resulting in

heightened interaction with formal financial products, including life insurance. Over time, this increased investment in human capital and economic stability could explain the positive long-run impact observed in the study.

The findings suggest a rejection of Hypothesis (H_1), as the results indicate a significant positive long-term impact of the informal sector on life insurance penetration. While the short-run results show a weak negative relationship, the long-run positive effect points to an evolving interaction between the informal sector and life insurance markets. These results underscore the need for policy interventions to formalise the informal sector and promote financial inclusion. The findings also provide insights into how the Life Cycle Hypothesis and Human Capital Theory can explain the gradual increase in life insurance penetration as informal sector participants integrate into formal financial systems over time.

4.6.4 Inflation and Life Insurance Penetration

Hypothesis (H_2): Inflation has a negative impact on life insurance penetration.

Long-run coefficient: -0.0014 ($p = 0.123$)

Short-run coefficient:

D1: -0.0003 ($p = 0.313$)

LD: 0.0002 ($p = 0.217$)

LD (second instance): 0.0056 ($p = 0.08$)

The results for inflation and life insurance penetration show a more complex situation. The estimated long-run coefficient for inflation is -0.0014 , with a p -value of 0.123 . This indicates a negative relationship between inflation and life insurance penetration in the long term, which is in line with the stated hypothesis (H_2). However, the relationship is not statistically significant at the 10%, 5%, or 1% levels, indicating that inflation does not have a meaningful influence on life insurance penetration in Zimbabwe in the long term. These findings suggest that inflation may not play a decisive role in shaping long-term demand for life insurance, a result that is consistent with earlier studies (e.g., Ehiogu, Eze & Sunday, 2018; Chizoba et al., 2018), which found weak or inconsistent relationships between inflation and life insurance penetration.

The context of this result might be specific to the economic conditions in countries that have experienced hyperinflation, such as Zimbabwe. In such environments, inflationary pressures are extreme and persistent, making individuals more focused on immediate financial survival rather than engaging in long-term financial planning, such as purchasing life insurance. This context could explain the insignificant long-term relationship found in the current analysis.

In contrast to the long-term findings, the short-run results display a more complex interaction. The first short-run coefficient (D1: -0.0003, $p = 0.313$) suggests a weak and statistically insignificant negative relationship between inflation and life insurance penetration in the short term. However, the second short-run coefficient (LD: 0.0056, $p = 0.08$) indicates a statistically significant positive relationship. This suggests that during specific periods of rising inflation, individuals may increase their life insurance purchases, possibly as a form of protection against economic uncertainty and the erosion of financial assets. The statistical significance of this finding, although marginal, implies that inflation can have a short-term stimulative effect on life insurance demand. This behaviour is in line with studies by Schanz & Treccani (2023), who observed that during inflationary periods, individuals often seek to safeguard their wealth by investing in financial instruments like life insurance, which offers security against future uncertainties. Similarly, Cieslak & Pflueger (2023) posit that during times of inflationary pressure, heightened risk aversion can drive demand for products that provide financial protection, such as life insurance.

The transient nature of this positive short-run relationship likely reflects the immediate response to inflationary shocks, as individuals react to protecting themselves from the potential devaluation of their savings and investments. However, this effect does not appear to persist over the long term, as the statistically insignificant long-run coefficient suggests. Once the immediate inflationary pressures subside, individuals may revert to more traditional financial behaviours, and the heightened demand for life insurance diminishes over time.

The findings from this analysis offer mixed support for both the Life Cycle Hypothesis (LCH) and Human Capital Theory (HCT). The short-run positive relationship between inflation and life insurance penetration can be interpreted through the Life Cycle Hypothesis. Individuals, particularly those in inflationary economies, may be inclined to manage short-term economic risks by increasing their life insurance coverage, aiming to smooth consumption and protect future financial stability in the face of volatile economic conditions. This temporary increase

in life insurance demand aligns with LCH's proposition that individuals make financial decisions based on their expectations of future economic conditions and income variations.

In contrast, the long-term findings, where inflation does not have a statistically significant effect, suggest that the Life Cycle Hypothesis is less applicable in explaining life insurance behaviour over extended periods, particularly in highly inflationary contexts. Individuals may prioritise short-term survival rather than engage in long-term financial planning, thus diminishing the applicability of LCH in such environments. From a Human Capital Theory perspective, the weak long-term relationship between inflation and life insurance penetration may indicate that inflation does not significantly affect the accumulation of human capital and, consequently, does not alter long-term financial behaviour. Inflation may undermine the stability required for sustained investments in human capital, resulting in little to no long-term impact on life insurance markets.

The analysis leads to a rejection of Hypothesis H₂, which posited that inflation would have a significant negative impact on life insurance penetration in the long term. While the long-term relationship is negative, it is statistically insignificant, suggesting that inflation does not exert a meaningful influence on life insurance penetration over extended periods. However, the short-run results demonstrate that inflation may have a positive, though temporary, effect on life insurance demand, likely driven by immediate economic anxieties. The findings suggest that inflation may prompt short-term financial behaviour changes but does not lead to sustained shifts in life insurance demand over the long run.

4.6.5 Central Bank Independence and Life Insurance Penetration

Hypothesis (H₃): Central Bank Independence has a significant negative impact on life insurance penetration.

Long-run coefficient: 0.0190 ($p = 0.029$)

Short-run coefficient:

D1: -0.0617 ($p = 0.076$)

LD: 0.0366 ($p = 0.034$)

In the long-run, central bank independence (CBI) has a positive and statistically significant effect on life insurance penetration. A coefficient of 0.0190 indicates that a one-unit increase in central bank independence leads to an approximate 0.02-unit increase in life insurance penetration, holding other factors constant. The p-value (0.029) is well within the conventional 5% significance level, suggesting that this long-run relationship is statistically robust and unlikely to have occurred by chance.

This result contradicts the hypothesis that central bank independence (CBI) exerts a significant negative effect on life insurance penetration. In fact, the long-run result indicates that greater central bank independence is associated with a modest increase in life insurance penetration over time. These findings indicate that, contrary to the original hypothesis, greater central bank independence may, in fact, promote a more stable macroeconomic environment that supports the growth of the financial sector, including the life insurance industry, as observed by Romelli (2022). Furthermore, the results challenge the prevailing narrative that the autonomy of Zimbabwe's central bank may have contributed to the economic instability associated with the country's currency crisis period, which adversely affected the uptake of life insurance, as posited by Aklin & Kern (2021).

In the short term, the results present a more complex picture. The first short-run coefficient (D1: -0.0617, $p = 0.076$) shows a weak negative relationship between CBI and life insurance penetration, though this result is not statistically significant. The second short-run coefficient (LD: 0.0366, $p = 0.034$), however, is positive and significant, implying that central bank independence can have a positive short-term effect on life insurance penetration, possibly through its role in stabilising the economy and fostering confidence in financial institutions.

These results suggest that central bank independence, while often associated with macroeconomic stability, plays a more supportive role in enhancing the growth of life insurance markets over the long term. The positive long-run effect could be linked to reduced inflationary pressures and improved economic stability, which are key outcomes of a more independent central bank (Romelli, 2022). Macroeconomic stability may increase consumer confidence in financial markets, including life insurance products, as individuals become more inclined to make long-term financial decisions when inflationary risks are lower, and the financial sector is stable.

Previous studies, such as those by Garriga & Rodriguez (2020) and Bianchi et al. (2022), have consistently demonstrated that central bank independence contributes to lower inflation and greater macroeconomic stability. These factors are often seen as prerequisites for a thriving financial market. However, the present findings diverge from the hypothesis that CBI negatively impacts life insurance penetration, instead showing a positive relationship. This suggests that central bank independence can enhance economic conditions favourable to life insurance markets, especially in the long run.

The positive long-run relationship between central bank independence and life insurance penetration provides support for the Life Cycle Hypothesis (LCH). According to LCH, individuals make financial decisions, such as purchasing life insurance, based on expected income stability and future consumption needs. A more independent central bank, by maintaining economic stability, may reduce inflationary risks and encourage individuals to invest in life insurance as a long-term financial planning tool. The findings align with LCH in that increased macroeconomic stability allows individuals to make informed and long-term financial decisions, including life insurance uptake.

The hypothesis (H_3) that central bank independence would have a significant negative impact on life insurance penetration is rejected. Instead, the findings reveal a significant positive effect of central bank independence on life insurance penetration in the long term. While short-term effects are more mixed, the results indicate that central bank independence can support the development of life insurance markets by fostering macroeconomic stability. These findings highlight the importance of considering broader economic factors, such as the stability and governance of financial institutions, in understanding life insurance market dynamics.

4.6.6 Per Capita Income and Life Insurance Penetration

Hypothesis (H_4): Per capita income has a significant positive impact on life insurance penetration.

Long-run coefficient: 0.0002 ($p = 0.025$)

Short-run coefficient:

D1: -0.0003 ($p = 0.313$)

LD: 0.0002 ($p = 0.217$)

The results provide evidence supporting the hypothesis that per capita income has a positive influence on life insurance penetration over the long term. The long-run coefficient of 0.0002 indicates that a one-unit increase in insurance per capita income leads to a marginal 0.0002-unit increase in life insurance density, holding other factors constant. The p-value (0.025) is within the conventional 5% significance level, suggesting that this long-run relationship is unlikely to have occurred by chance. This finding aligns with theoretical expectations that higher income levels allow individuals to allocate more resources towards financial products such as life insurance, which are crucial for long-term financial planning and risk management.

This positive long-run relationship is consistent with existing literature, which suggests that higher income levels enhance financial capacity and enable households to purchase life insurance. For instance, studies by Hagos, Kebede, & Shewakena (2019), Ramij (2021), and Kabrt (2022) affirm that rising incomes correlate with increased life insurance uptake. This occurs because as individuals gain more disposable income, they prioritise long-term financial protection, such as life insurance, to secure their financial future. The results of this study corroborate these findings, confirming that rising incomes contribute to the development of a stronger life insurance market.

While the long-run results provide clear evidence of a positive relationship between income and life insurance penetration, the short-run coefficients indicate no significant impact. The short-run coefficient for D1 (-0.0003, $p = 0.313$) and LD (0.0002, $p = 0.217$) are both statistically insignificant, suggesting that fluctuations in income do not have a meaningful immediate effect on life insurance uptake. This lack of short-run significance indicates that households may require more sustained income growth over time before committing to long-term financial products such as life insurance.

The findings from this study support the Life Cycle Hypothesis (LCH). According to LCH, individuals manage their savings and consumption based on their anticipated income trajectory over their lifetime. As incomes rise, individuals are more likely to invest in life insurance as a means of ensuring financial security and smoothing consumption over time. The positive long-run coefficient for per capita income indicates that as financial situations improve, households engage more with life insurance markets, aligning with the principles of LCH. This suggests

that households recognise the long-term benefits of life insurance as their income rises, helping them mitigate future financial risks.

Hypothesis H4, which posited that per capita income would have a significant positive effect on life insurance penetration, could not be rejected, thereby providing evidence consistent with the hypothesised relationship. The findings demonstrate that rising per capita income positively influences life insurance penetration in the long run, confirming the essential role of income growth in enhancing financial inclusion. Although the short-run effects of income on life insurance uptake are not statistically significant, the long-term relationship indicates that as households experience sustained income growth, they are more likely to invest in life insurance products, thereby contributing to increased financial security and participation in the market. These findings highlight the importance of economic growth in developing economies like Zimbabwe, where income levels directly affect access to formal financial products such as life insurance.

4.6.7 Financial Development and Life Insurance Penetration

Hypothesis (H₅): Financial development has a significant positive influence on life insurance penetration.

Long-run coefficient: 0.0297 ($p = 0.002$)

Short-run coefficient:

D1: -0.0928 ($p = 0.017$)

LD: -0.0613 ($p = 0.031$)

The findings of the study lend strong support to the hypothesis that financial development exerts a significant and positive influence on life insurance penetration over the long term. The estimated long-run coefficient of 0.0297 suggests that a one-unit increase in financial development is associated with an approximate 0.03-unit rise in life insurance penetration, *ceteris paribus*. The corresponding p -value of 0.002 denotes statistical significance at the 1% level, indicating that the observed relationship is highly unlikely to be attributable to random variation. This reinforces the proposition that advancements in financial markets—such as enhanced access to banking services, credit facilities, and diversified financial instruments—have a direct and beneficial impact on the expansion of life insurance coverage in the long run.

This outcome is consistent with the theoretical expectation that as financial systems mature, individuals are better positioned to access a broader spectrum of financial services, including life insurance, thereby improving their capacity to manage risk and secure long-term financial stability.

However, the short-run results present a more complex scenario. Both short-run coefficients for financial development are negative, and statistically significant at 5% level, with D1 (-0.0928, $p = 0.017$) and LD (-0.0613, $p = 0.031$) indicating that financial development temporarily reduces life insurance penetration in the short term. This unexpected short-run effect could be linked to the initial adjustment stages of financial sector reforms, during which individuals may prioritise current financial necessities over long-term investments such as life insurance. Additionally, in emerging markets like Zimbabwe, early financial development may benefit sectors like banking and credit more than the insurance industry, leading to an initial diversion of resources away from life insurance products.

The significant long-run effect of financial development on life insurance penetration is consistent with previous research that links the expansion of financial markets to increased demand for life insurance. Studies by Cheng & Hou (2022), Srbinoski et al. (2021), and Sanjeewa (2021) demonstrate that as financial markets develop; they tend to foster a more financially literate population, better access to financial resources, and an overall increase in the availability of complementary financial services that support the demand for life insurance. These studies suggest that the long-term benefits of financial development can outweigh the short-term disruptions in life insurance demand, especially as the financial system becomes more sophisticated and inclusive.

The findings align with the Human Capital Theory (HCT) more than the Life Cycle Hypothesis (LCH). According to Human Capital Theory, as individuals' financial literacy and access to financial products improve, both of which are important outcomes of financial growth, so does their ability to make informed decisions regarding financial planning, including life insurance. The positive long-term relationship between financial development and life insurance penetration suggests that financial market improvements enhance individuals' capacity to invest in life insurance as part of their broader financial strategy, in line with HCT. The negative short-term effects, however, imply that immediate financial needs may overshadow long-term

planning during periods of financial transition, a pattern not directly explained by the Life Cycle Hypothesis.

Hypothesis H5, which proposed that financial development would have a significant positive impact on life insurance penetration, could not be rejected, providing evidence in support of the hypothesised relationship. The results indicate that financial development has a positive influence on life insurance penetration in the long term, as expected. However, the short-run effects are negative, suggesting that the early stages of financial development may initially divert resources away from life insurance products. This divergence underscores the importance of considering both short-term and long-term dynamics in assessing the impact of financial sector reforms on life insurance markets. The study further highlights the role of structural factors, such as financial literacy and market inclusivity, in shaping the demand for life insurance over time.

4.6.8 Insurance Literacy and Life Insurance Penetration

Hypothesis (H₆): Insurance literacy has a significant positive influence on life insurance penetration.

Long-run coefficient: 0.1176 ($p = 0.015$)

Short-run coefficient: D1: -0.3884 ($p = 0.065$)

The findings of this study provide empirical support for the hypothesis that insurance literacy exerts a significant and positive influence on life insurance penetration in the long term. The estimated long-run coefficient of 0.1176 implies that a one-unit increase in insurance literacy is associated with a 0.12-unit rise in life insurance penetration over time, holding all other variables constant. The corresponding p-value of 0.015 indicates statistical significance at the 5% level, suggesting that the observed relationship is unlikely to have arisen due to random variation. These results indicate that enhancements in insurance literacy have a direct and enduring effect on the uptake of life insurance. This finding is consistent with theoretical expectations and aligns with existing literature, which posits that individuals with higher levels of insurance literacy are better equipped to comprehend the value, functions, and benefits of life insurance, thereby enabling them to make more informed and proactive financial decisions aimed at ensuring long-term security.

However, the short-run findings tell a different story. The short-run coefficient (D1: -0.3884, $p = 0.065$) is negative and nearly statistically significant, indicating a temporary decline in life insurance penetration as insurance literacy improves in the short term. This unexpected finding indicates that raising awareness of insurance products may initially emphasise their complexity, potential costs, or other obstacles, leading individuals to postpone their purchasing decisions. It is also possible that as individuals become more informed, they recognise shortcomings in the market or begin to scrutinise insurance products more critically, which could lead to a short-term reduction in demand.

The long-run positive impact of insurance literacy on life insurance penetration mirrors findings from numerous prior studies. For example, Dankwah et al. (2022) and Mamun et al. (2021) demonstrate that insurance literacy correlates with a greater likelihood of individuals purchasing life insurance. Insurance literacy not only aids in understanding the benefits and risks of life insurance but also enhances individuals' ability to navigate complex financial decisions, ultimately driving life insurance market participation. The divergence between short-term and long-term effects suggests that while literacy programs may encounter initial resistance or hesitation, their benefits materialise more significantly as individuals become comfortable with and confident in making long-term financial decisions.

The findings from this analysis support Human Capital Theory (HCT) more than the Life Cycle Hypothesis (LCH). Human Capital Theory posits that education and knowledge are investments that enhance individuals' decision-making abilities and economic prospects. The positive long-run relationship between insurance literacy and life insurance penetration aligns with HCT's premise that as individuals increase their financial and insurance knowledge, they are more likely to make informed and beneficial economic decisions, such as purchasing life insurance. The significant long-term coefficient suggests that greater insurance literacy empowers individuals to make more strategic financial choices, reinforcing the role of education and knowledge in driving market engagement.

Hypothesis H6, which posited that insurance literacy would positively influence life insurance penetration, could not be rejected, indicating support for the proposed positive relationship. The long-term findings indicate that improvements in insurance literacy have a statistically significant and positive impact on life insurance penetration. However, the short-run results

demonstrate a temporary negative effect, suggesting that the benefits of insurance literacy may not be immediate and could be accompanied by initial uncertainty or market hesitation. These findings underscore the importance of continuous educational efforts aimed at enhancing insurance literacy, while also addressing market inefficiencies and other structural barriers that may hinder the immediate uptake of life insurance in Zimbabwe.

4.6.9 Age Dependency and Life Insurance Penetration

Hypothesis (H₇): Age dependency has a significant negative influence on life insurance penetration.

Long-run coefficient: -0.0080 ($p = 0.475$)

Short-run coefficient:

D1: 1.6555 ($p = 0.011$)

LD: -0.8218 ($p = 0.015$)

The estimated long-run coefficient is -0.0080 , with a p -value of 0.475 . This result indicates a negative but statistically insignificant long-run relationship between age dependency and life insurance penetration. In practical terms, a one-unit increase in the age dependency ratio is associated with a 0.0080 -unit decrease in life insurance penetration; however, the high p -value suggests that this relationship is not robust or reliable in the long term. This suggests that age dependency does not significantly influence life insurance penetration over the long term in Zimbabwe. This result challenges the theoretical expectation that higher dependency ratios, which indicate a larger proportion of non-working individuals (such as children and the elderly), would reduce household capacity to invest in long-term financial products like life insurance. The lack of statistical significance implies that age dependency may not be a primary determinant of life insurance uptake in this context, potentially due to other overriding economic or structural factors.

Interestingly, the short-run estimates reveal a complex relationship between age dependency and life insurance penetration. The first short-run coefficient (D1: 1.6555 , $p = 0.011$) is both large and statistically significant, indicating that short-term increases in the dependency ratio are associated with a surge in life insurance uptake. However, this effect is reversed in the longer term, with the second short-run coefficient (LD: -0.8218 , $p = 0.015$) showing a

statistically significant negative impact. These contrasting short-term effects suggest that households may initially respond to rising dependency by purchasing life insurance as a protective measure, but over time, the financial strain of supporting non-working dependents could lead to a decline in insurance demand.

These findings diverge from existing literature, which generally supports the notion that higher age dependency ratios reduce life insurance penetration. For example, studies by Meko et al. (2019) and Zhang et al. (2023) have shown that high dependency burdens often lead households to prioritise immediate consumption needs over long-term financial planning. However, the positive short-term coefficient in this study suggests that, in certain contexts, households may initially seek to offset the financial risks associated with caring for dependents by investing in life insurance, before ultimately retreating due to sustained economic pressures.

The short-run findings align more closely with the Life Cycle Hypothesis (LCH) than the Human Capital Theory (HCT). The Life Cycle Hypothesis posits that individuals make financial decisions, such as purchasing life insurance, based on the expected financial needs they will encounter at different life stages. The significant positive short-run relationship between age dependency and life insurance penetration suggests that households may recognise the heightened financial risk associated with dependents and act to mitigate it by purchasing life insurance. This short-term behaviour is consistent with LCH, where families facing immediate financial pressure may seek insurance to smooth consumption over time. However, the long-term results, which show no statistically significant relationship, suggest that households may not sustain this behaviour, potentially due to ongoing financial constraints.

Hypothesis H₇, which proposed that age dependency would have a significant negative impact on life insurance penetration, is rejected based on the results. While the long-run impact of age dependency on life insurance penetration is negative, it is statistically insignificant; indicating that age dependency may not play a critical role in shaping long-term life insurance uptake in Zimbabwe. However, the short-run results present a more complex picture, with a positive and significant effect of age dependency on life insurance in the immediate term, followed by a significant negative effect in the slightly longer term. These findings suggest that while households may initially respond to rising dependency ratios by purchasing life insurance, sustained financial pressures associated with caring for dependents eventually diminish their capacity to maintain insurance coverage.

4.6.10 Life Expectancy and Life Insurance Penetration

Hypothesis (H₈): Life expectancy has a positive impact on life insurance penetration.

Long-run coefficient: 0.0084 ($p = 0.498$)

Short-run coefficient:

D1: -0.5889 ($p = 0.008$)

LD: -0.4994 ($p = 0.007$)

The results of this study do not support the hypothesis that life expectancy positively influences life insurance penetration. The long-run coefficient for life expectancy (0.0084) is positive, but statistically insignificant ($p = 0.498$), indicating that increases in life expectancy do not have a meaningful impact on life insurance uptake over the long term. This result contrasts with the hypothesis, which anticipated that longer life expectancy would drive greater demand for life insurance, as individuals seek financial protection for their later years. However, the lack of statistical significance in the long-run coefficient suggests that life expectancy is not a key determinant of life insurance penetration in this context.

In the short run, the relationship between life expectancy and life insurance penetration is negative and statistically significant. The short-run coefficients (D1: -0.5889, $p = 0.008$; LD: -0.4994, $p = 0.007$) indicate that increases in life expectancy are associated with a significant decline in life insurance penetration in the immediate term. This unexpected result may be explained by a perceived reduction in urgency among individuals to secure life insurance as life expectancy rises. Longer life expectancy could lead individuals to deprioritise immediate financial protection, believing that they have more time to address their future financial needs, resulting in a short-term decline in life insurance demand. This short-run result may also reflect the phenomenon of adverse selection, whereby individuals who perceive themselves to be in good health and expect greater longevity may defer the adoption of life insurance.

The complex relationship between life expectancy and life insurance demand is reflected in the broader literature. While some studies, such as Sianipar & Hutagalung (2021), suggest a positive relationship, arguing that longer life expectancy leads to increased life insurance uptake, other studies have found opposite or mixed results. For example, Reddy, Reddy, &

Naidu (2019) identified a negative relationship, suggesting that higher life expectancy might reduce the urgency to purchase life insurance. Similarly, Srinivasan & Mitra (2024) found no statistically significant relationship, highlighting the complex and variable interaction between life expectancy and life insurance penetration across different contexts. The present study adds to this body of work by illustrating that, in the short term, rising life expectancy may have a dampening effect on life insurance uptake.

The findings of this study lend partial support to the Life Cycle Hypothesis (LCH). According to LCH, individuals make financial decisions, such as purchasing life insurance, based on their expected lifetime financial needs. The negative short-term effect suggests that as life expectancy increases, individuals may delay purchasing life insurance, believing that they have more time to address long-term financial planning. This behaviour aligns with LCH, as individuals adjust their financial priorities in response to their extended lifespan, possibly postponing life insurance purchases to focus on more immediate needs. However, the lack of a significant long-run effect suggests that life expectancy does not consistently influence life insurance demand in the long term, complicating a straightforward application of LCH to this context.

Hypothesis H₈, which posited that life expectancy would have a positive and significant effect on life insurance penetration, is rejected. The findings indicate that life expectancy does not significantly influence life insurance penetration in the long run. In the short term, increases in life expectancy are associated with a significant decline in life insurance uptake, suggesting that individuals may delay purchasing insurance as they anticipate a longer lifespan. These results highlight the complexity of the relationship between life expectancy and life insurance penetration, suggesting that other factors, such as perceptions of financial risk and the timing of life insurance purchases, may play a more significant role in determining life insurance market participation. Further research is needed to explore these dynamics more fully, particularly across different socioeconomic environments.

4.6.11 Unemployment and Life Insurance Penetration

Hypothesis (H₉): Unemployment has a significant negative impact on life insurance penetration.

Long-run coefficient: -0.3397 ($p = 0.002$)

Short-run coefficient:

D1: 1.1500 ($p = 0.014$)

LD: 0.4218 ($p = 0.142$)

The results support the hypothesis that unemployment has a significant negative impact on life insurance penetration in the long term. The long-run coefficient is estimated at -0.3397 , with a p -value of 0.002 . This result indicates a strong, negative, and statistically significant long-run relationship between unemployment and life insurance penetration. Specifically, a one-unit increase in the unemployment rate is associated with a 0.3397 -unit decrease in life insurance penetration, holding other factors constant. The p -value, which is well below the 1% significance threshold, confirms the robustness of this result and provides clear empirical support for Hypothesis H_9 . This finding is consistent with theoretical expectations that during periods of higher unemployment, households face greater financial insecurity, limiting their ability to invest in long-term financial products such as life insurance. Unemployed individuals or those with unstable incomes may prioritise immediate consumption and survival over purchasing life insurance, resulting in reduced demand for insurance products.

In the short run, however, the relationship between unemployment and life insurance penetration is more complex. The first short-run coefficient (D1: 1.1500, $p = 0.014$) is positive and statistically significant, indicating that an increase in unemployment temporarily leads to higher life insurance uptake. This unexpected finding may reflect a short-term response where individuals facing unemployment seek life insurance as a protective measure against further economic uncertainty. However, the second short-run coefficient (LD: 0.4218, $p = 0.142$) is positive but statistically insignificant, suggesting that this short-term increase in life insurance demand may not be sustained over time.

Previous studies have found a negative relationship between unemployment and life insurance penetration. Research by Segodi & Sibindi (2022), Mare et al. (2019), and Buric et al. (2017) emphasises that rising unemployment typically depresses life insurance demand, as financial uncertainty reduces households' capacity to invest in insurance. During periods of unemployment, disposable income often decreases, making it difficult for individuals to prioritise long-term financial security. The positive short-term effect observed in this study may be an anomaly specific to Zimbabwe's economic conditions, potentially driven by short-term coping strategies rather than a sustained financial commitment.

The findings align with the Life Cycle Hypothesis (LCH). According to LCH, individuals make financial decisions based on expected income variations over their lifetime. The negative long-run coefficient suggests that as unemployment increases, individuals with reduced income streams deprioritise life insurance purchases, focusing instead on immediate consumption needs. This long-term relationship is consistent with LCH, where financial decisions, including life insurance uptake, are influenced by the stability and predictability of income. The short-run positive relationship, however, might reflect temporary strategies to mitigate risks during periods of heightened uncertainty, though this is not behaviour typically predicted by LCH.

The hypothesis (H9), which posited that unemployment would have a significant negative effect on life insurance penetration, could not be rejected in the long run but demonstrates a more complex and nuanced relationship in the short run. The long-run results show a clear and statistically significant negative relationship between unemployment and life insurance demand, indicating that as unemployment rises, households are less likely to invest in life insurance products due to financial insecurity. However, the positive and significant short-run result suggests that unemployment may, under certain circumstances, lead to a temporary increase in life insurance uptake as individuals seek financial protection. These findings underscore the importance of considering both short- and long-term dynamics when examining the relationship between unemployment and life insurance penetration, particularly in economies with large informal sectors like Zimbabwe.

4.6.12 Conclusion: Life Insurance Penetration

In summary, the results of the ARDL model provide a detailed analysis of the factors influencing life insurance penetration in Zimbabwe. The model demonstrates a high level of explanatory power, as reflected by the elevated R-squared and adjusted R-squared values, alongside a low RMSE, indicating the robustness and accuracy of the model. The significant error correction term reveals a swift adjustment towards long-run equilibrium following short-term deviations, highlighting the model's capacity to capture both short-term and long-term dynamics. Long-term drivers such as financial development, rising per capita income, and improved insurance literacy are found to positively influence life insurance penetration, while factors like inflation, life expectancy, and age dependency show more mixed or insignificant effects. Notably, the informal sector's size positively impacts life insurance penetration in the long run, reflecting the gradual integration of informal workers into formal financial systems,

though short-term effects are weaker. Central bank independence also plays a significant long-term role, supporting life insurance uptake through macroeconomic stability, while unemployment exerts a negative long-term influence, though temporarily boosting insurance demand during short-term economic uncertainty. These findings underscore the need for policies focused on financial inclusion, sector formalisation, and insurance literacy to foster sustainable growth in life insurance markets.

4.7 ARDL Model: Life Insurance Density as the Dependent Variable

4.7.1 Lag Length Selection

The lag length selection results are shown in Table 4.2. The findings indicate that variables such as informal sector size (INF), per capita income (INC), unemployment (UNEMP), life expectancy (LEXP), and insurance literacy (EDU) exhibit a one-period lag, suggesting that their influence on life insurance density emerges with a delay, as shown by their relevance from the prior period (McNown *et al.*, 2023). Conversely, variables like inflation (CPI), central bank independence (CBI), financial development (FIND), and dependency ratio (DEP) display contemporaneous effects, implying that their impact is immediate and only relevant within the current period. This lag structure offers a detailed view of the temporal dynamics influencing life insurance density and serves as valuable information for policymakers seeking strategies to enhance life insurance uptake within Zimbabwe's unique economic context.

Table 4.8: Lag Length Selection

Variable	Selected Lag	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval
LIDENS	L1	-0.0392	0.2299	-0.17	0.867	[-0.5264, 0.4481]
INF	L1	-2.5913	1.2090	-2.14	0.048	[-5.1542, -0.0284]
CPI	L0	0.0060	0.0100	0.60	0.559	[-0.0153, 0.0273]
CBI	L0	0.0082	0.1105	0.07	0.942	[-0.2262, 0.2425]
INC	L1	-0.0034	0.0013	-2.53	0.022	[-0.0062, -0.0006]
FIND	L0	0.1075	0.0599	1.79	0.092	[-0.0195, 0.2346]
EDU	L1	-3.6424	1.1212	-3.25	0.005	[-6.0192, -1.2657]
DEP	L0	-1.7337	0.2613	-6.63	0.000	[-2.2876, -1.1797]
LEXP	L1	2.0184	0.7040	2.87	0.011	[0.5260, 3.5108]
UNEMP	L1	-3.6200	1.8081	-2.00	0.063	[-7.4530, 0.2130]
_cons	-	385.6357	99.1734	3.89	0.001	[175.3975, 595.8739]

Source: Authors' Calculations in Stata 14.2 (2024)

The results of lag length selection for the Autoregressive Distributed Lag (ARDL) model, derived from regression analysis, offer insights into the temporal effects of significant variables on life insurance density. The test confirms the dynamic interactions between the dependent and explanatory variables through the inclusion of both contemporaneous and lagged terms.

The size of the informal sector (INF) has a significant negative lagged effect ($L1 = -2.5913$, $p = 0.048$), and per capita income (INC) also shows a significant lagged negative influence ($L1 = -0.0034$, $p = 0.022$). In contrast, life expectancy (LEXP) and insurance literacy (EDU) demonstrate significant positive ($L1=2.0184$, $p=0.011$) and negative ($L1=-3.6424$, $p=0.005$) lagged effects, respectively. The dependency ratio (DEP) exhibits a statistically significant immediate negative effect ($L0 = -1.7337$, $p < 0.001$), whereas unemployment (UNEMP) shows a lagged negative coefficient that approaches significance ($L1 = -3.6200$, $p = 0.063$). Additional variables, such as inflation (CPI), central bank independence (CBI), and financial development (FIND), show no statistically significant effects. The findings highlight the necessity of accounting for lagged effects when evaluating the determinants of life insurance density within this framework.

4.7.2 Long-Run (LR) and Short-Run (SR) Estimates

This section provides a detailed discussion of the results presented in Tables 4.6a and 4.6b, using the Autoregressive Distributed Lag (ARDL) model to assess the determinants of life insurance density in Zimbabwe from 1991 to 2022. The ARDL model is particularly useful for analysing both short-run and long-run dynamics, offering insights into how different economic and demographic variables influence life insurance density over time. This discussion evaluates each hypothesis (H1 to H9), determining whether it should be rejected or not rejected, and situates the findings within the theoretical frameworks of the Life Cycle Hypothesis (LCH) or Human Capital Theory (HCT), as appropriate.

Table 4.6a: ARDL Model Long-Run (LR) Estimates

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>P-value</i>	<i>95% Confidence Interval</i>	<i>Significance</i>
LIDENS (L1)	-1.0392	0.2299	-4.52	0.000	[-1.5264, -0.5519]	***
INF	-5.6708	1.8690	-3.03	0.008	[-9.6329, -1.7087]	***
CPI	0.0058	0.0099	0.58	0.570	[-0.0153, 0.0268]	
CBI	0.0079	0.1056	0.07	0.942	[-0.2159, 0.2316]	
INC	-0.0025	0.0013	-1.84	0.084	[-0.0053, 0.0004]	*
FIND	0.1035	0.0637	1.62	0.124	[-0.0316, 0.2385]	
EDU	-4.3779	1.2795	-3.42	0.003	[-7.0903, -1.6655]	***
DEP	-1.6683	0.4015	-4.16	0.001	[-2.5194, -0.8172]	***
LEXP	2.7209	0.5709	4.77	0.000	[1.5107, 3.9311]	***
UNEMP	3.4025	1.9613	1.73	0.102	[-0.7553, 7.5603]	*

, **, *, denotes 10%, 5%, and 1% level of significance*

Source: Authors' Calculations in Stata 14.2 (2024)

Table 4.6b: ARDL Model Short-Run (SR) Estimates

Variable	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval	Significance
LIDENS (L1)	-1.0392	0.2299	-4.52	0.000	[-1.5264 -0.5519]	***
INF (D1)	2.5913	1.2090	2.14	0.048	[0.0284, 5.1542]	**
CPI	Nil	n/a	n/a	n/a	n/a	n/a
CBI	Nil	n/a	n/a	n/a	n/a	n/a
INC (D1)	0.0034	0.0013	2.53	0.022	[0.0006, 0.0062]	**
FIND	Nil	n/a	n/a	n/a	n/a	n/a
EDU (D1)	3.6424	1.1212	3.25	0.005	[1.2657, 6.0192]	***
DEP	Nil	n/a	n/a	n/a	n/a	n/a
LEXP (D1)	-2.0184	0.7040	-2.87	0.011	[-3.5108, -0.5260]	**
UNEMP (D1)	3.6200	1.8081	2.00	0.063	[-0.2130, 7.4530]	*
_cons	385.6357	99.1734	3.89	0.001	[175.3975, 595.8739]	***

*, **, ***, denotes 10%, 5%, and 1% level of significance

Source: Authors' Calculations in Stata 14.2 (2024)

Table 4.7: Adjustment Term (Speed of Adjustment)

Variable	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval	Significance
LIDENS (L1)	-1.0392	0.2299	-4.52	0.000	[-1.5264, -0.5519]	***

*, **, ***, denotes 10%, 5%, and 1% level of significance

Source: Authors' Calculations in Stata 14.2 (2024)

The adjustment term in Table 4.7 illustrates the rate at which life insurance density (LIDENS) reverts to its long-run equilibrium after experiencing short-run fluctuations (Gibogwe *et al.*, 2022). The coefficient (−1.0392) is statistically significant ($p < 0.001$) and negative, suggesting a swift adjustment process, with roughly 103.92% of the disequilibrium rectified within one period. This adjustment highlights the effectiveness of the ARDL model in analysing the dynamics of life insurance uptake within Zimbabwe's largely informal economy. The short-run results indicate substantial effects from income, insurance literacy, and the informal sector, which are partially counterbalanced by the stabilising adjustment mechanism. Over time, elements like the informal sector, dependency ratios, and life expectancy have significant impacts, reinforced by the swift approach to equilibrium. The findings indicate that short-run determinants are essential for immediate changes, whereas long-term structural factors ultimately govern the trajectory of life insurance uptake.

Table 4.8: Model Fit (R-Squared Results)

Metric	Value
R-squared	0.8664
Adj R-squared	0.7411
Root MSE	2.9554

Source: Authors' Calculations in Stata 14.2 (2024)

The findings presented in Table 4.8 indicate a strong model fit for the ARDL framework. The R-squared value of 0.8664 means that the model explains 86.64% of the variation in the dependent variable, demonstrating significant explanatory power. The adjusted R-squared value of 0.7411, although marginally reduced due to adjustments for the number of predictors and sample size, is still significant and supports the model's validity. The root mean squared error (Root MSE) of 2.9554 suggests a satisfactory degree of predictive accuracy, reflecting a minimal average deviation between observed and predicted values. The metrics collectively validate the model's ability to accurately capture the underlying relationships within the dataset from 1991 to 2022.

4.7.3 Combined ARDL Model Equation Capturing Long-Run and Short-Run Dynamics

Based on the results provided, the autoregressive distributed lag (ARDL) model captures both long-run and short-run dynamics between the dependent variable life insurance density (LIDENS) and the independent variables (informal sector size, per capita income, inflation, central bank independence, financial development, unemployment, dependency ratio, life expectancy, and life insurance literacy) is expressed as follows:

$$\begin{aligned} \Delta LIDENS_t = & -1.0392 (LIDENS_{t-1}) - 5.6708 (INF_t - 0.0025 (INC_t) + 0.0058 (CBI_t) \\ & + 0.1035 (FIND_t) + 3.4025 (UNEMP_t) - 1.6683 (DEP_t) \\ & + 2.7209 (LEXP_t) - 4.3779 (EDU_t) + 2.5913 \Delta (INF_{t-1}) \\ & + 0.0034 \Delta (INC_{t-1}) + 3.6200 \Delta (UNEMP_{t-1}) - 2.0184 \Delta (LEXP_{t-1}) \\ & + 3.6424 \Delta (EDU_{t-1}) + 385.6357 \dots \dots \dots (7) \end{aligned}$$

4.7.3.1 Long-Run and Short-Run Dynamics

The ARDL model captures both long-run equilibrium relationships and short-run adjustments for each variable, offering a comprehensive analysis of the factors influencing life insurance density in Zimbabwe. This discussion evaluates the impact of the independent variables on life insurance density, focusing on both long-term effects and short-term fluctuations, with the significance of each coefficient interpreted through its corresponding p-value. The results are compared to those of life insurance penetration, previously examined using a similar model. While life insurance penetration measures the proportion of total life insurance premiums to GDP, life insurance density refers to the average premium per capita, providing insights into

the structural factors shaping insurance markets in a largely informal economy. Additionally, this discussion reviews each hypothesis (H1 to H9), determining whether they should be rejected or not rejected, and interprets the findings through the lenses of the Life Cycle Hypothesis (LCH) and Human Capital Theory (HCT). Comparisons with the findings on life insurance penetration further underscore the broader implications for Zimbabwe's insurance market.

4.7.4 Informal Sector Size and Life Insurance Density

Hypothesis (H₁): The informal sector size negatively affects life insurance density

Long-run coefficient: -5.6708 (p = 0.008)

Short-run coefficient: D1: 2.5913 (p = 0.048)

The hypothesis (H₁) suggests that a larger informal sector may adversely affect life insurance density. However, the results from the ARDL model indicate a more complex relationship, highlighting notable differences between long-run and short-run effects.

4.7.5 Long-Run Dynamics

In the long run, the informal sector size is found to have a negative and statistically significant relationship with life insurance density. The coefficient of -5.6708 suggests that a one-unit increase in informal sector size leads to a 5.67-unit decrease in life insurance density over time, holding other factors constant. The p-value of 0.008 indicates this result is highly significant (at the 1% level), meaning the negative long-run effect is unlikely to be due to random variation.

This finding supports the initial hypothesis (H₁) and aligns with theoretical expectations. This finding is consistent with the view that a larger informal economy reduces engagement with formal financial systems (Haque, 2013; Borlea et al., 2017). A larger informal sector is generally associated with irregular and unregulated income streams, making it difficult for individuals to consistently invest in long-term financial products such as life insurance (Silumbwe et al., 2024). The informal economy's lack of integration with formal financial systems may inhibit access to life insurance products, thereby reducing life insurance density over time. Employees in the informal sector frequently encounter heightened economic insecurity and instability (Auguste, Roll, and Despard, 2023), which may result in reduced

participation in formal insurance markets. These insights indicate that the expansion of the informal sector adversely impacts life insurance density, highlighting the financial exclusion experienced by informal workers.

4.7.4.2 Short-Run Dynamics

Conversely, in the short run, the informal sector size has a statistically significant positive impact on life insurance density, as reflected by a short-run coefficient of 2.5913 ($p = 0.048$). This indicates that temporary or immediate expansions in the informal sector might lead to an increase in life insurance density. One possible explanation for this is that during periods of economic uncertainty or risk, workers in the informal sector may seek life insurance as a form of short-term financial security. In certain markets, self-help informal groups have been instrumental in encouraging the uptake of micro-insurance by providing a structured platform for distributing insurance, particularly within the informal sector (Hans, 2023; Shaik & Babu, 2018). This behavioural response could be driven by an immediate need to mitigate risks rather than long-term financial planning. The positive short-run effect contrasts with the long-run relationship, highlighting the complexity of informal workers' financial decision-making in response to economic volatility.

4.7.4.3 Comparison with Life Insurance Penetration

When comparing life insurance density and life insurance penetration, the results reveal contrasting patterns. The long-run coefficient for life insurance penetration is positive (0.2517, $p = 0.013$), suggesting that a larger informal sector may actually increase penetration in the long run, contrary to expectations. This may reflect informal workers' eventual inclusion in some financial mechanisms, potentially due to targeted policies or market strategies aimed at integrating informal workers into formal financial services. However, in the short run, life insurance penetration shows a negative, albeit statistically insignificant, coefficient (-0.3988, $p = 0.117$), which suggests that short-term changes in the informal sector size may temporarily decrease penetration. This could be linked to the immediate financial instability associated with informal employment, where workers may be less inclined to invest in life insurance policies during periods of short-term financial distress.

The contrasting short-run and long-run effects between life insurance density and life insurance penetration suggest that while informal workers may temporarily increase their engagement with insurance markets for risk management in the short run, long-term structural challenges

persist in both measures, though life insurance penetration seems to adapt more favourably over time.

The findings demonstrate a complex interaction between the informal sector size and life insurance density. The long-run negative effect on life insurance density supports the Life Cycle Hypothesis, which posits that individuals facing economic insecurity, such as those in the informal sector, are less likely to invest in long-term financial products like life insurance due to the instability of their income. This suggests that in the long run, informal workers struggle to maintain consistent engagement with life insurance markets. However, the short-run positive relationship aligns with the Human Capital Theory, which argues that workers may seek to protect their human capital by acquiring life insurance during times of economic risk, even in the absence of formal employment. In sum, while the hypothesis (H_1) is validated in the long run, the short-run results highlight an adaptive financial behaviour that is more consistent with immediate risk mitigation strategies.

4.7.6 Inflation and Life Insurance Density

Hypothesis (H_2): Inflation has a negative impact on life insurance density.

Long-run coefficient: 0.0058 ($p = 0.570$)

Short-run coefficient: N/A

The hypothesis (H_2) proposes that inflation has a negative effect on life insurance density. However, the results from the ARDL model indicate that this assumption may be more complex, especially in the long run, where the relationship is not as straightforward as initially thought.

4.7.6.1 Long-Run Dynamics

The estimated long-run coefficient is 0.0058, with a p-value of 0.570. This coefficient implies a very weak positive relationship between inflation and life insurance density; however, the high p-value clearly indicates that the relationship is statistically insignificant at all conventional levels (1%, 5%, and 10%). This result does not support Hypothesis (H_2), as the coefficient is both statistically insignificant and positive, contrary to the expected negative impact of inflation. The absence of a significant long-term relationship suggests that inflation

does not erode life insurance density in the way traditionally expected. One potential explanation is that inflation may be offset by factors such as the ability of insurers to adjust premiums or benefits in response to changing economic conditions, thereby maintaining the value proposition of life insurance over time. This finding questions the belief that inflation always decreases the demand for life insurance by lowering the real value of future pay outs. For instance, research by Ehiogu, Eze, & Sunday (2018), along with Chizoba et al. (2018), illustrates how severe inflation can compromise life insurance demand.

4.7.6.2 Short-Run Dynamics

The short-run dynamics of the ARDL analysis suggest that inflation has an immediate effect on life insurance density, meaning that changes in inflation directly influence the uptake of life insurance within the same period. The absence of any lag effect, as indicated by a lag length of 0, implies that past levels of inflation do not have a delayed impact on life insurance density, reinforcing that the relationship between inflation and life insurance uptake is contemporaneous and does not persist over time.

4.7.6.3 Comparison with Life Insurance Penetration

When comparing the effects of inflation on life insurance density and life insurance penetration, different patterns emerge. The long-run coefficient for life insurance penetration (-0.0014, $p = 0.123$) is also statistically insignificant, suggesting that inflation does not have a meaningful long-term impact on penetration. This contrasts with the hypothesised negative relationship between inflation and penetration. In the short run, the coefficients for life insurance penetration (D1: -0.0003, $p = 0.313$; LD: 0.0002, $p = 0.217$; LD (second instance): 0.0056, $p = 0.08$) also show no significant effects, further supporting the notion that inflation does not decisively impact life insurance penetration either in the short or long term. The long-run coefficient for life insurance density presents a positive sign; however, the findings on both density and penetration indicate that inflation's overall impact on the life insurance market is less pronounced than expected, showing no significant or consistent negative effects. This aligns with the observations made by Haushofer et al. (2020) and Schanz (2020b), who suggest that life insurance products can help alleviate the financial strain caused by sudden inflation. As a result, consumers may continue to view life insurance products as appealing during periods of inflation.

The findings do not support Hypothesis (H_2), as inflation has no statistically significant

negative effect on life insurance density in the long run. The coefficient of 0.0058 ($p = 0.570$) indicates an insignificant relationship, challenging the assumption that inflation reduces the real value of life insurance products and household capacity to invest in them. Similarly, life insurance penetration shows no significant response to inflation, further complicating the assumption that inflation invariably hampers life insurance markets. These results suggest that life insurers may effectively mitigate the negative effects of inflation through price adjustments or policy modifications, stabilising both life insurance density and penetration. In light of these findings, the Human Capital Theory may offer some explanatory power, as individuals continue to invest in life insurance as a means of protecting their financial well-being, even in inflationary environments where other factors may compensate for the loss of purchasing power. Thus, while Hypothesis (H_2) is rejected for both life insurance density and penetration, the results highlight the complex interplay between inflation and the life insurance market.

4.7.7 Central Bank Independence and Life Insurance Density

Hypothesis (H_3): Central Bank Independence has a significant negative impact on life insurance density.

Long-run coefficient: 0.0079 ($p = 0.942$)

Short-run coefficient: N/A

Hypothesis (H_3) proposes that central bank independence (CBI) negatively affects life insurance density. However, the results from the ARDL model challenge this assumption and provide a deeper understanding of the relationship between central bank independence and life insurance density.

4.7.7.1 Long-Run Dynamics

Contrary to Hypothesis (H_3), the long-run coefficient for central bank independence is positive but statistically insignificant, with a value of 0.0079 ($p = 0.942$). This result suggests that central bank independence does not have a meaningful long-term impact on life insurance density, refuting the hypothesis that greater independence would negatively affect life insurance uptake. Central bank independence is traditionally associated with macroeconomic

stability, including effective inflation control and reduced monetary policy uncertainty. Such stability generally encourages long-term financial planning and investments, which should theoretically support higher life insurance density. However, the lack of statistical significance in this finding implies that while central bank independence may create a stable financial environment, it does not directly influence the demand for life insurance substantially.

4.7.7.2 Short-Run Dynamics

The short-run dynamics of the ARDL analysis indicate that central bank independence, similar to inflation, exerts an instantaneous influence on life insurance density. Changes in central bank independence directly affect life insurance density within the same timeframe. The lack of lagged impacts, evidenced by a lag length of 0, indicates that former levels of central bank independence does not impact current life insurance density, underscoring a contemporaneous relationship devoid of delayed influence from earlier times.

4.7.7.3 Comparison with Life Insurance Penetration

When comparing the effects of central bank independence on life insurance density and life insurance penetration, the results show a slight difference in outcomes. The long-run coefficient for life insurance penetration is also positive but small (0.0190, $p = 0.029$), indicating that central bank independence has a modest but statistically significant positive impact on penetration. This suggests that macroeconomic stability provided by an independent central bank may encourage a slight increase in the number of life insurance policies in force, reflecting greater participation in the life insurance market over time. However, this impact on penetration is relatively weak compared to what might be expected. In the short run, the effect on penetration is mixed, with a negative coefficient (D1: -0.0617, $p = 0.076$) showing that initial increases in central bank independence may slightly reduce penetration, while a positive lagged effect (LD: 0.0366, $p = 0.034$) indicates that over time, the stabilising benefits of independence gradually enhance market participation. The overall impact on penetration is modest, reflecting the slow adjustment of the market to macroeconomic stability brought about by greater central bank independence.

The results reject Hypothesis (H_3), as central bank independence does not have a significant negative impact on life insurance density. In fact, the long-run effect is statistically insignificant, indicating no meaningful influence of central bank independence on life insurance density. This suggests that the economic stability provided by central bank independence may not translate directly into increased household investment in life insurance. The comparison with life insurance penetration shows a slight positive long-term impact on penetration, although it remains modest. These findings suggest that while central bank independence may foster a stable financial environment, it does not play a central role in shaping life insurance demand, particularly in terms of density. The evidence aligns more with the Human Capital Theory, which suggests that households invest in life insurance to protect future financial stability when the economic environment is secure, but this effect is not as pronounced as initially hypothesised. Therefore, while central bank independence may have broader macroeconomic benefits, its role in directly influencing life insurance density and penetration appears limited.

4.7.8 Per Capita Income and Life Insurance Density

Hypothesis (H_4): Per capita income has a significant positive impact on life insurance density.

Long-run coefficient: -0.0025 ($p = 0.084$)

Short-run coefficient: D1: 0.0034 ($p = 0.022$)

Hypothesis (H_4) posits that per capita income positively influences life insurance density. The ARDL model results provide some evidence of a complex relationship between income and life insurance density, with differing outcomes in the long run and short run.

4.7.8.1 Long-Run Dynamics

Contrary to Hypothesis (H_4), the long-run coefficient for per capita income is negative, with a value of -0.0025 ($p = 0.084$), though it is statistically insignificant. This suggests that in the long run, rising per capita income does not have a significant positive impact on life insurance density as initially expected. The negative coefficient, while not statistically conclusive, challenges the traditional expectation that higher income should increase life insurance uptake. One possible explanation is that rising income levels may encourage households to seek

alternative financial products or investments, potentially diverting resources away from life insurance. Additionally, structural factors in the economy, such as limited access to formal financial services or a preference for informal risk mitigation strategies, could undermine the expected long-term relationship between income and life insurance density. Therefore, the long-run result does not support the hypothesised positive impact of income growth on life insurance density.

4.7.8.2 Short-Run Dynamics

In contrast, the short-run results show a statistically significant positive relationship between per capita income and life insurance density. The short-run coefficient (D1: 0.0034, $p = 0.022$) indicates that an immediate increase in income leads to a rise in life insurance density. This suggests that in the short term, households are more likely to invest in life insurance when their incomes increase, viewing it as a protective financial tool during periods of economic growth. The short-run positive effect reflects the ability of households to respond quickly to increases in disposable income by purchasing life insurance, which serves as both a safeguard against unforeseen risks and a long-term investment. This finding aligns with economic theory, which suggests that higher income levels enhance households' ability to utilise formal financial products. Previous research has also established a positive correlation between per capita income and life insurance adoption (e.g., Iyawe & Osamwonyi, 2021; Hagos, Kebede, & Shewakena, 2019; Ramij, 2021; Kabrt, 2022).

4.7.8.3 Comparison with Life Insurance Penetration

When comparing the effects of per capita income on life insurance density and life insurance penetration, the results reveal a distinction between the two dimensions. The long-run coefficient for life insurance penetration is small but positive (0.0002, $p = 0.025$), indicating that per capita income has a significant positive impact on penetration over time, albeit modest. However, the short-run impact on penetration (D1: -0.0003, $p = 0.313$) is insignificant, suggesting that short-term fluctuations in income do not strongly affect penetration. This contrasts with the short-run positive effect on life insurance density, where households appear more responsive to income changes. The difference may arise because penetration measures the overall participation in life insurance, which could be influenced by broader factors such as financial inclusion policies or market accessibility, whereas density focuses on the extent to which life insurance is embedded in households' financial planning.

The short-run positive relationship between per capita income and life insurance density supports Hypothesis (H₄), which indicates that income increases lead to greater life insurance uptake in the short term. However, the long-run negative and insignificant coefficient challenges the hypothesis, suggesting that over time, rising income does not necessarily translate into higher life insurance density, possibly due to alternative financial preferences or structural barriers within the economy. In comparison, life insurance penetration experiences a modest long-term positive effect of rising income but shows no significant short-run impact, highlighting the complexities in how income influences different aspects of the life insurance market. These findings align more closely with the Life Cycle Hypothesis, which suggests that households make financial decisions, including life insurance purchases, based on their income and life stage, but income volatility in the short run can temporarily affect these decisions. Therefore, while Hypothesis (H₄) could not be rejected for life insurance density in the short run, it is rejected in the long run and for life insurance penetration, illustrating the multifaceted relationship between income and life insurance markets.

4.7.9 Financial Development and Life Insurance Density

Hypothesis (H₅): Financial development has a significant positive influence on life insurance density.

Long-run coefficient: 0.1035 ($p = 0.124$)

Short-run coefficient: N/A

Hypothesis (H₅) posits that financial development positively influences life insurance density. However, the results indicate that while financial development does have a positive influence, it is statistically insignificant in the long run, and no short-run data is available to explore its immediate effects.

4.7.9.1 Long-Run Dynamics

The long-run coefficient for financial development is positive (0.1035) but statistically insignificant ($p = 0.124$), which suggests that financial development does not have a significant long-term impact on life insurance density, contrary to Hypothesis (H₅). While economic theory generally supports the notion that a developed financial system enhances access to and

trust in financial products such as life insurance, this result implies that financial development alone may not be enough to drive higher life insurance density. This outcome contrasts prior research that confirms the role of financial development in enhancing life insurance uptake (e.g., Cheng & Hou, 2022; Srbinoski et al., 2021; Zerriaa et al., 2017; Iyawe & Osamwonyi, 2017). The absence of statistical significance may result from multiple structural impediments inside the economy. For instance, inadequate financial literacy, unequal access to financial services, or the continuation of informal financial practices may hinder the translation of financial development into increased life insurance adoption. Some studies contend that financial development exacerbates income disparity, therefore leading to an increase in poverty and a decline in life insurance adoption (de Haan et al., 2022; Sanjeewa, 2021). Therefore, despite the positive coefficient, the long-run impact of financial development on life insurance density appears limited.

4.7.9.2 Short-Run Dynamics

The short-run dynamics of the ARDL analysis demonstrate that financial development has an immediate effect on life insurance density, meaning that changes in financial development directly impact life insurance density within the same period. The lack of lagged effects, indicated by a lag length of 0, suggests that past levels of financial development do not influence current life insurance density. This highlights that the relationship between financial development and life insurance density is contemporaneous, with no lasting effects from previous periods.

4.7.9.3 Comparison with Life Insurance Penetration

The analysis of financial development's impact on life insurance density and penetration reveals a statistically significant positive long-term relationship for life insurance penetration (0.0297, $p = 0.002$), indicating that financial development fosters increased market participation over time. This aligns with prior studies (Cheng & Hou, 2022; Srbinoski et al., 2021). However, the short-run coefficients for life insurance penetration are negative (D1: -0.0928, $p = 0.017$; LD: -0.0613, $p = 0.031$), indicating that financial development may initially reduce life insurance penetration before its long-term benefits become evident. This could be due to short-term market adjustments, where consumers and financial institutions need time to adapt to new products or financial environments. For life insurance density, the long-run impact of financial development is positive but statistically insignificant, reflecting a weaker influence compared to its impact on penetration. The difference in significance between life insurance

density and penetration suggests that while financial development may increase the number of policies in force (penetration), it does not necessarily lead to a substantial rise in the overall amount of life insurance held by households (density).

The results do not strongly support Hypothesis (H₅) regarding the positive long-term influence of financial development on life insurance density, as the long-run coefficient is statistically insignificant. This suggests that while financial development can improve access to financial products, it may not be sufficient to drive higher life insurance density without addressing other factors such as financial literacy and market structure. In contrast, financial development has a statistically significant positive impact on life insurance penetration in the long run, but the short-run negative coefficients suggest that market adjustments may temporarily hinder the adoption of life insurance. Therefore, Hypothesis (H₅) is rejected for life insurance density but could not be rejected for life insurance penetration, highlighting the complexity of financial development's impact on different dimensions of the life insurance market. The findings align more closely with the Human Capital Theory, which posits that individuals are more likely to invest in financial products when they perceive that doing so will enhance their long-term economic stability. However, short-term disruptions and structural barriers need to be addressed for financial development to fully realise its potential in promoting life insurance density.

4.7.10 Insurance Literacy and Life Insurance Density

Hypothesis (H₆): Insurance literacy has a significant positive influence on life insurance density.

Long-run coefficient: -4.3779 ($p = 0.003$)

Short-run coefficient: D1: 3.6424 ($p = 0.005$)

Hypothesis (H₆) posits that insurance literacy positively influences life insurance density significantly. However, while the ARDL model results indicate that insurance literacy has a negative influence on density, which is statistically significant in the long run, the short-run results show an opposite view.

4.7.10.1 Long-Run Dynamics

In the long run, insurance literacy is found to have a negative and statistically significant relationship with life insurance density. The coefficient of -4.3779 suggests that a one-unit increase in insurance literacy leads to a 4.38-unit decrease in life insurance density over time. The p-value of 0.003 indicates this result is highly significant (at the 1% level), meaning the negative long-run effect is unlikely to be due to random variation. This finding contradicts Hypothesis H_6 , which posits that insurance literacy would have a positive impact on life insurance density. A negative long-run effect suggests that, over time, as individuals become more knowledgeable about insurance and financial products, they may reassess the value of life insurance relative to other financial instruments and choose to reduce their reliance on it. This could occur as financially literate individuals gain a better understanding of the limitations, costs, and alternatives to life insurance, leading them to diversify their investment strategies in favour of products that offer higher returns or more flexibility, such as savings accounts, pension schemes, or mutual funds.

This finding is at odds with the conclusions drawn from most previous research, which overwhelmingly supports the notion that increased insurance literacy is positively correlated with higher life insurance penetration. Numerous studies have confirmed this positive relationship, including the works of Dankwah, Abubakari, & Bunyanso (2022), Bateman et al. (2020), Ehiorobo (2020), Kiwanuka & Sibindi (2023), Mamun et al. (2021), Ramij (2021), Wang et al. (2021a), Mare et al. (2019), and Weedige et al. (2019). These studies argue that individuals with greater financial literacy are better equipped to understand the importance of life insurance, evaluate the available options, and make informed decisions regarding insurance purchases. The divergence observed in the findings of the present study may underscore the unique contextual dynamics of Zimbabwe, where entrenched structural and market inefficiencies potentially undermine the positive impacts of insurance literacy. Furthermore, widespread consumer awareness of historical losses associated with legacy life insurance products continues to act as a significant deterrent to insurance uptake.

4.7.10.2 Short-Run Dynamics

In the short run, insurance literacy has a positive and statistically significant effect on life insurance density. A coefficient of 3.6424 indicates that a one-unit increase in insurance literacy leads to an approximate 3.64-unit increase in life insurance density, holding other factors constant. The p-value (0.005) is well below the conventional 5% significance level,

suggesting that this short-run relationship is statistically robust and unlikely to have occurred by chance. This short-run positive impact could be attributed to the initial awareness of the importance of life insurance as a risk management tool. As individuals become more educated about the benefits of life insurance, such as providing financial protection for dependents or covering outstanding debts, they may be more inclined to purchase policies, particularly in the early stages of their financial education. The initial boost in life insurance uptake reflects the notion that greater awareness and understanding of insurance products can lead to a more informed decision to invest in life insurance.

However, this short-term increase does not persist in the long term, as the negative long-run coefficient suggests. Over time, as individuals deepen their financial literacy, they may become more discerning consumers, critically evaluating the costs and benefits of maintaining life insurance policies. The long-run decline in life insurance density could reflect a preference for alternative financial products that offer more control or higher returns, especially as individuals grow more confident in managing their finances. In essence, while insurance literacy initially prompts individuals to engage with life insurance products, it may also lead to more sophisticated financial planning in the long run, reducing the overall demand for life insurance.

4.7.10.3 Comparison with Life Insurance Penetration

When comparing the impact of insurance literacy on life insurance density versus its effect on life insurance penetration, notable differences emerge. Life insurance penetration is typically defined as the ratio of total life insurance premiums to gross domestic product (GDP), reflecting the sector's relative contribution to the economy. In contrast, life insurance density refers to the per capita expenditure on life insurance, indicating the average amount spent by individuals on life insurance policies. For life insurance penetration, the long-run coefficient of 0.1176 ($p = 0.015$) reveals a modest but statistically significant positive relationship between insurance literacy and life insurance penetration. This suggests that as individuals become more knowledgeable about insurance products, more people purchase life insurance policies, leading to increased penetration. However, the positive effect is smaller in magnitude than what was hypothesised for density, reflecting the fact that while insurance literacy encourages broader participation in the insurance market, it does not necessarily lead to higher spending on insurance products.

The short-run coefficient for life insurance penetration is -0.3884 ($p = 0.065$), which is not statistically significant at conventional levels but still indicates a potential short-term decrease in life insurance penetration as insurance literacy increases. This could reflect a period of re-evaluation and adjustment, where newly educated individuals temporarily refrain from purchasing insurance as they reassess their financial needs and options. The lack of a statistically significant short-run effect on penetration may also suggest that individuals who acquire insurance literacy might take time to implement their new knowledge, gradually adopting life insurance policies once they feel more confident in their financial decisions.

The comparison between life insurance density and life insurance penetration highlights a crucial difference: while increased insurance literacy seems to encourage more individuals to purchase life insurance policies (penetration), it does not necessarily lead to increased per capita spending on life insurance (density). In fact, as seen in the long-run negative coefficient for density, individuals may choose to limit their financial commitment to life insurance over time, either by purchasing less expensive policies or by shifting their focus to other financial products that better suit their long-term objectives. This distinction between penetration and density underscores the different ways in which insurance literacy influences consumer behaviour in the life insurance market. While more people may enter the market (increased penetration), they may do so with more conservative spending patterns (lower density), reflecting a more informed and cautious approach to managing their financial risks.

The results lend stronger support to the Life Cycle Hypothesis over the Human Capital Theory in explaining the relationship between insurance literacy and life insurance density. According to the Life Cycle Hypothesis, individuals make financial decisions based on their expected lifetime income and consumption needs, adjusting their saving, investment, and insurance behaviours according to their life stage. The negative long-run relationship between insurance literacy and life insurance density suggests that, as individuals become more knowledgeable about financial products, they may shift their focus away from life insurance as they prioritise other forms of savings or investment that align more closely with their long-term financial goals. For instance, individuals in the wealth accumulation phase may prefer to invest in higher-yield assets such as stocks, real estate, or retirement funds, while those approaching retirement may focus on more secure, liquid savings options.

The results for Hypothesis H₆, which proposes that insurance literacy has a significant positive influence on life insurance density, are mixed. In the short run, the hypothesis is supported, as the data reveals a significant positive relationship between insurance literacy and life insurance density. This suggests that individuals who become more knowledgeable about insurance are initially more likely to purchase life insurance policies. However, in the long run, the relationship is significantly negative, as indicated by the coefficient of -4.3779 ($p = 0.003$), suggesting that higher levels of insurance literacy eventually lead to a decline in life insurance density. Therefore, Hypothesis H₆ is rejected in the long run, as the evidence does not support a sustained positive effect of insurance literacy on life insurance density. These findings imply that while increased insurance literacy can initially boost life insurance uptake, over time, more informed consumers may diversify their financial strategies, reducing their reliance on life insurance in favour of other financial products. This deeper understanding of the relationship between literacy and insurance behaviour highlights the importance of considering both short and long-term dynamics when evaluating the impact of financial education on insurance markets.

4.7.11 Age Dependency and Life Insurance Density

Hypothesis (H₇): Age dependency has a significant negative influence on life insurance density.

Long-run coefficient: -1.6683 ($p = 0.001$)

Short-run coefficient: N/A

The hypothesis (H₇) asserts that age dependency adversely affects life insurance density. The ARDL model findings corroborate the concept, revealing strong negative statistics in the long run; but short-term data is lacking to examine its immediate implications.

4.7.11.1 Long-Run Dynamics

The estimated long-run coefficient is -1.6683, with a p-value of 0.001. This indicates a strong, negative, and statistically significant relationship between age dependency and life insurance density in the long run. Specifically, a one-unit increase in the age dependency ratio is associated with a 1.67-unit decrease in life insurance density, holding all else constant. The p-value of 0.001 confirms that this result is highly significant at the 1% level, providing robust empirical support for Hypothesis H₇. This finding suggests that as the proportion of dependents

(children and elderly individuals) within a household increases, the financial burden of supporting non-working family members reduces households' capacity to invest in life insurance products. The negative long-run coefficient supports the idea that households with higher age dependency ratios face greater immediate financial pressures, such as caregiving and consumption expenses, which limit their disposable income and, consequently, their ability to allocate funds toward life insurance. This aligns with theoretical expectations that households under financial strain tend to prioritise immediate needs over long-term financial planning. As suggested by Caspi et al. (2016) and Zhang et al. (2023), households with a high dependency burden may prioritise immediate consumption and caregiving needs over future financial security, including life insurance purchases.

This result is consistent with a broad range of literature. For instance, Meko et al. (2019), Zhang et al. (2023), Nebolsina (2020), Olarewaju & Msomi (2021), and Oteng, Lartey, & Amofa (2023) all report that higher age dependency ratios tend to have a negative effect on life insurance penetration. These studies suggest that households facing higher dependency burdens are less likely to engage in financial planning for the long term, instead focusing on meeting the immediate needs of dependents. The current study's findings, therefore, corroborate these earlier works by illustrating the negative consequences of a high dependency ratio on the demand for life insurance in Zimbabwe.

4.7.11.2 Short-Run Dynamics

The short-run analysis of the ARDL model shows that age dependency has an immediate effect on life insurance density, meaning changes in the age dependency ratio directly influence life insurance density within the same period. With a lag length of 0, this suggests that previous levels of age dependency do not have a lasting impact on current life insurance density, indicating that the relationship is immediate and does not carry over into future periods.

4.7.11.3 Comparison with Life Insurance Penetration

The results for life insurance penetration provide a contrasting view of the impact of age dependency. For life insurance penetration, which measures the proportion of the population with life insurance, the long-run coefficient is -0.0080 ($p = 0.475$), indicating no significant relationship between age dependency and life insurance penetration in the long term. This finding diverges from the results for life insurance density, where age dependency has a clear negative effect. The absence of a significant relationship for penetration suggests that while

age dependency reduces overall spending on life insurance (density), it does not necessarily reduce the likelihood that households will purchase life insurance policies (penetration).

In the short run, however, the coefficient of 1.6555 ($p = 0.011$) for life insurance penetration shows a significant positive effect, suggesting that households may respond to short-term demographic shifts by increasing their life insurance coverage. This could reflect an immediate response to the financial risks associated with a growing number of dependents, as families seek to protect their dependents from potential income loss. However, the lagged effect of age dependency on life insurance penetration is negative, with a coefficient of -0.8218 ($p = 0.015$), suggesting that as time progresses, the financial strain of supporting dependents reduces the ability of households to maintain or expand their life insurance coverage. This mirrors the findings for life insurance density, where the long-term financial burden of age dependency leads to a reduction in life insurance investments.

The results largely support the Life Cycle Hypothesis rather than the Human Capital Theory. According to the Life Cycle Hypothesis, individuals make financial decisions based on their life stage and expected lifetime income, adjusting their saving and insurance behaviours according to the financial demands of supporting dependents. The negative long-run relationship between age dependency and life insurance density aligns with the Life Cycle Hypothesis, which suggests that as the financial burden of supporting children and elderly family members grows, households may prioritise immediate consumption needs and caregiving expenses over long-term investments in life insurance. This outcome implies that life insurance is viewed as a discretionary financial product, one that is sacrificed when households face financial pressures.

The findings for Hypothesis H₇ provide clear evidence that age dependency has a significant negative influence on life insurance density in the long run, supporting the hypothesis that as the age dependency ratio increases, households face greater financial constraints that reduce their capacity to invest in life insurance. This relationship is driven by the long-term financial burden of supporting non-working family members, which limits households' disposable income and ability to allocate funds to life insurance. As a result, Hypothesis (H₇) could not be rejected for life insurance density.

In contrast, the results for life insurance penetration are less straightforward. While the long-run coefficient is not statistically significant, the short-run positive effect of age dependency on life insurance penetration suggests that households may initially respond to demographic changes by purchasing life insurance policies. However, the long-term financial strain reflected in the negative lagged effect suggests that households' ability to maintain life insurance coverage diminishes over time. Therefore, Hypothesis (H7) is partially not rejected for life insurance penetration, as the short-run effects support the hypothesis, whereas the long-run effects do not exhibit the same clear negative relationship.

In summary, age dependency exerts a significant negative influence on life insurance density, consistent with the idea that higher dependency burdens reduce households' ability to invest in life insurance. The relationship with life insurance penetration is more complex, with short-term positive effects that eventually give way to the long-term financial strain associated with supporting dependents.

4.7.12 Life Expectancy and Life Insurance Density

Hypothesis (H₈): Life expectancy has a positive impact on life insurance density.

Long-run coefficient: 2.7209 (p = 0.000)

Short-run coefficient: D1: -2.0184 (p = 0.011)

The ARDL model results offer significant insights into the relationship between life expectancy and life insurance density, revealing a more complex dynamic than initially proposed by Hypothesis H₈. Contrary to the expectation that increasing life expectancy would positively influence life insurance density, the results demonstrate both positive and negative effects, depending on the time horizon.

4.7.12.1 Long-Run Dynamics

The long-run coefficient for life expectancy is estimated at 2.7209, with a p-value of 0.000, indicating a statistically significant and robust positive relationship in the long term. This result supports the hypothesis, suggesting that, ceteris paribus, a one-unit increase in life expectancy is associated with an increase of approximately 2.72 units in life insurance density. The statistical significance at the 1% level underlines the strength of this association and implies

that improvements in population health and longevity encourage higher consumption of life insurance products in the long run. This finding supports Hypothesis H₈, indicating that higher life expectancy leads to an increase in life insurance density. The positive relationship suggests that as individuals anticipate living longer, they recognise the importance of securing long-term financial protection through life insurance. This could reflect a growing awareness that a longer life span increases the likelihood of needing to provide for dependents for an extended period, thus motivating households to invest more in life insurance. Additionally, the prospect of a longer retirement may drive individuals to seek more financial security to ensure their well-being in later years, increasing demand for life insurance products that serve as a financial safety net.

In this context, life insurance is likely seen as a crucial tool for mitigating the financial risks associated with longevity, such as outliving savings or facing increased healthcare costs in old age. The positive long-run relationship between life expectancy and life insurance density also suggests that households may view life insurance as part of a broader portfolio of financial products aimed at protecting income and ensuring financial stability across the life course. This aligns with the theory that longer life spans create greater demand for long-term financial planning solutions, with life insurance playing a key role in these strategies.

The relationship between life expectancy and life insurance demand is however known to be complex and influenced by a range of factors, including motivations related to mortality risk and savings behaviour (Cristea et al., 2021). The literature provides a diverse array of findings on this topic. For example, Sianipar & Hutagalung (2021) found a positive relationship between life expectancy and life insurance uptake, suggesting that as people live longer, they may become more inclined to invest in life insurance to provide for their later years. Conversely, Reddy, Reddy, & Naidu (2019) identified a negative relationship, indicating that higher life expectancy might reduce life insurance demand, possibly due to a decreased sense of urgency in securing financial protection. Similarly, Srinivasan & Mitra (2024) found no statistically significant relationship, further illustrating the complexity and variability in how life expectancy interacts with life insurance penetration.

4.7.12.2 Short-Run Dynamics

In contrast, the short-run dynamics reveal a more complex and somewhat contradictory relationship. The short-run coefficient of -2.0184 and a p-value of 0.011 indicate a significant

negative impact of life expectancy on life insurance density in the short term. This suggests that households may initially reduce their investment in life insurance when faced with increasing life expectancy. A plausible explanation for this short-term reduction could be that as life expectancy rises, households may reassess their immediate financial needs, potentially shifting their focus away from life insurance to other short-term financial priorities. This reassessment could stem from an evolving perception of risk, where the urgency to secure life insurance diminishes as individuals anticipate a longer working life or the ability to accumulate more savings over time. In the short term, households might prioritise liquidity or investment in other assets, anticipating that life insurance can be postponed until later stages of life when financial risks become more pressing.

This short-term negative effect may also reflect a temporary adjustment period as households recalibrate their financial strategies in response to changing life expectancy. As life spans increase, families may initially opt to invest in more flexible financial products that offer immediate returns or greater adaptability to shifting economic circumstances. Over time, however, the positive long-run effect of life expectancy on life insurance density suggests that households ultimately recognise the value of life insurance as a long-term financial planning tool.

4.7.12.3 Comparison with Life Insurance Penetration

The relationship between life expectancy and life insurance penetration (the proportion of the population holding life insurance policies) presents a different dynamic. The long-run coefficient of 0.0084 ($p = 0.498$) for life insurance penetration is positive, but not statistically significant. This suggests that while life expectancy may have a positive effect on life insurance penetration, the evidence is not strong enough to confirm this relationship. This lack of significance indicates that while longer life spans might encourage more people to consider purchasing life insurance, other factors may moderate the impact of life expectancy on the broader uptake of life insurance policies.

In the short run, the coefficient for life insurance penetration is negative, with a value of -0.5889 ($p = 0.008$), indicating that as life expectancy rises, fewer households may purchase life insurance policies in the immediate term. This finding is consistent with the short-run dynamics observed in relation to life insurance density, whereby households may initially curtail their expenditure on life insurance as they re-evaluate their financial priorities. This behaviour may

also be indicative of adverse selection, in which individuals who are in good health and anticipate greater longevity postpone the purchase of life insurance, perceiving a diminished immediate need for coverage (Dionne, Fombaron, & Mimra, 2023). Similarly, the lagged effect of life expectancy on life insurance penetration is negative, with a coefficient of -0.4994 ($p = 0.007$). This suggests that the short-term reduction in life insurance penetration persists over time, likely reflecting a broader recalibration of financial strategies in response to longer life spans. Households may delay purchasing life insurance until they have a clearer understanding of how increased life expectancy will affect their long-term financial planning.

The comparison of life insurance density and penetration reveals an important divergence. While life insurance density (the amount spent on life insurance per capita) grows over time as life expectancy rises, life insurance penetration has a more equivocal relationship, with short-term decreases and no substantial long-term influence. This implies that, while households with longer life expectancy may invest more in life insurance, this does not always result in a larger increase in the proportion of the population acquiring life insurance policies. Instead, increasing life insurance density could indicate increased spending by existing policyholders rather than a major expansion of life insurance coverage across the population.

The findings provide stronger support for the Life Cycle Hypothesis over the Human Capital Theory. The Life Cycle Hypothesis suggests that individuals make financial decisions based on their expected lifetime income and consumption patterns, adjusting their savings and insurance behaviours to align with different stages of life. The positive long-run relationship between life expectancy and life insurance density is consistent with this hypothesis, as longer life spans create a greater need for long-term financial planning and risk management. Households may seek to protect their income over an extended period, anticipating longer retirements and the potential for increased healthcare costs in old age, which encourages greater investment in life insurance.

The results indicate a complex relationship between life expectancy and life insurance density. In the long run, life expectancy has a positive and statistically significant impact on life insurance density, supporting Hypothesis H₈ and suggesting that longer life spans increase the demand for life insurance as part of long-term financial planning. However, the short-run results reveal a significant negative effect, indicating that households may initially reduce their

life insurance expenditure as they adjust to rising life expectancy, possibly prioritising other financial needs in the immediate term.

When comparing these findings with life insurance penetration, the relationship is less clear. The long-run effect of life expectancy on life insurance penetration is positive but not significant, while the short-run effect is negative, indicating that life expectancy does not significantly increase the proportion of households purchasing life insurance. These results suggest that life expectancy influences life insurance density more than penetration, implying that households with longer life spans may invest more in life insurance but do not necessarily drive broader market participation.

Ultimately, Hypothesis (H8) could not be rejected for life insurance density in the long run but is rejected in the short run. Additionally, while life expectancy may play a role in shaping life insurance penetration, the evidence remains inconclusive, warranting further research to better understand the factors mediating this relationship in different socio-economic contexts.

4.7.13 Unemployment and Life Insurance Density

Hypothesis (H₉): Unemployment has a significant negative impact on life insurance density.

Long-run coefficient: 3.4025 ($p = 0.102$)

Short-run coefficient: D1: 3.6200 ($p = 0.063$)

The ARDL model results reveal an intriguing relationship between unemployment and life insurance density, challenging the conventional expectation that unemployment would negatively impact life insurance density. Hypothesis H₉, which posits that unemployment exerts a significant negative effect on life insurance density, is not fully supported by the data, as both the long-run and short-run coefficients demonstrate more complex dynamics than anticipated.

4.7.13.1 Long-Run Dynamics

The long-run coefficient for unemployment is estimated at 3.4025, with a p-value of 0.102. While the coefficient is positive, its statistical insignificance at conventional levels (typically 5% or 10%) suggests that there is no compelling evidence to support a long-term relationship

between unemployment and life insurance density in the observed context. The positive sign, albeit statistically insignificant, implies that higher unemployment might not necessarily reduce life insurance purchases in the long run, as households might adjust their financial strategies over time. This finding challenges the assumption that unemployment uniformly constrains households' ability to invest in life insurance products. Instead, it suggests that other factors, such as social safety nets, informal income sources, or long-term financial planning behaviours, could mitigate the negative effects of unemployment on life insurance density. In contrast, a substantial body of previous research has confirmed a negative relationship between unemployment and life insurance penetration. For instance, studies conducted by Segodi & Sibindi (2022), Mare et al. (2019), Buric et al. (2017), Simionescu (2022), and Arifin, Jusoh, & Zaghlol (2023) consistently found that higher unemployment rates tend to depress life insurance demand. These studies argue that during periods of elevated unemployment, households face heightened financial uncertainty, which reduces their capacity or willingness to invest in long-term financial products like life insurance. The absence of formal employment often results in lower disposable incomes, making it more challenging for individuals to prioritise the purchase of insurance policies.

One plausible explanation for this outcome is the predominance of informal economic activities within Zimbabwe's economy. Official unemployment statistics may fail to fully capture the extent of economic insecurity, as many individuals who are formally unemployed may still be engaged in informal work. As a result, they may not perceive life insurance as a critical financial safety net, potentially reducing demand for such products.

4.7.13.2 Short-Run Dynamics

The short-run results present a different and somewhat unexpected dynamic. The short-run coefficient of 3.6200 with a p-value of 0.063 indicates a marginal significance at the 10% level. The positive sign is again counter to the hypothesised negative relationship, suggesting that in the short term, rising unemployment may be associated with an increase in life insurance density. One plausible explanation for this unexpected result is that households experiencing unemployment might view life insurance as a necessary precautionary measure, especially during periods of economic uncertainty. Faced with income instability, individuals may prioritise life insurance to ensure financial protection for their dependents in case of further adverse economic events. This behaviour could reflect a short-term strategy to safeguard against future risks, despite the immediate financial pressures imposed by unemployment.

Households may choose to invest in life insurance as a form of security, particularly if they anticipate a prolonged period of joblessness or economic instability.

This short-run positive effect could also be influenced by temporary factors, such as severance packages, unemployment benefits, or other forms of short-term income support that enable households to purchase life insurance during unemployment spells. Over time, however, these temporary financial buffers may dissipate, leading to different long-term financial strategies that do not prioritise life insurance.

4.7.13.3 Comparison with Life Insurance Penetration

When comparing the impact of unemployment on life insurance density with its effect on life insurance penetration notable differences emerge. The long-run coefficient for life insurance penetration is -0.3397 ($p = 0.002$), indicating a significant negative impact of unemployment on life insurance penetration. This result is consistent with Hypothesis H₉ and suggests that as unemployment rises, fewer individuals purchase life insurance policies, likely due to financial constraints that prevent broader participation in the insurance market. Households facing unemployment may not have sufficient disposable income to afford life insurance policies, leading to a decline in market penetration.

In the short run, however, the coefficient for life insurance penetration is 1.1500 ($p = 0.014$), indicating a significant positive effect. This mirrors the short-run results for life insurance density and suggests that unemployment can lead to a temporary increase in the proportion of households purchasing life insurance. This short-term spike in life insurance penetration might be driven by similar factors, such as precautionary purchases or temporary financial support, which enable households to secure life insurance during periods of unemployment. The lagged effect of unemployment on life insurance penetration, however, is not statistically significant, with a coefficient of 0.4218 ($p = 0.142$), suggesting that this short-term behaviour may not persist over time.

The comparison between life insurance density and life insurance penetration reveals an interesting divergence in how unemployment affects these two measures. While unemployment increases life insurance density in the short run, it suggests that those who purchase insurance might invest more heavily, the long-run decline in life insurance penetration indicates that fewer households are participating in the market overall. This suggests that

unemployment's effect on life insurance density may reflect increased spending by a smaller, possibly more financially resilient, subset of households, rather than broader market engagement.

The findings offer partial support for the Life Cycle Hypothesis over the Human Capital Theory in explaining the relationship between unemployment and life insurance density. The Life Cycle Hypothesis suggests that individuals make financial decisions based on their expected lifetime income and consumption needs, adjusting their behaviour in response to different stages of life. The short-run positive effect of unemployment on life insurance density aligns with this hypothesis, as households might respond to income shocks by prioritising life insurance as a precautionary measure during periods of economic uncertainty. This short-term behaviour suggests that individuals may seek to protect their future income and financial security, even when facing current financial constraints.

The results for Hypothesis H₉, which suggests that unemployment has a significant negative impact on life insurance density, are mixed. In the long run, unemployment does not exert a statistically significant negative impact on life insurance density, with a positive but insignificant coefficient of 3.4025 ($p = 0.102$). This challenges the hypothesis and suggests that unemployment may not necessarily reduce life insurance investment in the long run. However, the short-run results indicate a positive relationship between unemployment and life insurance density, suggesting that households may respond to unemployment by purchasing life insurance as a precautionary measure, despite financial constraints.

For life insurance penetration, the long-run effect of unemployment is significantly negative, supporting Hypothesis H₉. This finding highlights the broader impact of unemployment on limiting access to life insurance, as fewer households can participate in the market during periods of economic instability. The short-run positive effect on life insurance penetration, however, reflects the complexity of financial decision-making in the face of unemployment, as some households may temporarily increase their life insurance coverage during times of economic uncertainty.

In summary, Hypothesis (H₉) could not be rejected for life insurance penetration in the long run but is rejected for life insurance density, where the effects of unemployment appear more complex and vary across different time horizons. Further research is needed to explore the

underlying mechanisms that drive these differing short- and long-term effects, particularly in contexts with high levels of informal employment or temporary income support.

4.7.14 Conclusion: Life Insurance Density

In conclusion, the analysis of life insurance density reveals a multifaceted relationship between economic, demographic, and financial factors. The model's strong performance, with high R-squared and significant error correction terms, demonstrates its reliability in explaining life insurance density. Key factors such as the size of the informal sector, inflation, central bank independence, and financial development exhibit varied impacts, with divergent effects observed in the long and short run. While the Life Cycle Hypothesis provides a consistent framework for understanding the long-term behaviours associated with life insurance density, such as the negative impact of age dependency and unemployment, the short-run dynamics are often more aligned with immediate economic adjustments, such as the positive effects of insurance literacy and informal sector size. Additionally, life expectancy and unemployment challenge conventional assumptions, showing complex interactions that warrant further investigation. Overall, this analysis underscores the importance of considering both short- and long-term perspectives when assessing life insurance markets, particularly in relation to evolving economics.

The ARDL model results for life insurance density provide valuable insights into the factors shaping Zimbabwe's life insurance market. Hypotheses H1, H7, and H8 are not rejected, while Hypotheses H2, H3, H5, H6, and H9 are rejected due to a lack of statistical significance or the presence of results contrary to expectations. Hypothesis H4 is partially supported, with evidence of short-run positive effects. A comparison with life insurance penetration results reveals notable differences in how macroeconomic and demographic variables influence both the overall market size and per capita premium levels. While some factors (e.g., informal sector size, age dependency, life expectancy) consistently influence both density and penetration, others (e.g., per capita income, financial development) affect these measures differently. Policymakers should consider these complexities when designing interventions to expand life insurance access in Zimbabwe.

4.8 Post-Estimation Diagnostic Tests: Using Life Insurance Penetration as the Dependent Variable

This section interprets the post-diagnostic tests run for the ARDL model with life insurance penetration as the dependent variable. The diagnostic tests include the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity, the Breusch-Godfrey test for autocorrelation, and the Pesaran/Shin/Smith ARDL Bounds Test for cointegration.

Table 4.9 Post-Estimation Diagnostic Tests

Test	Null Hypothesis (H0)	Statistic	Critical Value / df	p-Value	Conclusion
Breusch-Pagan / Cook-Weisberg Test	Constant variance (Homoskedasticity)	Chi-squared (χ^2) = 0.00	-	0.9715	Fail to reject H0. No evidence of heteroskedasticity, ensuring constant variance of residuals across predicted values. The model is efficient and reliable for inference.
Breusch-Godfrey LM Test	No autocorrelation in the residuals	Chi-squared (χ^2) = 1.608	Degrees of freedom = 1	0.205	Fail to reject H0. No significant autocorrelation at lag 1. Residuals are independent over time, ensuring unbiased estimates and model validity.
ARDL Bounds Test (F-statistic)	No long-run relationship (No cointegration)	F-statistic = 30.914	Upper bound critical value (1%) = 3.97	-	Reject H0. Strong evidence of a long-run equilibrium relationship between life insurance penetration and independent variables, indicating cointegration and a stable long-term relationship.
ARDL Bounds Test (t-statistic)	No long-run relationship (No cointegration)	t-statistic = -5.571	Upper bound critical value (1%) = -5.54	-	Reject H0. t-statistic exceeds critical value, providing additional evidence of cointegration. The model captures long-term dynamics between life insurance penetration and its determinants.

Source: Authors' Calculations in Stata 14.2 (2024)

4.9.1 Post-Diagnostic Tests Interpretation: Life Insurance Penetration

The Breusch-Pagan / Cook-Weisberg test for heteroskedasticity yielded a p-value of 0.9715, well above the conventional 0.05 significance threshold. Consequently, the null hypothesis of constant variance could not be rejected, confirming homoskedasticity in the residuals. This indicates that the variance of residuals is stable across the predicted values, a critical assumption ensuring that ordinary least squares (OLS) estimates remain efficient and unbiased (Wooldridge, Wadud, & Lye, 2016). The absence of heteroskedasticity suggests the model is well-specified and reliable for hypothesis testing and inference (Washington, Karlaftis, & Mannering, 2020).

The Breusch-Godfrey LM test for autocorrelation produced a p-value of 0.205, also exceeding the 0.05 threshold. This result indicates no significant autocorrelation at lag 1, implying that the model's residuals are independent over time. The absence of serial correlation supports unbiased and efficient parameter estimates, ensuring the model's validity for time series analysis (Enders, 2022). Autocorrelation can lead to inefficiencies and biased estimates if not addressed, but its absence in this model strengthens confidence in the robustness of its outputs (Gujarati & Porter, 2009).

The ARDL Bounds Test for cointegration evaluated whether a long-run relationship exists between life insurance penetration and the independent variables. The F-statistic of 30.914 exceeded the upper bound critical value of 3.97 at the 1% significance level, leading to the rejection of the null hypothesis of no cointegration. This robust evidence indicates a stable, long-term equilibrium relationship between life insurance penetration and the explanatory variables, suggesting they move together over time despite short-term fluctuations (Pesaran, Shin, & Smith, 2001).

The t-statistic of -5.571 also surpassed the critical value of -5.54 at the 1% significance level. It further supported the rejection of the null hypothesis of no cointegration, providing additional confirmation of a stable, long-term relationship (Phillips & Hansen, 1990). The consistency between the F-statistic and t-statistic strengthens confidence in the model's ability to capture long-term dynamics, making it valuable for forecasting and policy analysis.

In summary, the diagnostic tests collectively demonstrate the robustness of the model. There is no evidence of heteroskedasticity or autocorrelation, and strong evidence supports the existence of a long-run cointegrating relationship between life insurance penetration and explanatory variables. These findings validate the model's reliability for analysing long-term trends in Zimbabwe's life insurance market and provide meaningful insights for policymakers and industry analysts (Enders, 2022; Pesaran et al., 2001).

4.9 Post-Estimation Diagnostic Tests: Using Life Insurance Density as The Dependent Variable

The following section provides a detailed interpretation of the post-diagnostic tests conducted on an ARDL model, where life insurance density is the dependent variable. These diagnostic

tests are essential for assessing the model's validity and ensuring that it satisfies the key assumptions required for reliable statistical inference (Wooldridge, Wadud, & Lye, 2016). The tests include the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity, which examines whether the variance of the residuals is constant; the Breusch-Godfrey test for autocorrelation, which assesses whether there is any serial correlation in the residuals over time; and the Pesaran/Shin/Smith ARDL Bounds Test for cointegration, which evaluates whether a long-run equilibrium relationship exists between life insurance density and the independent variables (Andriani, 2017; Natsiopoulou & Tzeremes, 2022; Rois et al., 2012). Together, these tests help to verify the robustness of the ARDL model and ensure that its results can be trusted for policy analysis and forecasting.

Table 4.10 Post-Estimation Diagnostic Tests

Test	Null Hypothesis (H0)	Statistic	Critical Value / df	p-Value	Conclusion
Breusch-Pagan / Cook-Weisberg Test	Constant variance (Homoskedasticity)	Chi-squared (χ^2) = 2.74	-	0.0976	Fail to reject H0. No evidence of heteroskedasticity at the 5% level, ensuring stable variance across predicted values. This confirms the efficiency and reliability of model estimates.
Breusch-Godfrey LM Test	No autocorrelation in the residuals	Chi-squared (χ^2) = 1.426	Degrees of freedom = 1	0.2324	Fail to reject H0. No significant autocorrelation at lag 1. The model's residuals are independent over time, which supports unbiased and efficient parameter estimates.
ARDL Bounds Test (F-statistic)	No long-run relationship (No cointegration)	F-statistic = 6.058	Upper bound critical value (1%) = 3.97	-	Reject H0. The F-statistic exceeds the upper bound critical value, indicating strong evidence of a long-term equilibrium relationship between life insurance density and independent variables.
ARDL Bounds Test (t-statistic)	No long-run relationship (No cointegration)	t-statistic = -4.521	Upper bound critical value (1%) = -4.56	-	Reject H0. The t-statistic exceeds the critical value at the 1% level, providing additional but evidence of cointegration. Combined with the F-statistic, this suggests a stable long-term relationship.

Source: Authors' Calculations in Stata 14.2 (2024)

The Breusch-Pagan / Cook-Weisberg test for heteroskedasticity yielded a chi-squared value of 2.74 and a p-value of 0.0976, which is above the 0.05 significance threshold. Therefore, the null hypothesis of constant variance could not be rejected, indicating that the variance of residuals remains stable across predicted values. This finding suggests that the model does not exhibit heteroskedasticity, ensuring efficient and unbiased parameter estimates (Wooldridge et

al., 2016). The stability of the residual variance further enhances the model's reliability and the robustness of its conclusions (Schroeder et al., 2020).

The Breusch-Godfrey LM test for autocorrelation produced a chi-squared value of 1.426 with a p-value of 0.2324, exceeding the 0.05 threshold. This indicates the null hypothesis of no autocorrelation at lag 1 could not be rejected, confirming that the model's residuals are not serially correlated. The absence of serial correlation is critical for maintaining the validity of statistical inferences in time series models (Enders, 2022). Additionally, the lack of autocorrelation ensures that parameter estimates are efficient and free from bias, reinforcing the model's reliability (Gujarati & Porter, 2009).

The ARDL Bounds Test evaluated the presence of a long-run equilibrium relationship between life insurance density and its independent variables. The F-statistic of 6.058 exceeded the upper bound critical value of 3.97 at the 1% significance level. This robust result indicates the rejection of the null hypothesis of no cointegration, suggesting a strong, stable long-term relationship between the variables (Pesaran, Shin, & Smith, 2001).

The t-statistic of -4.521, although marginally above the upper bound critical value of -4.56 at the 1% level, still provided evidence to reject the null hypothesis of no cointegration. Although weaker than the F-statistic result, the t-statistic further supports the existence of a cointegrated relationship (Harris & Sollis, 2003). The consistency of these findings indicates that life insurance density and the explanatory variables move together over time, allowing for meaningful analysis of long-term dynamics and trends (Phillips & Hansen, 1990).

In summary, the diagnostic tests collectively indicate that the model is well-specified. There is no evidence of heteroskedasticity or autocorrelation, and strong support exists for a long-run equilibrium relationship between life insurance density and the independent variables. This underscores the model's reliability for long-term forecasting and policy analysis, providing valuable insights into the factors driving life insurance density over time (Pesaran, Shin, & Smith, 2001).

4.10 Chapter Four Summary Results

The analysis of life insurance penetration and density in Zimbabwe, based on descriptive statistics, highlights several crucial factors influencing the insurance market. Life insurance penetration is notably low, with a mean value of 1.486, indicating a significant underutilisation of insurance services. The dominance of the informal sector, with a mean of 60.810%, restricts access to formal insurance products due to income instability and irregular employment, consistent with findings by Afriyie et al. (2023). Other economic challenges, including low per capita income, high inflation volatility, weak central bank independence, and underdeveloped financial structures, further constrain the growth of the insurance sector (Chakraborty & Das, 2022). Additionally, a high dependency ratio (mean: 80.844%) and low life expectancy (mean: 54.378) present significant obstacles, both reducing household capacity for discretionary spending on long-term products such as life insurance. The low mean score for insurance literacy (5.239) suggests a significant knowledge gap, which hampers the population's understanding of life insurance products and their benefits (Kiwanuka & Sibindi, 2023).

The correlation matrix supports the view that Zimbabwe's substantial informal economy presents barriers to life insurance penetration, as it correlates negatively with higher income levels and insurance uptake, similar to the findings of Beck and Webb (2003). However, economic factors such as rising per capita income, financial development, and central bank independence are positively associated with higher insurance penetration, reflecting potential growth opportunities (Cheng & Hou, 2022). Inflation, unemployment, and broader macroeconomic conditions are shown to significantly impact life insurance uptake, as they influence individuals' ability to afford and sustain insurance policies. Multicollinearity is not a concern in the model, as correlation coefficients remained below the threshold of 0.8 (Schreiber-Gregory, 2018), ensuring the reliability of the regression estimates.

The lag length selection for the ARDL model demonstrates that most independent variables, including income, inflation, central bank independence, and financial development, have an effect on life insurance penetration over two periods. This reflects the delayed nature of their influence, in line with previous literature (Beck & Webb, 2003). In contrast, variables such as informal sector size and insurance literacy exhibit more immediate effects on life insurance penetration, requiring only one lag. For life insurance density, variables such as per capita income and unemployment show immediate impacts, while inflation and financial development have contemporaneous effects.

The initial tests reveal that variables like life insurance penetration, the size of the informal sector, and per capita income are non-stationary at their original levels, meaning their values fluctuate unpredictably over time. However, after taking the first difference, they become stationary, showing long-term trends similar to those found by Romelli (2022). In contrast, inflation and financial development are stationary at their original levels, so they can be used directly in the ARDL model. These findings highlight the importance of including both non-stationary (I(1)) and stationary (I(0)) variables in their appropriate forms for accurate modeling of both long-term and short-term relationships.

The ARDL results for life insurance penetration show that informal sector size, per capita income, central bank independence, financial development, and insurance literacy have positive long-term effects on penetration, while unemployment has a significant negative effect. These results align with the Human Capital Theory, which suggests that higher levels of financial and institutional development foster insurance market growth (Chen et al., 2006). In the short run, unemployment and financial development continue to exhibit significant effects, while inflation and the dependency ratio remain insignificant. By contrast, for life insurance density, informal sector size and insurance literacy negatively affect density, while life expectancy has a significant positive impact. These findings are consistent with Leightner (2023), who identified life expectancy as a key determinant of insurance demand. Unemployment, central bank independence, and per capita income are not significant in the long term for density, though they exhibit some short-run effects.

A comparison between the models for life insurance penetration and density reveals several differences. While both are influenced by similar economic and demographic factors, their sensitivities differ. Life insurance penetration is more responsive to macroeconomic variables such as income and financial development, while life insurance density is more affected by demographic factors like life expectancy and the dependency ratio. This reflects the dual nature of life insurance, where macroeconomic factors drive market size, while demographic factors influence the level of per capita premiums (Beck & Webb, 2003). The negative impact of the informal sector on both measures highlights the structural barriers within the economy, where informal workers engage with insurance products but contribute lower premiums (Afriyie et al., 2023).

The post-estimation diagnostic tests confirm that both models are robust and well-specified. The Breusch-Pagan test shows no evidence of heteroskedasticity for life insurance penetration ($p = 0.9715$) and marginal evidence for life insurance density ($p = 0.0976$). The Breusch-Godfrey test reveals no significant autocorrelation in either model. Furthermore, the Pesaran/Shin/Smith ARDL Bounds Test provides strong evidence of a long-run equilibrium relationship for both penetration ($F = 30.914$) and density ($F = 6.058$), confirming the existence of stable long-term relationships between the dependent variables and their predictors (Pesaran, Shin, & Smith, 2001). These results suggest that the models are reliable for understanding the long-term dynamics influencing life insurance in Zimbabwe.

4.11 Summary ARDL Results

Table 4.7: Summary ARDL Results

Independent Variable		Hypotheses for Both Life Insurance Penetration and Life Insurance Density.	Life Insurance Penetration		Life Insurance Density	
			Long-Run	Short-Run	Long-Run	Short-Run
Informal Sector Size	H ₁	Negative	Coeff: (0.2517, $p = 0.013$). Positive: Significant (Reject)	Coeff: (-0.3988, $p = 0.117$). Negative: Insignificant. (Reject)	Coeff: (-5.6708, $p = 0.008$). Negative: Significant (Fail to reject)	Coeff: (D1: 2.5913, $p = 0.048$). Positive Significant (Reject)
Inflation	H ₂	Negative	Coeff: (-0.0014, $p = 0.123$). Negative: Insignificant	Coeff: (D1: -0.0003, $p = 0.313$). Negative: Insignificant. (Partial Rejection)	Coeff: (0.0058, $p = 0.570$). Positive: Insignificant. (Reject)	No lag effect: Immediate Effect

			(Partial Rejection)	(LD: 0.0056, p = 0.08). Positive: Significant. (Reject)		
Central Bank Independence	H ₃	Significant Negative	Coeff: (0.0190, p = 0.029). Positive: Significant (Reject)	Coeff: (D1: - 0.0617, p = 0.076). Negative: Insignificant. (Reject) Coeff: (LD: 0.0366, p = 0.034). Positive: Significant. (Reject)	Coeff: (0.0079, p = 0.942). Positive: Not Significant. (Reject)	No lag effect: Immediate Effect
Per Capita Income	H ₄	Significant Positive:	Coeff: (0.0002, p = 0.025). Positive: Significant. (Fail to reject)	Coeff: (D1: - 0.0003, p = 0.313). Negative: Insignificant. (Reject) LD: 0.0002 (p = 0.217) Positive: Insignificant. (Reject)	Coeff: (-0.0025, p = 0.084). Negative: Insignificant. (Reject)	Coeff: (D1: 0.0034, p = 0.022). Positive: Significant. (Fail to reject)

Financial Development	H ₅	Significant Positive	Coeff: (0.0297, p = 0.002). Positive: Significant. (Fail to reject)	Coeff: (D1: - 0.0928, p = 0.017). Negative: Insignificant. (Reject) Coeff: (LD: - 0.0613, p = 0.031). Negative: Significant. (Reject)	Coeff: (0.1035, p = 0.124). Positive: Insignificant. (Reject)	No lag effect: Immediate Effect.
Insurance Literacy	H ₆	Significant Positive	Coeff: (0.1176, p = 0.015). Positive: Significant. (Fail to reject)	Coeff: (D1: - 0.3884, p = 0.065). Negative: Insignificant. (Reject)	Coeff: (-4.3779, p = 0.003). Negative: Significant. (Reject)	Coeff: (D1: 3.6424, p = 0.005). Positive: Significant. (Fail to reject)
Age Dependency	H ₇	Significant Negative	Coeff: (- 0.0080, p = 0.475). Negative: Insignificant. (Reject)	Coeff: (D1: 1.6555, p = 0.011). Positive: Significant. (Reject) Coeff: (LD: - 0.8218, p = 0.015). Negative: Significant.	Coeff: (-1.6683, p = 0.001). Negative: Significant. (Fail to reject)	No lag effect: Immediate Effect.

				(Fail to reject)		
Life Expectancy	H ₈	Positive	Coeff: (0.0084, p = 0.498). Positive: Insignificant. (Reject)	Coeff: (D1: - 0.5889, p = 0.008). Negative: Significant. (Reject) (Coeff: (LD: - 0.4994, p = 0.007). Negative: Significant. (Reject)	Coeff: (2.7209, p = 0.000). Positive: Significant. (Fail to reject)	Coeff: (D1: - 2.0184, p = 0.011). Negative: Significant. (Reject)
Unemployment	H ₉	Significant Negative	Coeff: (- 0.3397, p = 0.002). Negative: Significant. (Fail to reject)	Coeff: (D1: 1.1500, p = 0.014). Positive: Insignificant. (Reject) Coeff: (LD: 0.4218, p = 0.142). Positive: Insignificant. (Reject)	Coeff: (3.4025, p = 0.102). Positive: Insignificant. (Reject)	Coeff: (D1: 3.6200, p = 0.063). Positive: Insignificant. (Reject)

Source: Author's Compilation (2024)

4.12 Chapter Summary

Chapter Four examined the challenges of life insurance penetration in Zimbabwe's predominantly informal economy through a detailed review of the data. The autoregressive

distributed lag (ARDL) model was utilised to analyse both short- and long-term relationships between key macroeconomic variables, including the informal sector size, per capita income, inflation, financial development, and demographic factors. Descriptive statistics and a correlation matrix provided an initial overview of the dataset, while pre-estimation diagnostic tests ensured the model's robustness. The selection of the optimal lag length further refined the ARDL model, which was applied to assess both life insurance penetration and density. Post-estimation diagnostic tests validated the model's accuracy. The chapter systematically evaluated the hypotheses proposed in Chapter One, with the results either confirming or refuting them based on empirical evidence. The analysis underscored the structural barriers hindering life insurance penetration in Zimbabwe and offered critical insights for policymakers and industry stakeholders. The next chapter presents the study's summary, conclusions, and recommendations.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter serves to synthesise the primary insights derived from the study, drawing together the critical findings, conclusions, and recommendations. It revisits the overarching research objectives, emphasising the key barriers to life insurance penetration in Zimbabwe's largely informal economy. The challenges identified are explored within the theoretical framework, which helps develop practical suggestions and policy recommendations. Reflecting on the findings of the investigation, this chapter underscores the significance of addressing these barriers to enhance financial inclusion and improve the uptake of life insurance within the informal sector. As such, the findings presented here therefore seek to significantly add to the scholarly debate as well as the creation of knowledgeable plans for enhancing life insurance accessibility in Zimbabwe.

5.2 Summary of Key Findings: Life Insurance Penetration and Density

This section presents the main findings of the study, based on the application of the ARDL (Autoregressive Distributed Lag) model, which examines the long-term and short-term effects of various economic, demographic, and institutional factors on life insurance penetration and density in Zimbabwe. The results reveal a complex interaction between these variables, showing that although certain factors exert a strong influence on life insurance penetration; their effect on life insurance density may vary and occasionally produce unexpected outcomes. The following offers a detailed examination of the results for each independent variable, supported by relevant academic literature.

5.2.1 Informal Sector Size

The informal sector's size exhibited contrasting effects on life insurance penetration and density. In the long run, the informal sector size had a positive and statistically significant influence on life insurance penetration (Coeff: 0.2517, $p = 0.013$), contrary to the hypothesised negative relationship. This finding suggests that despite the challenges posed by informality, targeted insurance products or tailored marketing strategies may be successful in reaching informal sector workers, thus facilitating market penetration (Winkler, Bulmer, & Mote, 2017). However, the short-run effect was negative but insignificant (Coeff: -0.3988, $p = 0.117$),

indicating that temporary fluctuations in the size of the informal sector may not immediately affect life insurance penetration.

Conversely, for life insurance density, the long-run effect of informal sector size was negative and significant (Coeff: -5.6708, $p = 0.008$), aligning with previous studies that associate larger informal sectors with reduced access to formal financial services, including life insurance (Haque, 2013; Borlea et al., 2017). The short-run impact was positive and significant (Coeff: 2.5913, $p = 0.048$), suggesting a temporary increase in premium payments, possibly driven by specific segments of the informal economy that engage in short-term life insurance purchases.

5.2.2 Inflation

Inflation was found to have a negative but insignificant long-run impact on life insurance penetration (Coeff: -0.0014, $p = 0.123$), which aligns with the hypothesis that inflation erodes consumers' purchasing power, thereby reducing the attractiveness of insurance products (Ehiogu, Eze & Sunday, 2018; Chizoba et al., 2018). The short-run effects were similarly insignificant (Coeff: -0.0003, $p = 0.313$), although a lagged positive effect was observed (LD: 0.0056, $p = 0.08$), indicating that over time, individuals may adapt to inflationary conditions, leading to a modest increase in demand for life insurance.

The long term impact of inflation on life insurance density proved positive yet statistically insignificant suggesting inflationary pressures minimally affect total premium volumes. Bohnert, Gatzert & Kolb (2016) contend inflation's effect on insurance demand varies according to economic conditions and shock severity. This could explain the varied effects seen in the data.

5.2.3 Central Bank Independence

Unexpectedly, central bank independence demonstrated a positive and statistically significant long term effect on life insurance penetration. This implies that stable monetary policy frameworks maintained by autonomous central banks promote conducive environments for life insurance adoption (Bianchi et al., 2022). In contrast, short term impacts were negative though statistically insignificant (coefficient -0.0617, p value 0.076), suggesting the benefits of central bank independence on insurance penetration may require time to materialise.

For life insurance density, the long-run impact was also positive and significant (Coeff: 0.0366, $p = 0.034$), reinforcing the notion that monetary stability encourages higher life insurance premiums per capita over time (Balcilar, Olasehinde-Williams, & Shahbaz, 2019). However, the short-run effects were positive but insignificant (Coeff: 0.0079, $p = 0.942$), suggesting that the benefits of central bank independence on life insurance density may require longer periods to become noticeable.

5.2.4 Per Capita Income

Per capita income showed a positive and statistically significant long term influence on life insurance penetration (coefficient 0.0002, p value 0.025), aligning with established research demonstrating that higher incomes enhance individuals' ability to obtain life cover (Iyawe & Osamwonyi, 2021; Hagos et al., 2019; Ramij, 2021; Segodi & Sibindi, 2022). Conversely, the short term effect was negative though statistically insignificant (coefficient -0.0003, p value 0.313), potentially indicating temporary economic instability or household budgetary pressures limiting disposable income.

The long term relationship between per capita income and life insurance density proved unexpectedly negative though statistically insignificant (coefficient -0.0025, p value 0.084). This unexpected finding implies income growth does not consistently yield higher premium volumes, possibly because households prioritise alternative financial commitments or products (Millo, 2016). Conversely, short term income effects were positive and significant (coefficient 0.0034, p value 0.022), suggesting temporary income rises may stimulate life cover purchases. These results partially support Yuan and Jiang's (2020) proposition that income growth initially raises but eventually reduces the marginal propensity to acquire life insurance.

5.2.5 Financial Development

Financial development demonstrated a positive and statistically significant long term effect on life insurance penetration (coefficient 0.0297, p value 0.002), confirming that advanced financial systems facilitate insurance access through greater service availability and improved market structures (Srbinoski et al., 2021; Iyawe & Osamwonyi, 2017; Zerriaa et al., 2017; Outreville, 2013). The short term effects, however, were negative though statistically insignificant (coefficient -0.0928, p value 0.017), suggesting financial development's benefits for insurance penetration emerge gradually over extended periods.

Conversely, financial development showed no significant long term effect on life insurance density (coefficient 0.1035, p value 0.124). This suggests that while financial sector growth may expand policyholder numbers, it does not consistently increase per capita premium volumes, aligning with Beck and Webb's (2003) findings. Sanjeewa (2021) and de Haan et al. (2022) argue that financial development worsens inequality, potentially reducing life insurance demand. Short term impacts were equally insignificant, indicating limited immediate influence of financial development on insurance density

5.2.6 Insurance Literacy

Insurance literacy demonstrated a positive and statistically significant long term impact on life insurance penetration (coefficient 0.1176, p value 0.015), underscoring education's crucial role in improving awareness and adoption of life cover (Weedige et al., 2019; Ehiorobo, 2020; Dankwah, Abubakari and Bunyanso, 2022; Kiwanuka and Sibindi, 2023). Short term effects were negative though insignificant (coefficient -0.3884, p value 0.065), implying educational initiatives may require time to influence insurance demand substantially.

For life insurance density, insurance literacy showed a negative and significant long term relationship (coefficient -4.3779, p value 0.003). This suggests better informed consumers may opt for more affordable policies, reducing aggregate premium volumes (Park, Langellier and Meyers, 2022). However, short term effects were positive and significant (coefficient 3.6424, p value 0.005), likely reflecting initial premium increases as consumers become aware of insurance advantages.

5.2.7 Age Dependency

Age dependency showed a negative yet statistically insignificant long term effect on life insurance penetration (coefficient -0.0080, p value 0.475), consistent with existing research indicating high dependency ratios do not automatically deter life cover purchases (Beck and Webb, 2003). However, short term effects were positive and significant (coefficient 1.6555, p value 0.011), suggesting families with dependants may temporarily increase insurance coverage to address immediate needs.

Regarding life insurance density, age dependency exhibited a negative and significant long term impact (coefficient -1.6683, p value 0.001). This supports the view that higher dependency ratios constrain households' capacity to sustain premium payments, corroborating findings by Nebolsina (2020) and Outreville (2013) regarding how greater financial burdens limit resources available for long term financial products like life insurance.

5.2.8 Life Expectancy

Life expectancy had a positive but statistically insignificant long-run effect on life insurance penetration (Coeff: 0.0084, $p = 0.498$), suggesting that longer lifespans do not automatically lead to greater life insurance uptake (Srinivasan & Mitra., 2024; Reddy, Reddy, & Naidu., 2019). In the short run, however, the effect was negative and significant (Coeff: -0.5889, $p = 0.008$), which could reflect short-term adjustments in insurance purchasing behaviour in response to perceived life expectancy trends.

For life insurance density, life expectancy had a positive and significant long-run effect (Coeff: 2.7209, $p = 0.000$), indicating that increased life expectancy contributes to higher life insurance premiums over time, consistent with previous findings (Homa, 2018; Kabrt, 2022; Reddy, Reddy, & Naidu, 2019; Sianipar & Hutagalung, 2021). However, in the short run, the effect was negative and significant (Coeff: -2.0184, $p = 0.011$), suggesting that short-term changes in life expectancy may temporarily reduce premium payments.

5.2.9 Unemployment

Unemployment demonstrated a negative and significant long term impact on life insurance penetration (coefficient -0.3397, p value 0.002), confirming that reduced employment lowers insurance affordability. This aligns with existing research (Mare et al., 2019; Simionescu, 2022; Segodi and Sibindi, 2022; Arifin, Jusoh and Zaghlol, 2023). The positive yet insignificant short term effect (coefficient 1.1500, p value 0.014) may indicate temporary income substitutes or social protections maintaining coverage during unemployment periods.

For insurance density, contrasting patterns emerged. The long term positive coefficient (3.4025, p value 0.102) suggests unemployment may not substantially reduce demand, potentially reflecting Zimbabwe's informal economy. The short term positive coefficient

(3.6200, p value 0.063) implies households may increase coverage during economic uncertainty, diverging from conventional findings.

In conclusion, the ARDL analysis reveals complex relationships between economic and demographic factors and life insurance penetration and density in Zimbabwe's largely informal economy. Factors such as financial development, insurance literacy, and per capita income significantly drive life insurance penetration, while the size of the informal sector and age dependency demonstrate varied effects on life insurance density. These findings align with previous literature highlighting the multifaceted nature of life insurance markets in developing economies. The results underscore the need for targeted financial policies that promote financial inclusion, particularly for informal sector workers, and support broader life insurance market development in Zimbabwe.

5.3 Conclusions

This section consolidates key findings from the empirical analysis, specifically examining life insurance penetration and density in Zimbabwe's predominantly informal economy. The conclusions, derived from ARDL model results, correspond with the study's initial objectives and hypotheses, providing comprehensive insights into the economic, demographic and institutional determinants of insurance adoption and premium levels. Through simultaneous examination of penetration (insurance market reach) and density (per capita premiums), the research identifies crucial challenges and prospects for Zimbabwe's life insurance sector. These findings hold important policy and industry implications for insurance market development within Zimbabwe's economic context.

5.3.1 The Effect of the Informal Sector on Life Insurance Penetration and Density

The analysis revealed a statistically significant positive long term association between informal sector activity and life insurance penetration contradicting conventional expectations that informality reduces insurance adoption. The result suggests that, even in highly informal economies, certain segments of the population engage with formal life insurance products. This can be attributed to micro-insurance schemes and simplified insurance products specifically targeting informal workers, enabling them to access insurance despite irregular income patterns (Mathur, 2012). Furthermore, micro-insurance has increasingly been recognised as a crucial instrument for expanding financial inclusion in developing economies, as argued by Churchill

and Matul (2012), who stress the importance of designing accessible products for informal sector workers.

The analysis revealed a significant negative long term association between informal sector participation and life insurance density. This suggests that while informal workers may obtain life cover, their premium payments remain substantially lower owing to irregular and limited incomes. These findings corroborate Silumbwe et al. (2024), who demonstrated that unpredictable earnings in informal economies constrain consistent premium contributions, limiting aggregate premium volumes. The results further align with Merwe and Gerin (2019), whose work identified income instability as a key obstacle to life insurance market development.

5.3.1.1 Broader Insights

These findings underscore the dual challenge of enhancing both penetration and density in Zimbabwe's informal economy. Although micro-insurance schemes may improve penetration, their impact on premium volumes remains limited due to income instability. There is a clear need for policy interventions aimed at formalising sections of the informal economy to enhance both insurance uptake and premium payments. As also noted by Zvarivadza (2018), formalisation could substantially strengthen insurance markets in developing nations. Fiscal measures including formalisation tax incentives merit consideration, as these might encourage informal workers to adopt more stable income sources, thereby boosting insurance metrics. Furthermore, tailored insurance products with flexible payment options, designed for informal workers' financial circumstances, are vital for market development (Peterson et al., 2015).

5.3.2 The Effect of Inflation on Life Insurance Penetration and Density

The analysis revealed a negative yet statistically insignificant long term relationship between inflation and life insurance penetration. This supports the view that economic uncertainty during inflationary periods deters consumers from long term financial commitments like life cover, as individuals prioritise immediate needs when purchasing power declines (Ahlgrim & Arcy, 2012; Rejda et al., 2022). These findings align with Schanz & Treccani (2023), who demonstrated inflation's weakening effect on insurance demand, particularly for non-essential coverage. Short term effects were similarly insignificant, though a lagged positive coefficient suggests consumers may eventually adapt to inflation by using life insurance as a price hedge.

On the other hand, the long-run impact of inflation on life insurance density was positive but statistically insignificant. While nominal premiums may rise as insurance providers adjust their prices to remain profitable in inflationary environments, the real value of these premiums tends to decrease. This finding is in line with Hwang & Gao (2003), who note that inflation's impact on insurance markets is multifaceted, as inflation can increase nominal premiums but simultaneously reduce the real returns on savings-linked insurance products.

5.3.2.1 Broader Insights

The findings emphasise how economic stability contributes significantly to creating conducive conditions for life insurance market expansion. Inflation, while not immediately reducing demand, creates an atmosphere of uncertainty that discourages consumers from committing to long-term financial products. As Ahmed, Xie, & Issam (2021) emphasise, stable inflation is crucial for promoting confidence in life insurance markets. From a policy perspective, central banks should focus on inflation-targeting measures to ensure predictability, thus supporting long-term financial planning and investments in life insurance. Insurance companies can play a proactive role by offering inflation-indexed policies that protect consumers against the eroding effects of inflation, as suggested by Imoseme & Chijuka (2024). Moreover, financial literacy initiatives that educate consumers on the benefits of inflation-protected insurance products could help maintain demand even in inflationary environments (Beckmann & Kiesl-Reiter, 2023).

5.3.3 The Effect of Central Bank Independence on Life Insurance Penetration and Density.

The analysis revealed that central bank independence exerted a positive and statistically significant long term influence on both life insurance penetration and density. These findings substantiate the proposition that monetary stability encourages long term financial commitments including life cover (Diehl et al., 2023). An independent central bank, which is associated with greater monetary stability and inflation control, helps create an environment of financial predictability, increasing consumer confidence in long-term products like life insurance. These findings are consistent with research by Romelli (2024), who highlights the critical role of central bank independence in enhancing financial market development by promoting macroeconomic stability.

The short term impact of central bank independence on both penetration and density proved statistically insignificant, indicating that monetary policy adjustments require time to influence consumer decisions. The findings support the broader literature that highlights the importance of institutional stability in fostering financial market development (Abaidoo & Agyapong, 2024).

5.3.3.1 Broader Insights

The results emphasise the crucial role of institutional frameworks in developing the life insurance market. Central bank independence contributes to a stable economic environment that encourages consumers to engage with life insurance products. As Nguyen (2024) argues, long-term financial products such as life insurance thrive in environments characterised by macroeconomic and monetary stability. Strengthening central bank autonomy should therefore be a priority for Zimbabwean policymakers seeking to enhance life insurance market development. Insurance providers should capitalise on the stability created by an independent central bank to promote life cover as a secure, long term financial planning instrument. By framing insurance products as stable investment options during periods of economic certainty, insurers could potentially increase both market reach and premium volumes.

5.3.4 The Effect of Per Capita Income on Life Insurance Penetration and Density

The analysis established a positive and statistically significant long term association between per capita income and life insurance penetration. This corroborates Bouzouita's (2023) contention that higher incomes improve individuals' capacity to obtain life cover. With greater disposable income, households can more readily allocate funds towards long term financial protection, including insurance. However, short term income effects on penetration proved insignificant, suggesting temporary income variations minimally affect insurance purchases.

Contrary to expectations, income showed an insignificant negative long term relationship with life insurance density. This supports Hwang's (2022) finding that affluent individuals frequently diversify into alternative investments offering superior returns to insurance products. The short term effect was positive and significant, indicating temporary income rises may boost premium payments.

5.3.4.1 Broader Insights

These findings underscore the intricate link between income growth and the evolution of the life insurance market. While higher incomes support market penetration, they do not necessarily translate into proportional increases in premium volumes. As Hwang's (2022) suggests, wealthier consumers may view life insurance as less attractive compared to other financial products. Therefore, insurers must develop a broader range of products that appeal to higher-income individuals, such as investment-linked insurance or wealth management services. Additionally, promoting long-term savings behaviour, particularly among higher-income groups, could help convert rising incomes into deeper engagement with life insurance products. Policymakers should focus on fostering income growth while promoting financial education to ensure that increased incomes lead to more comprehensive financial planning and higher life insurance uptake (Kiwanuka & Sibindi, 2023; Lee, Yong, & Lim, 2022).

5.3.5 The Effect of Financial Development on Life Insurance Penetration and Density

The analysis revealed a statistically significant positive long term relationship between financial development and life insurance penetration. This supports the hypothesis that advanced financial systems facilitate greater insurance access through enhanced distribution networks, improved credit availability and expanded consumer outreach (Srbinoski et al, 2021; Cheng & Hou, 2022). This finding aligns with empirical studies that link financial development with increased insurance market penetration, as financial infrastructure improvements facilitate broader access to financial products, including life insurance (Iyawe & Osamwonyi, 2017; Beck & Webb., 2003).

However, financial development's impact on life insurance density was insignificant in the long run, indicating that while financial development improves access to life insurance, it does not necessarily lead to higher premium volumes. Consumers may opt for basic life insurance coverage rather than comprehensive policies, limiting the depth of their market engagement. This is consistent with findings by Gine, Ribeiro, & Wrede (2019), who observed that financial development does not automatically deepen insurance markets in terms of premium contributions.

5.3.5.1 Broader Insights

These findings emphasise financial development's dual role in expanding the insurance market's coverage while demonstrating slower progress in premium growth. Policymakers should maintain focus on financial sector reforms to improve access to insurance services. Concurrently, insurers must develop innovative products and financial education initiatives to promote more comprehensive coverage as accessibility increases. Ababio et al. (2023) note that while financial development enables inclusion, insurers must actively transform this access into greater premium contributions.

5.3.6 The Effect of Insurance Literacy on Life Insurance Penetration and Density

Insurance literacy demonstrated a positive and statistically significant long term impact on life insurance penetration, highlighting education's crucial role in improving awareness and comprehension of life cover products (Kiwanuka & Sibindi, 2023). Consumers who are more knowledgeable about the benefits and workings of life insurance are more likely to engage with these products, thereby increasing market penetration (Wang et al., 2021). However, the short-run effect of insurance literacy on life insurance penetration was negative and insignificant, suggesting that improvements in financial literacy take time to manifest in higher demand for life insurance products.

The analysis revealed an unexpected negative and statistically significant long term association between insurance literacy and life insurance density. This indicates that while greater insurance literacy increases life insurance penetration, it may also make consumers more discerning in their purchasing decisions (Mare et al., 2019). More knowledgeable consumers might opt for more appropriate, lower-cost insurance products, which reduces overall premium volumes (Brown & Jeon, 2024). In the short term however, insurance literacy showed a positive and statistically significant impact on life insurance density. This suggests that early enhancements in financial awareness may increase premium volumes as consumers recognise life cover advantages.

5.3.6.1 Broader Insights

These results demonstrate insurance literacy's dual effect on life insurance markets. While improving literacy boosts policy uptake, it may also foster more discerning, cost conscious consumer behaviour. As Brown & Jeon (2024) observe, knowledgeable consumers often prefer

customised coverage matching their requirements, which may decrease aggregate premium volumes. Insurers should combine educational efforts with adaptable product development to serve this sophisticated market. Financial education should remain a policy focus, complemented by tailored insurance solutions meeting informed consumers' expectations (Nicoletti, 2016).

5.3.7 The Effect of Age Dependency on Life Insurance Penetration and Density

Age dependency showed a negative yet statistically insignificant long term effect on life insurance penetration, implying that higher dependency ratios do not substantially discourage life cover purchases (Beck & Webb, 2003; Sarkodie & Yusif, 2015). However, short term effects were positive and significant, indicating households with dependants may temporarily prioritise life insurance for immediate financial protection, despite other budgetary pressures.

For insurance density, age dependency demonstrated a negative and significant long term relationship. This confirms that households with more dependants experience greater financial strain, reducing their capacity to sustain premium payments (Caspi et al., 2016). Families with numerous dependants likely allocate resources to more pressing needs than insurance, resulting in lower premium volumes.

5.3.7.1 Broader Insights

These findings highlight the demographic challenges faced by life insurance markets. Households with many dependants may recognise the need for life insurance but lack the financial resources to sustain premium payments. Insurers should consider developing affordable and flexible products tailored to the needs of large households, such as term life insurance policies with lower premiums. Policymakers should also explore tax incentives or subsidies that support families with dependants in accessing life insurance (Kodia et al., 2024). By addressing these financial constraints, both insurers and policymakers can help improve the life insurance market depth in Zimbabwe.

5.3.8 The Effect of Life Expectancy on Life Insurance Penetration and Density

The analysis revealed a positive though statistically insignificant long term association between life expectancy and life insurance penetration. Although extended lifespans theoretically increase life cover's value for long term financial planning, this does not consistently translate

into higher adoption rates (Srinivasan & Mitra, 2024). Short term effects were negative and significant, indicating that life expectancy fluctuations may temporarily discourage long term policy commitments amid longevity uncertainty.

Conversely, life expectancy showed a positive and significant long term effect on insurance density, suggesting extended lifespans ultimately increase premium volumes. This supports Sianipar & Hutagalung's (2021) assertion that longer lives boost demand for financial security in later years. However, short term impacts were negative and significant, potentially reflecting temporary premium reductions during life expectancy adjustments or adverse selection, where healthier individuals delay coverage (Dionne, Fombaron & Mimra, 2023).

5.3.8.1 Broader Insights

These findings underscore the necessity for insurance solutions that address the financial planning requirements of an ageing demographic. As life expectancy increases, insurers should develop products that provide financial security in old age, such as retirement-linked life insurance or health-related products (Bednarczyk et al., 2023). Policymakers should consider promoting long-term savings and pension schemes to complement life insurance, ensuring financial stability for an ageing population. By aligning product offerings with the demographic realities of longer lifespans, insurers can enhance both penetration and density in the life insurance market.

5.3.9 The Effect of Unemployment on Life Insurance Penetration and Density

Unemployment demonstrated a negative and statistically significant long term impact on life insurance penetration, supporting the hypothesis that joblessness reduces insurance demand. Reduced disposable income during unemployment constrains individuals' capacity to maintain premium payments (Arifin, Jusoh & Zaghlol, 2023; Simionescu, 2022). However, short term effects were positive though insignificant, potentially indicating temporary reliance on alternative incomes or social protections preserving coverage during unemployment periods.

Regarding insurance density, unemployment showed no significant effects in either timeframe, suggesting job loss does not substantially affect premium volumes. This may occur because some unemployed individuals access informal financial support or family networks that enable continued insurance payments during employment gaps.

5.3.9.1 Broader Insights

The results suggest the relationship between unemployment and life insurance demand is more complex than traditionally assumed. In countries with substantial informal sectors or strong extended family support systems, unemployment's impact on insurance demand may be less pronounced. Insurers should explore ways to support unemployed or informally employed individuals, possibly through flexible premium payment options or policies that allow for temporary premium suspensions during periods of financial difficulty. Policymakers could also consider providing subsidies or incentives for maintaining life insurance coverage during unemployment periods.

5.3.10 Conclusion

The ARDL analysis demonstrates the multifaceted determinants influencing life insurance metrics within Zimbabwe's predominantly informal economy. Economic factors including financial development, income levels and inflation significantly affect insurance markets, while demographic elements such as age dependency and life expectancy substantially influence premium patterns. These results underscore the need for comprehensive market development strategies combining economic stability, consumer education and tailored product design to simultaneously improve market reach and premium volumes. Sustainable expansion of Zimbabwe's life insurance sector requires collaborative efforts between insurers and policymakers to establish supportive frameworks that encourage insurance adoption across diverse socioeconomic groups. This necessitates targeted solutions for informal workers, enhanced financial awareness initiatives and policies promoting long term financial security, ultimately strengthening the sector's capacity to provide nationwide economic protection.

5.4 Proposed Outcome Framework.

This section presents a proposed outcome framework that aims to elucidate the determinants influencing life insurance penetration and density within Zimbabwe's informal economy, incorporating insights from the ARDL analysis. The study identifies and analyses key socio-economic and macroeconomic variables affecting life insurance demand, including the informal sector, inflation, central bank independence, per capita income, financial development, and demographic factors such as age dependency and life expectancy. This framework distinguishes between life insurance penetration (the rate of participation) and

density (the level of coverage or premium volume per capita), providing a clearer understanding of these dynamics. The framework further offers actionable recommendations for insurers and policymakers, emphasising the need to address structural barriers such as financial exclusion, income instability, and the underdevelopment of financial systems to unlock the potential growth in Zimbabwe's life insurance sector. It serves as a valuable resource for strategies to enhance life insurance uptake across Zimbabwe's economically diverse landscape, particularly focusing on the unique challenges posed by the large informal economy.

Table 5.1: Proposed Outcome Framework for Life Insurance Penetration and Density

Factors	Impact on Life Insurance Penetration	Impact on Life Insurance Density	Broader Insights/Recommendations
<i>Informal Sector Size</i>	The long-term impact is positive, as segments of informal workers engage with tailored products such as micro-insurance. However, short-term variations relative to the informal sector's size do not significantly influence penetration.	The long-term impact is negative, as the irregular and often unstable income of informal sector workers constrains their capacity to sustain consistent premium payments. Short-term changes have a limited influence on premium volumes.	Develop flexible, affordable insurance products designed for the requirements of the informal sector, and offer payment plans that accommodate irregular income patterns, thereby enhancing market depth (Matul, 2012; Peterson et al., 2015; Zvarivadza, 2018).
<i>Inflation</i>	The long-term effect is negative, as the economic uncertainty	The long-term effect is minimally positive, as premium values	Develop inflation-adjusted products that safeguard the real returns of policyholders and provide flexible pay out

	associated with inflation reduces consumers' willingness to commit to long-term financial products. However, over time, consumers may adapt and increase their life insurance purchases as part of broader financial strategies.	may rise in response to inflation without significantly altering overall demand. Short-term changes in inflation have limited direct effects on premium volumes.	options. Emphasise macroeconomic stability to foster an environment conducive to long-term financial planning (Foley-Fisher, Narajabad, & Verani, 2020; Kanungo et al., 2020; Saungweme & Odhiambo, 2021; Tati & Baltazar, 2018).
Central Bank Independence	The long-term impact is positive, as the monetary stability promoted by an independent central bank encourages consumer confidence in long-term investments such as life insurance. Short-term changes in central bank policy exert less immediate influence.	A positive long-term impact is evident, as a stable macroeconomic environment supports continued premium contributions from consumers who trust the stability of financial institutions. Short-term effects remain minimal.	Strengthen central bank independence to create a stable economic environment, thus enhancing consumer confidence in life insurance products and fostering sustained investments (Abaidoo & Agyapong, 2024; Nguyen, 2024; Romelli, 2024).

<i>Per Capita Income</i>	The long-term impact is positive, with rising incomes enabling a greater number of individuals to afford life insurance. Short-term fluctuations in income levels do not significantly affect insurance uptake.	The long-term impact is minimal, as wealthier individuals may diversify their investments into alternative financial instruments rather than increasing their contributions to life insurance. However, temporary increases in income can lead to higher premium payments.	Promote financial inclusion to ensure that income growth translates into broader life insurance adoption. Develop products that can compete with alternative savings options for wealthier households (Ababio et al., 2023; Churchill & Matul, 2012; Hans, 2023; Srikanth et al., 2022).
<i>Financial Development</i>	The long-term impact is significantly positive, as advancements in financial services and access facilitate greater consumer engagement with life insurance. The short-term benefits take longer to materialise in	The impact on premium volumes in the long term is minimal, indicating a need for strategies that deepen market engagement and encourage consumers to invest in more comprehensive policies.	Continue to strengthen financial sector development, focusing on reducing inefficiencies and expanding distribution networks for insurance products, thereby reaching a broader consumer base (Srbinoski et al, 2021; Cheng & Hou, 2022; Iyawe & Osamwonyi, 2017; Beck & Webb., 2003).

	terms of increased uptake.		
<i>Insurance Literacy</i>	The long-term effect is positive, as greater awareness and understanding of life insurance products encourage more widespread participation in the market. Short-term improvements in literacy require time to significantly influence demand.	The long-term impact is negative, as more informed consumers may opt for lower-cost or more tailored products, which could result in lower overall premium volumes. Nonetheless, initial improvements in literacy can lead to an increase in premium payments.	Combine literacy initiatives with affordability measures and tailored products to promote both higher participation rates and sustained premium growth among consumers (Abubakari, & Bunyanso, 2022; Kiwanuka & Sibindi, 2023; Weedige et al., 2019; Ehiorobo., 2020; Dankwah, Abubakari, & Bunyanso., 2022).
<i>Age Dependency</i>	The long-term effect is limited, though households with dependents may seek life insurance in the short term as a form of financial protection.	A significant negative long-term impact is observed, as households with a high proportion of dependents often face financial constraints that limit their ability to maintain substantial premium payments.	Develop affordable insurance products designed specifically for households with high dependency ratios, such as term life and funeral insurance, to address their unique needs and financial limitations (Harasty & Ostermeier, 2020; Hsu & Yamada, 2019; Nebolsina, 2020; Outreville, 2013).

<i>Life Expectancy</i>	The long-term impact is positive but delayed, as higher life expectancy gradually increases the perceived need for life insurance as part of financial planning. Short-term impacts may include adjustments in consumer priorities.	A significant positive long-term effect is noted, as longer lifespans lead to greater demand for financial security products, thus increasing premium contributions over time. Short-term effects may include temporary declines in premium payments as consumers adjust to changes.	Offer integrated products that combine life insurance with retirement planning, addressing the financial needs of an ageing population to ensure continued relevance and demand (Bednarczyk et al., 2023; Bacinello, 2022; Schanz, 2020; Driver et al., 2018).
<i>Unemployment</i>	The long-term impact is negative, as increased unemployment reduces disposable income, thereby limiting individuals' ability to afford life insurance. In the short term, alternative income sources may	The impact on premium volumes is minimal, as income from informal employment or support from family networks can help sustain insurance payments during periods of unemployment.	Address income instability through policies that support informal sector workers, and develop insurance products with flexible payment terms to accommodate those with inconsistent earnings (Ng'ang'a & Odhiambo, 2023) Matul, 2012; Peterson et al., 2015; Zvarivadza, 2018).

	mitigate some of these negative effects.		
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Source: Author's Compilation (2024)

This proposed outcome framework provides a detailed analysis of the determinants influencing life insurance penetration and density in Zimbabwe's informal economy. It underscores the critical role of long-term economic stability, enhanced financial access, and tailored product innovation in expanding life insurance markets. The table offers actionable recommendations for insurers and policymakers, stressing the importance of flexible products, targeted policy measures, and a consistent macroeconomic climate to foster sustainable development in Zimbabwe's life insurance sector. The framework serves as a strategic guide for addressing the complex dynamics of life insurance uptake and premium contributions in a predominantly informal economy. The next section presents the proposed life insurance penetration model, based on the study findings as well as the recommendations for theory, policy and practice as well as suggestions for future research.

5.8 Development of a Life Insurance Penetration Model for Zimbabwe

5.8.1 Introduction

The life insurance sector in Zimbabwe is experiencing significant transformation. Both enduring challenges and emerging opportunities shape this transformation. Prolonged economic instability, fast-paced structural changes, a largely informal economy, and weak institutions all contribute to this dynamic environment. Despite growing public awareness of life insurance as a tool for managing financial risks and ensuring long-term security, actual enrolment remains low. This is evident in the limited penetration and density of life insurance, particularly among vulnerable groups working in informal settings. The combined effects of economic volatility, widespread unemployment, inconsistent income streams, and a lack of trust in financial institutions render traditional distribution approaches inadequate. These realities call for a revised framework. The new model should incorporate socio-economic, behavioural, and institutional dimensions. It must also be practical and inclusive. This chapter introduces such a model. It is grounded in empirical evidence. The model seeks to address structural inequalities. It offers a strategic approach to improving access to life insurance and ensuring its long-term sustainability in Zimbabwe.

5.8.2 Justification for the Model Development

The rationale for developing the proposed life insurance model is drawn from empirical evidence, as summarised in Table 5.1. The table highlights how different structural and behavioural factors influence life insurance penetration and density in Zimbabwe.

The informal sector is a particularly influential factor. It comprises more than 64 per cent of GDP with over 80 per cent of the country's population relying on it for livelihood (ZNCC, 2023, Zimstat, 2025). In the long term, the sector presents opportunities for increasing life insurance uptake. Microinsurance solutions can be especially useful for individuals with limited access to formal systems. However, irregular income and the lack of employer-based contributions limit premium stability. These limitations threaten the long-term viability of life insurance coverage (Matul, 2012; Peterson et al., 2015; Zvarivadza, 2018).

Inflation remains a persistent challenge in Zimbabwe's macroeconomic environment (Mupunga, 2022). High inflation weakens consumer confidence in financial products with long-term commitments (Chowa, 2014). This leads to reduced willingness to purchase long-term life insurance policies. Both enrolment and policy retention are affected as a result (Foley-Fisher et al., 2020; Kanungo et al., 2020; Saungweme & Odhiambo, 2021). Inflation-linked insurance policies may provide a solution. These products can help maintain value and increase public trust.

By contrast, central bank independence and financial development have beneficial long-term impacts. These institutional factors encourage macroeconomic stability. They improve the predictability of regulatory frameworks and build consumer confidence in life insurance providers (Romelli, 2024; Nguyen, 2024; Abaidoo & Agyapong, 2024). These findings support the case for strengthening financial institutions and adopting policies that enhance regulatory autonomy.

Per capita income is also positively related to insurance penetration. However, it has only a limited effect on premium density. Wealthier individuals often diversify their investments beyond life insurance. In contrast, lower-income groups prioritise essential needs (Abdullah, Yakob, Yakob, & Sharif, 2022). This difference highlights the importance of creating customised financial products and strategies that support financial inclusion across income levels (Iyawe & Osamwonyi, 2021; Kabrt, 2022).

Insurance literacy and behavioural factors are equally important. These include how individuals perceive risk and make financial plans. Improved literacy can lead to greater initial uptake of life insurance. However, it may also reduce total premium contributions. This occurs when informed consumers choose simpler and more affordable policies (Kiwanuka & Sibindi, 2023; Abubakari &

Bunyanso, 2022). These findings indicate that product design must evolve alongside efforts to raise awareness.

The interaction of these variables—ranging from informal sector dynamics and inflation to income distribution and consumer psychology—demonstrates the need for a new model. The proposed framework must reflect the unique economic and social conditions of Zimbabwe. It should also support the sustainable growth of the life insurance industry.

5.8.3 Core Components of the Proposed Life Insurance Penetration Model

The model consists of eight interconnected components. These elements respond to the key factors discussed in Table 5.1. They operate across policy, economic, behavioural, and institutional domains. Each component is designed to improve life insurance access and retention. The model also reflects the everyday experiences of consumers within Zimbabwe’s informal economy.

5.8.3.1 Market Segmentation

Segmenting the market is essential for creating appropriate products. Insurers should consider occupation, income stability, and geographical location. For example, cross-border traders and agricultural workers face different risks compared to urban micro-entrepreneurs. These distinctions require tailored solutions. Designing microinsurance products that reflect these socioeconomic characteristics can make insurance more relevant and affordable. This would improve penetration in underserved areas (Matul, 2012; Zvarivadza, 2018).

5.8.3.2 Barriers Analysis

A focused barriers analysis is necessary to identify obstacles that limit participation. These include low financial literacy, high perceived costs, distrust in insurers, and poor service accessibility. Many low-income individuals prioritise immediate needs over long-term planning. Insurers and policymakers can address these challenges by introducing mobile enrolment systems, trust-building campaigns, and targeted subsidies. These efforts can reduce exclusion and improve overall accessibility (Abubakari & Bunyanso, 2022; Kiwanuka & Sibindi, 2023).

5.8.3.3 Behavioural Insights

Insurance decisions are often influenced by behaviour, not only logic. Concepts such as risk aversion and present bias shape how consumers evaluate insurance products (Cieslak & Pflueger, 2023). Cultural beliefs can also play a role. For example, some individuals may avoid discussing death-related policies due to fear or superstition (Auriol et al., 2020). Behaviourally informed product designs—such as group

coverage or bundled services—can increase acceptance. They can also support sustained participation (Weedige et al., 2019; Ehiorobo, 2020).

5.8.3.4 Accessibility Strategies

Improving physical and digital access is critical for expanding coverage. Zimbabwe faces infrastructure challenges and high rates of financial exclusion. To overcome these barriers, insurers should use mobile platforms, local agents, and community networks. These methods increase outreach, especially in rural and peri-urban areas. Financial development can further support these efforts by expanding the availability of formal services (Srbinoski et al., 2021; Cheng & Hou, 2022).

5.8.3.5 Affordability Mechanisms

Affordability remains a major concern, especially for individuals with informal or seasonal income. Rigid payment structures are not suitable in such contexts. Flexible arrangements—such as instalment-based payments or temporary suspensions during low-income periods—can help. These mechanisms ensure that customers maintain their coverage even when earnings fluctuate. This increases both enrolment and retention (Ng’ang’a & Odhiambo, 2023).

5.8.3.6 Awareness and Education Campaigns

Raising public awareness is vital to encourage informed decision-making. However, information campaigns must be supported by meaningful product innovation and structural reform. Educational efforts should address previous negative experiences, clearly explain product benefits, and help individuals evaluate options. Financial literacy should be seen not only as a goal, but also as a pathway to sustained insurance engagement (Kiwanuka & Sibindi, 2023).

5.8.3.7 Regulatory Considerations

A responsive and inclusive regulatory system is essential. Insurance regulations must adapt to new technologies and market realities while protecting consumers. Key reforms include strengthening the autonomy of financial institutions, simplifying onboarding processes, and offering incentives for informal sector participation. These changes can build public trust and reduce market barriers (Romelli, 2024; Abaidoo & Agyapong, 2024).

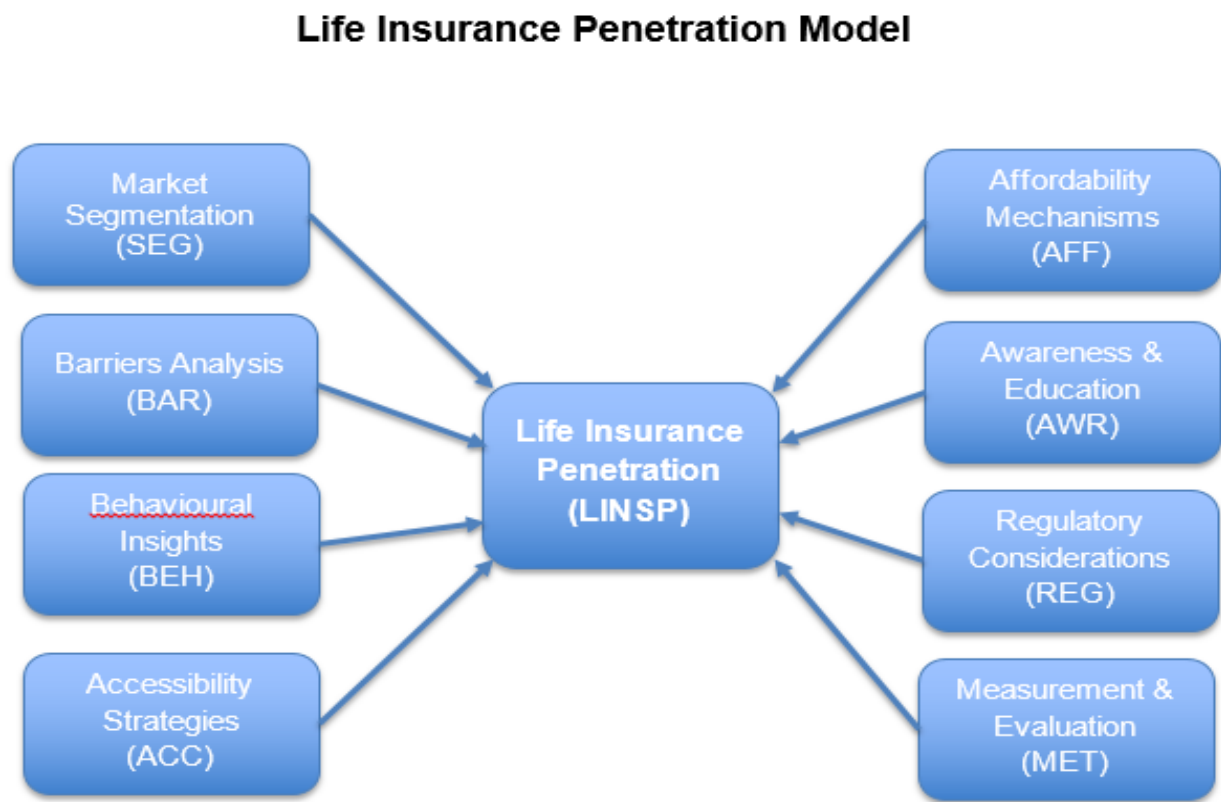
5.8.3.8 Measurement and Evaluation Metrics

Ongoing evaluation is needed to track the performance of life insurance systems. Indicators should extend beyond enrolment. They should include policy renewals, claims processing efficiency, and consumer satisfaction. Demographic insights can also help identify which populations remain

underserved. A strong monitoring system enables feedback and continual improvement, ensuring that policy interventions remain effective over time (Iyawe & Osamwonyi, 2017; Cheng & Hou, 2022).

Figure 5.1 presents the proposed model for life insurance penetration, developed from the study’s empirical findings and analytical insights. The model integrates key macroeconomic, demographic, institutional, and behavioural variables identified as significant determinants of life insurance uptake in Zimbabwe, particularly in informal economic contexts. It offers a structured framework for understanding the dynamic interactions among these factors and their influence on penetration levels across diverse population segments. Complementing the figure, Table 5.2 outlines the model’s core components, detailing each variable’s relevance, operational definition, and expected impact on life insurance penetration. Collectively, Figure 5.1 and Table 5.2 serve as a comprehensive guide for policymakers and industry stakeholders aiming to design, evaluate, or implement targeted strategies to improve life insurance access and participation in Zimbabwe and comparable economies.

Figure 5.1: The Life Insurance Penetration Model



Source: Author’s Compilation (2024)

Table 5.2: Key Elements of a Life Insurance Penetration Model

Metric	Description	Key Performance Indicators (KPIs)
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1) Market Segmentation	This involves the identification of distinct segments within the informal economy, such as small-scale traders, agricultural labourers, and artisans, to customise life insurance plans to meet their own wants and situations.	- Percentage of targeted segments enrolled in insurance
2) Barriers Analysis	A critical examination of impediments to life insurance adoption, including limited financial literacy, affordability constraints, mistrust in formal financial institutions, and restricted access to financial services. This analysis enables the formulation of targeted interventions to mitigate these challenges.	- Reduction in identified adoption barriers over time
3) Behavioural Insights	The incorporation of behavioural economics principles to assess the financial behaviours, cultural attitudes, and risk perceptions prevalent within the informal economy. These insights inform the design of insurance products and communication strategies that are culturally and economically appropriate.	- Adoption rate of behaviourally designed insurance products
4) Accessibility Strategies	The utilisation of innovative distribution channels such as mobile payment platforms, community-based sales agents, and micro-insurance schemes to enhance accessibility and ensure widespread availability of insurance products within informal economic settings.	- Number of policies sold via alternative distribution channels
5) Affordability Mechanisms	The development of cost-effective and flexible premium payment structures tailored to individuals with irregular or seasonal incomes. Such mechanisms are essential to promoting sustained participation in insurance schemes.	- Percentage of policyholders using flexible payment options
6) Awareness and Education Campaigns	The implementation of targeted financial literacy initiatives and public awareness campaigns intended to enhance comprehension of the advantages and roles of life insurance for individuals in the informal sector.	- Increase in financial literacy scores post-campaign

7) Regulatory Considerations	An evaluation of the prevailing regulatory framework governing the insurance sector, with recommendations for reforms that would facilitate increased participation from the informal sector, ensuring consumer protection while fostering market expansion.	- Number of regulatory reforms enacted to support informal sector inclusion
8) Measurement and Evaluation Metrics	The establishment of robust performance indicators, including metrics such as enrolment growth, retention rates, and customer satisfaction indices, to monitor and assess the efficacy of the penetration model over time.	- Year-on-year growth in life insurance penetration/density rates

Source: Author's Compilation (2025)

5.8.4 Mathematical Formulation

Let **P** represent the penetration rate of life insurance, which is a function of multiple independent variables:

$$P = f(S, B, I, A, F, W, R, M) \dots \dots \dots (1)$$

Where:

S (Market Segmentation) - A categorical variable representing different informal economy segments.

B (Barriers Analysis) - A factor incorporating literacy levels, financial constraints, and trust issues.

I (Behavioural Insights) - A function reflecting risk perception and cultural attitudes toward insurance.

A (Accessibility Strategies) - A measure of ease of access, including mobile insurance and micro-insurance.

F (Affordability Mechanisms) - A function of income variability and premium payment flexibility.

W (Awareness & Education) - A parameter representing the effectiveness of awareness campaigns.

R (Regulatory Considerations) - A policy function accounting for insurance laws and incentives.

M (Measurement & Metrics) - A feedback mechanism assessing penetration over time.

5.8.5 Regression-Based Model

A possible linear regression model to estimate **P** could be:

$$P = \beta_0 + \beta_1 S + \beta_2 B + \beta_3 I + \beta_4 A + \beta_5 F + \beta_6 W + \beta_7 R + \beta_8 M + \varepsilon \dots \dots \dots (2)$$

Where:

- β_0 is the intercept.
- $\beta_1, \beta_2, \dots \dots \beta_3$ are the coefficients representing the contribution of each factor to life insurance penetration.
- ε is the error term accounting for unobserved influences.

5.8.6 Logistic Model for Probability Estimation

$$P = \frac{1}{1 + e^{-\beta_0 + \beta_1 S + \beta_2 B + \beta_3 I + \beta_4 A + \beta_5 F + \beta_6 W + \beta_7 R + \beta_8 M}} \dots \dots \dots (3)$$

This ensures that P remains within the range 0 to 1, making it suitable for modelling penetration probabilities.

5.8.7 Addressing Moral Hazard and Adverse Selection

Adverse selection and moral hazard represent two fundamental challenges to the efficient functioning of insurance markets. Both arise from information asymmetries that compromise risk pooling and pricing accuracy (Dionne, Fombaron, & Mimra, 2023; Piuaru, Tescaşiu, Epuran, Mosora, & Ivasciuc, 2024). Adverse selection occurs prior to contract formation and manifests when individuals with higher-than-average risk are more likely to purchase insurance, while lower-risk individuals opt out (Dionne et al., 2023; Mhlanga, 2021). This phenomenon distorts the risk pool and inflates premiums. Conversely, moral hazard arises after policy issuance and reflects behavioural shifts whereby insured individuals alter their risk-taking behaviour due to the security afforded by coverage (Steinberg, 2022). These challenges are particularly acute in informal economies, where data limitations, regulatory weaknesses, and low levels of financial and insurance literacy hinder efficient contract design and risk assessment (Sheikh et al., 2022; Voutilainen, 2022).

The life insurance penetration model developed in this study incorporates several mechanisms to address these information problems systematically. First, the model advocates for precise market segmentation based on socioeconomic and occupational characteristics prevalent in Zimbabwe's informal sector. Segmenting the market into relatively homogeneous risk groups—such as informal traders, small-scale farmers, and rural artisans—enables insurers to

align pricing more closely with risk exposure. This strategy directly mitigates adverse selection by improving underwriting precision and facilitating the design of more appropriately priced products (Perumalsamy, Krothapalli, & Althati, 2022).

Second, the model prioritises insurance literacy as a key behavioural and policy lever. The intangible nature of insurance and low consumer understanding often hinder its uptake in informal economies (Lin, Bruhn, & William, 2019). The model integrates targeted educational interventions to address the cognitive and informational barriers that contribute to both adverse selection and moral hazard. Enhanced consumer understanding fosters more accurate risk disclosure and encourages policyholders to act prudently post-enrolment (Kiwunuka & Sibindi, 2023). Moreover, insurance literacy initiatives help to build trust in insurance institutions, a critical factor in informal settings where formal financial institutions are often viewed with scepticism.

Third, the model integrates flexible product design features such as microinsurance schemes and mobile-enabled premium payments. The cash-flow irregularities and volatility that characterise informal incomes particularly suit these innovations. By lowering entry barriers and allowing incremental participation, such designs reduce exclusionary dynamics that can aggravate selection effects. At the same time, consistent premium contributions over time serve as behavioural signals of risk types, which insurers may use to refine underwriting models and reduce exposure to moral hazards (Churchill & Matul, 2012; Eling et al., 2022).

Finally, the model emphasises the value of institutional capacity and regulatory cooperation. Effective mitigation of information asymmetries requires robust data infrastructures, transparent disclosures, and enforceable contract terms. The model encourages collaboration between insurers, regulators, and policymakers to establish mechanisms for data sharing and verification, while also promoting accountability in claim processing (Outreville, 2013; World Bank, 2021). The presence of a credible and competent regulatory authority enhances the enforceability of contracts and reinforces consumer confidence in the insurance system.

In sum, the life insurance penetration model advances a multidimensional strategy for addressing the twin challenges of adverse selection and moral hazard. Through targeted segmentation, consumer education, product innovation, and institutional coordination, the model strengthens the informational architecture of the insurance market. It thus contributes to the development of more inclusive and resilient life insurance systems within informal economic contexts.

Building upon the study's empirical findings, this section introduced a structured life insurance penetration model designed to guide stakeholders in evaluating and forecasting insurance uptake across diverse demographic and market conditions. Anchored in quantitative evidence, the model provides a rigorous analytical framework for interpreting market behaviour and informing policy formulation, strategic planning, and the design of targeted interventions, particularly within informal economies and contexts marked by macroeconomic instability. Additionally, the discussion critically examined the model's capacity to address information asymmetries—namely adverse selection and moral hazard—that often impede market efficiency. The next section presents recommendations for theoretical advancement, policy refinement, practical application, and directions for future research.

5.9 Recommendations

This study's results provide essential insights into the factors influencing life insurance penetration and density in Zimbabwe's largely informal economy, emphasising both difficulties and potential for market growth. The analysis underscores the importance of tailored financial products, robust institutional frameworks, and targeted policy interventions to enhance the uptake of life insurance in contexts marked by economic instability and significant informal sectors. These recommendations are designed to address the structural barriers identified in the study, such as income volatility among informal sector workers, inflationary pressures, and limited financial inclusion. By drawing from the empirical evidence presented in the ARDL analysis, the following recommendations for theory, policy, and practice aim to provide a strategic roadmap for policymakers, insurers, and researchers to foster sustainable growth in Zimbabwe's life insurance market. These recommendations not only focus on short-term adjustments but also consider long-term strategies to improve the depth and breadth of life insurance adoption in Zimbabwe and similar developing economies.

5.9.1 Recommendations for Theory

The study's findings contribute substantially to the theoretical discourse on life insurance penetration and density in developing economies with considerable informal sectors, such as Zimbabwe. Traditional economic models often view the informal sector as a major impediment to the adoption of formal financial products, emphasising challenges like income volatility, lack of access to financial services, and general exclusion from formal economic structures (Ajide & Dada, 2023). These models typically assume that informal sector workers, due to their irregular income patterns, are unable or unwilling to participate in life insurance markets.

However, this study's empirical evidence contradicts those assumptions. A positive long-term correlation exists between the magnitude of the informal sector and life insurance penetration, suggesting that when insurance products are tailored to meet the distinct requirements of informal workers, such as via micro-insurance schemes and adaptable payment options, these demographics are more inclined to participate in life insurance markets (Ng'ang'a & Odhiambo, 2023; Churchill & Matul, 2012). This suggests that the informal sector can present opportunities for market expansion when appropriate products are available. Previous research supports this, showing that simplified financial products aimed at low-income groups can achieve greater uptake when they are accessible and affordable (Mhella, 2023; Sing'oei, Nyiva, & Jemaiyo, 2024). Thus, future theoretical frameworks should be adjusted to reflect this dual potential of the informal economy, its challenges as well as its opportunities for the growth of formal financial products.

Furthermore, the analysis underscores the pivotal influence of institutional factors, including financial development and central bank autonomy, on the demand for life insurance. This is an area that is often overlooked in conventional life insurance demand models, which tend to prioritise economic variables such as income, inflation, and demographic factors (Beck & Webb, 2003; Schanz, 2020). The study's finding that central bank independence positively influences life insurance penetration and density underscores the importance of monetary stability in fostering consumer confidence in long-term financial products. This aligns with the perspectives of Abaidoo and Agyapong (2024), and Nguyen (2024), who argue that institutional quality plays a fundamental role in economic development and the effective functioning of financial markets. Integrating institutional factors into theoretical models would, therefore, offer a more holistic understanding of life insurance demand in developing economies.

The study emphasises the significance of demographic characteristics, like age dependence ratios and life expectancy, in affecting life insurance density. Conventional ideas have predominantly emphasised money as a key factor influencing life insurance demand. However, this study reveals that demographic shifts, such as ageing populations and longer life expectancies, can significantly shape households' investment in life insurance products (Sianipar & Hutagalung, 2021). As life expectancy increases, individuals and households may seek greater financial security for later life, thereby driving demand for life insurance products that cater to older demographics. Future theoretical models should, therefore, integrate demographic variables more explicitly to provide a comprehensive understanding of life insurance markets in developing economies. This would enable a more detailed analysis of how socioeconomic and demographic factors interact to influence demand.

5.9.2 Recommendations for Policy

The findings of this study suggest several policy interventions that could enhance life insurance penetration and density, particularly within the context of Zimbabwe's informal economy and broader economic challenges. The suggested policy recommendations are based on empirical evidence from the study and seek to tackle the structural and economic obstacles that hinder the expansion of the life insurance market.

5.9.2.1 Enhancing Financial Inclusion

The study identifies financial inclusion as a critical factor in ensuring that economic growth translates into broader life insurance penetration. Financial inclusion is particularly important in bridging the gap between income growth and life insurance uptake. The results indicate that financial development positively affects life insurance penetration, implying that enhanced access to financial services may motivate individuals to utilise life insurance products. Policymakers should prioritise the expansion of access to formal financial services, particularly for rural communities and informal sector workers, who frequently face exclusion from conventional banking services.

An effective plan may entail the advancement of digital financial services and mobile banking platforms, which have demonstrated effectiveness in other developing economies. For instance, Kenya's M-Pesa platform has markedly enhanced access to financial services,

enabling individuals without traditional banking access to participate in digital transactions (Lashitew et al., 2022). A similar approach in Zimbabwe could facilitate the uptake of micro-insurance and life insurance products among informal workers, enabling them to purchase policies through mobile platforms. Digital solutions can also reduce transaction costs and improve the efficiency of premium collection, making life insurance more accessible to low-income groups.

5.9.2.2 Strengthening Central Bank Independence

The study's findings highlight the significance of central bank independence in promoting a stable macroeconomic environment favourable for long-term financial planning. An autonomous central bank can mitigate inflation volatility and promote currency stability, hence bolstering consumer confidence in long-term financial instruments such as life insurance (Bianchi et al., 2022). The analysis indicates a positive correlation between central bank independence and life insurance penetration, suggesting that customers are more inclined to invest in long-term financial security products when they perceive monetary stability.

Policymakers should prioritise maintaining the autonomy of central banks to prevent political interference in monetary policy. The experiences of countries such as South Africa, where the central bank operates with a high degree of independence, demonstrate how a stable monetary environment can support the development of financial markets, including life insurance (Hickel, 2021). In Zimbabwe, ensuring that the central bank operates independently could help to stabilise the financial environment, thus encouraging both insurers and consumers to engage with life insurance products more confidently.

5.9.2.3 Promoting Insurance Literacy

The findings indicate that increased insurance literacy is crucial for raising awareness about life insurance products and their benefits. However, the impact of insurance literacy is more effective when combined with efforts to improve affordability and product accessibility. Policymakers should therefore implement comprehensive national campaigns aimed at improving insurance literacy, particularly among rural populations and informal sector workers. These campaigns should emphasise the advantages of life insurance, clarify prevalent myths, and demonstrate how life insurance can ensure financial stability for families. For instance, public-private partnerships could be leveraged to design educational programmes that reach underserved communities. Evidence from financial literacy programmes in developing

economies suggests that such initiatives can significantly improve individuals' engagement with the financial products sector (Mahmood et al., 2018). Incentivising insurers to invest in these education programmes through tax relief or subsidies could further enhance the effectiveness of such campaigns. This dual approach of improving knowledge while making products affordable is essential for achieving sustainable growth in the life insurance industry.

5.9.2.4 Addressing Informal Sector Dynamics

The research indicates that the informal sector poses both obstacles and prospects for the expansion of life insurance markets. Informal workers frequently encounter income unpredictability, which may impede their capacity to acquire life insurance plans with set payment obligations. The extensive informal sector constitutes a significant untapped opportunity for insurers prepared to modify their goods and services.

Policymakers should adopt a dual strategy in addressing these dynamics. Firstly, they should create incentives for informal sector workers and small businesses to formalise, such as simplifying the business registration process and reducing regulatory barriers. Formalisation can help to integrate more workers into the formal financial system, thereby increasing their access to life insurance (La Porta & Shleifer, 2014; Zvarivadza, 2018). Secondly, policymakers should establish a supportive regulatory framework for micro-insurance, ensuring that these products are affordable, flexible in terms of premium payments, and transparent to protect vulnerable consumers. Lessons can be drawn from successful micro-insurance programmes in India and Bangladesh, which have shown that well-regulated micro-insurance schemes can reach low-income populations effectively (Neelappa & Prakasam, 2020; Ahmed et al., 2023).

5.9.3 Recommendations for Practice

The study's findings provide actionable strategies for life insurance providers operating in Zimbabwe and similar developing economies with large informal sectors. Insurers can enhance their market penetration and improve premium collections by implementing the following strategies:

5.9.3.1 Development of Flexible Insurance Products

Given the income instability that characterises the informal sector, insurers should focus on designing life insurance products that are adaptable to irregular cash flows. Micro-insurance

products that offer low premiums and allow for flexible payment schedules, such as daily or weekly instalments, can address the needs of informal workers. This strategy has been successfully applied in countries like India and Bangladesh, where micro-insurance products have achieved significant penetration among low-income populations (Ahmed et al., 2023; Neelappa & Prakasam, 2020). By offering products that are affordable and can be paid for in smaller increments, insurers can reduce barriers to entry for informal workers and increase overall participation in the life insurance market.

5.9.3.2 Inflation-Linked Insurance Solutions

The research highlights the adverse impact of inflation on the demand for life insurance, as heightened economic uncertainty diminishes consumers' willingness to commit to long-term financial products. In response to this challenge, insurers should develop inflation-indexed life insurance policies that dynamically adjust premiums and benefits in accordance with inflation rates. By preserving the real value of policyholders' coverage over time, such products would enhance the attractiveness of life insurance, particularly in economies like Zimbabwe, where persistent inflation has historically eroded the value of long-term savings (Hoto, 2009; Kurasha, 2020).

Furthermore, regulatory authorities should explore the introduction of inflation-indexed prescribed assets, enabling insurers to better align their investment portfolios with their long-term liabilities. These instruments would not only safeguard policyholders against inflation-induced depreciation but also strengthen insurers' ability to offer sustainable and financially viable products. By proactively tackling inflationary concerns, insurers and regulators may enhance consumer confidence and ensure the long-term stability of the life insurance business.

5.9.3.3 Integrated Financial Planning Solutions

The increasing life expectancy is favourably impacting life insurance density, resulting in heightened demand for products that offer extensive financial protection as persons age. Insurers could meet this demand by offering integrated financial planning solutions that combine life insurance with retirement savings plans or endowment policies. These bundled products would not only provide life cover but also address consumers' long-term financial needs, such as retirement income (Bednarczyk et al., 2023; Bacinello, 2022). This approach could attract higher-income segments and encourage increased premium contributions, thus deepening market engagement.

5.9.3.4 Strengthening Distribution Channels

Engaging underserved groups, especially in rural regions, is essential for increasing life insurance penetration. Insurers should invest in digital distribution platforms and mobile insurance services, which can lower the costs of reaching remote communities. Digital solutions, such as mobile apps for policy management and premium payments, can make life insurance products more accessible to informal sector workers and low-income households (Demirgüç-Kunt et al., 2018). Furthermore, partnering with local cooperatives, community organisations, and microfinance institutions can help insurers build trust and improve their reach among informal workers, as demonstrated by similar initiatives in other developing economies (Ahmed et al., 2023; Neelappa & Prakasam, 2020).

5.10 Limitations of the Study

This study, despite its significant contributions, has various limitations that may impact the scope and generalisability of its conclusions. Mitigating these constraints in forthcoming research may yield a more profound comprehension of life insurance dynamics in developing nations.

5.10.1 Data Constraints

The study's reliance on macroeconomic data means that it may not fully capture the diversity within Zimbabwe's informal sector. Informal workers exhibit significant variation in income levels, savings habits, and risk perceptions, all of which influence their engagement with life insurance products. As Dell'Anno (2022) and Deléchat and Medina (2021) argue, informal economies are inherently heterogeneous, and broad statistical measures may oversimplify this complexity. A more granular approach, such as the use of household-level data, could offer a deeper understanding of how different segments of informal workers interact with life insurance markets.

5.10.2 Focus on a Single Country

The focus on Zimbabwe limits the extent to which the findings can be generalised to other developing economies. Zimbabwe's unique economic conditions, characterised by periods of hyperinflation, political instability, and a large informal sector, mean that its life insurance market dynamics may differ significantly from those in countries with different institutional

frameworks. Comparative studies, such as those by Akhter, Pappas, and Khan (2020), and Trinh et al. (2023), suggest that life insurance markets are influenced by a complex interplay of factors that vary widely across national contexts. Future research could expand this study's findings by conducting cross-country analyses to identify both common trends and unique factors influencing life insurance demand.

5.10.3 Time Constraints and Short-Run Analysis

The study utilises an Autoregressive Distributed Lag (ARDL) model, which effectively captures short-run dynamics but may not fully reflect longer-term behavioural changes among consumers and insurers in response to evolving economic conditions. While the ARDL model is well-suited for identifying immediate responses to changes in economic variables, a longer-term analysis could provide a more comprehensive understanding of how life insurance demand evolves over time, particularly in response to sustained economic instability or gradual demographic shifts (Tran, Huynh, & Huynh, 2022). Integrating a longitudinal analysis could provide enhanced understanding of the elements affecting life insurance demand in a fluctuating economic landscape.

5.10.4 Assumption of Linear Relationships

The ARDL model presumes linear correlations between independent variables and life insurance demand, potentially oversimplifying the intricate interactions among elements such as income, inflation, and financial development. Life insurance markets are often characterised by non-linear dynamics, where small changes in economic conditions can lead to disproportionately large effects on demand (Dragotă, Cepoi, & Ștefan, 2023). Future studies could explore the use of non-linear models to capture these complexities more accurately. For example, threshold models and structural breaks analysis could help identify key points at which changes in economic conditions significantly alter the behaviour of life insurance consumers (Dragotă et al., 2023).

5.11 Suggestions for Future Research

To mitigate the highlighted limitations and expand upon the findings of this study, subsequent research may investigate the following domains:

5.11.1 Comparative Studies across Multiple Countries

Future research could conduct comparative analyses of life insurance markets in countries with large informal sectors, varying levels of financial development, and different institutional frameworks. Such studies would help identify both commonalities and divergences in the factors driving life insurance demand in developing economies. By conducting cross-country studies, researchers could build on the work of Beck and Webb (2003), providing a broader understanding of how contextual factors shape life insurance markets in different settings.

5.11.2 Micro-Level Analysis of Informal Sector Dynamics

A more detailed, micro-level analysis of informal sector workers' interactions with life insurance markets could offer valuable insights into their risk perceptions, savings behaviours, and preferences for formal and informal financial products. This research would enhance macroeconomic studies and offer a more profound insight into the obstacles and prospects encountered by informal workers in obtaining life insurance (Indimuli et al., 2023; Mwinuka, Echoka, & Nyaberi, 2023). Surveys and interviews with informal sector workers may elucidate the particular aspects that affect their decisions to purchase or avoid life insurance..

5.11.3 Longitudinal Analysis of Life Insurance Demand

A longitudinal study that tracks life insurance demand over extended periods, particularly during times of economic volatility, could provide valuable insights into how households and insurers adjust to long-term changes in the economic environment (Fang, 2019). This would address the limitations of short-run analysis and offer a more comprehensive understanding of how life insurance market dynamics evolve over time. Longitudinal analysis could also reveal how changes in demographic factors, such as ageing populations, influence demand for life insurance products.

5.11.4 Exploring Non-Linear Relationships

Given the complexity of factors influencing life insurance demand, future research could employ non-linear models to capture potential threshold effects or interactions between variables that may not be captured in linear models. For instance, non-linear techniques like the threshold regression technique could help identify critical points where changes in economic variables significantly alter life insurance demand (Dragotă et al., 2023). This would

provide a more sophisticated analysis of the relationship between inflation, financial development, and life insurance uptake.

5.11.5 Impact of Digital Financial Services

As digital banking and mobile money platforms continue to expand in developing economies, including Zimbabwe, future research could investigate the impact of these innovations on life insurance demand. Digital platforms have the potential to increase access to insurance products, especially for informal sector workers and rural populations who have historically been excluded from formal financial services (Buteau, Rao, & Valenti, 2021). Studies could explore the effectiveness of mobile-based micro-insurance schemes in improving life insurance penetration and determine whether these models can be adapted to other developing economies facing similar challenges.

In conclusion, this study offers a critical examination of the factors influencing life insurance penetration and density in a largely informal economy, using Zimbabwe as a case study. The research challenges traditional assumptions about the role of informality and emphasises the importance of tailored financial products and institutional factors in enhancing life insurance uptake. However, the study's limitations, including its reliance on macroeconomic data and focus on a single country, highlight the need for further research to broaden the scope of understanding. Future studies should incorporate comparative analyses, include micro-level insights, and explore the impact of digital financial innovations on life insurance markets. By addressing these deficiencies, forthcoming research can enhance the establishment of more inclusive financial markets that more effectively cater to the requirements of informal workers and low-income households in developing nations.

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APPENDICES

Appendix A: Permission Letter from Chinhoyi University of Technology



+ANNEX 19 Form GRSD 17 SEBS 08/2024
CHINHOYI UNIVERSITY OF TECHNOLOGY

RESEARCH ETHICS CLEARANCE LETTER

NAME OF RESEARCHER: - Pascal Gubwe **ID No:** 22-082313-N-22

STUDENT REG NUMBER: C22148893W

SCHOOL OF ENTREPRENEURSHIP AND BUSINESS SCIENCES

APPROVED RESEARCH TITLE: - Life Insurance Penetration Challenges in A
Largely Informal Economy: A Case of Zimbabwe

I hereby confirm that the above mentioned Researcher is a Postgraduate Researcher at Chinhoyi University of Technology. The proposed study met all the requirements as stipulated in the University Policies and Guidelines and has been approved by the relevant committees.

The proposal adheres to ethical principles as outlined by the University. Permission is hereby granted to carry out the research as described in the attached approved proposal.

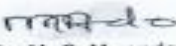
The main objective of the research is: The overall objective is to assess the drivers of life insurance penetration in Zimbabwe.

Expected Outcome: - To provide life insurers and their partner intermediaries with critical insights to aid their product design and delivery strategies

In addition, the Researcher is urged to adhere to international and national ethical guidelines and all requirements by Chinhoyi University of Technology.

Best Regards

Yours Faithfully


Dr. M. C. Mwando
Chairperson, University Research Committee - Research Ethics
Tel: +263 6721 22203-5
E-mail: - researchandgraduatestudies@cut.ac.zw

Date: 14/03/2024

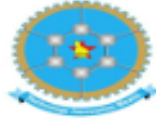
CHINHOYI UNIVERSITY OF TECHNOLOGY
DIRECTORATE OF RESEARCH
AND GRADUATE STUDIES

15 MAR 2024

BAG 7724
CHINHOYI, ZIMBABWE

Appendix B: Editorial Certificate

CHINHUYI UNIVERSITY OF TECHNOLOGY



INSTITUTE OF LIFELONG LEARNING AND DEVELOPMENT STUDIES

CENTRE FOR LANGUAGE AND COMMUNICATION STUDIES

EDITORIAL CERTIFICATE

DATE: 27 March 2025

PhD Thesis Author: Pascal Gubwe

RESEARCH TITLE: Developing A Life Insurance Penetration Model for Zimbabwe's
Predominantly Informal Economy.

To Whom It May Concern

This letter confirms that the above-mentioned thesis was edited by a professionally qualified English Language specialist. The Editor in question has a Master of Arts Degree in English and a PhD in Media Studies and currently chairs the Centre for Language and Communication Studies at Chinhoyi University of Technology.

The proofreading and editing attended to grammatical and syntactical issues only. The editor made no effort to address substantive matters of content covered in the thesis. Similarly, arguments advanced by the researcher in the thesis, whether tenable or untenable, were not altered except in cases where there were not articulated succinctly.

The author of the thesis can accept or reject the syntactical and grammatical alterations done by the editor.

Yours Sincerely

Isaac Choto
(PhD Media Studies, MA English, BA Hons English and Communication)

Appendix C: Panel Data for Macroeconomic Indices for Zimbabwe: 1990 - 2022

Number of Years	Year	Penetration (LINSP)	Density	Informal Sector Size (INF)	Per Capita Income (INC)	Inflation (CPI)	Central Bank Independence (CBI)	Financial Development (FIND)	Unemployment (UNEMP)	Dependency (DEP)	Life Expectancy (LEXP)	Insurance Literacy (edu)
1	1990	1.60	22.00	59.27196	12106.29	-0.920431	13.87854	12.37787	4.840	98.22635	62.5390	3.000000
2	1991	1.80	22.00	59.59260	12849.66	-6.777300	10.11740	15.28036	4.750	95.72954	60.9080	3.300000
3	1992	1.80	17.00	58.46744	11362.91	-14.129658	11.79027	18.70319	4.929	94.26655	59.2800	2.757107
4	1993	1.60	15.00	59.82456	11304.89	-3.791122	14.41316	21.80481	5.007	93.40114	57.1500	2.514213
5	1994	1.40	14.00	59.50929	12196.40	-3.895673	12.87136	21.22171	4.960	91.72748	55.2880	2.271320
6	1995	1.40	14.00	59.70256	12024.36	3.038538	13.55961	24.79001	5.557	89.28274	53.2030	2.028427
7	1996	1.60	19.00	60.29436	12947.98	8.984383	12.44080	21.54409	6.123	86.14105	51.2450	1.785533
8	1997	1.60	20.00	60.58762	13003.93	-2.879048	21.13504	26.58100	6.930	83.00618	50.3660	1.542640
9	1998	1.00	9.00	60.30470	12913.48	-27.048649	20.52381	24.81542	6.356	80.18578	49.3110	1.299747
10	1999	2.00	16.00	60.33274	12452.55	8.006813	12.92066	16.16158	6.000	77.95000	47.4590	1.056853
11	2000	2.00	15.00	59.74240	11844.88	0.627900	21.27391	21.56250	5.683	76.48188	46.4750	0.813960
12	2001	2.50	18.00	59.90418	11858.39	-0.130890	28.72739	27.72416	5.297	75.76070	42.4870	0.571067
13	2002	2.24	16.13	59.97736	10699.57	2.712950	44.49300	84.81197	4.994	75.44889	45.7920	1.542640
14	2003	1.98	14.25	59.62534	8803.38	8.801276	16.00303	53.16816	4.743	75.47123	43.9560	1.726047
15	2004	1.71	12.38	60.02464	8233.51	7.611524	20.30494	17.04779	4.390	75.98563	45.4900	1.909455
16	2005	1.45	10.50	61.39092	7779.05	5.136601	38.09540	14.94880	4.665	76.75719	45.5920	2.092862
17	2006	1.19	8.63	61.07975	7483.15	-2.017679	30.81115	13.00138	4.802	77.29010	46.3940	2.276269
18	2007	0.93	6.75	62.70046	7178.94	0.894887	23.52690	11.05395	5.073	77.73820	46.3360	2.459676
19	2008	0.66	4.88	62.99689	5911.62	1.349223	16.24266	9.10653	5.543	78.42666	47.7740	2.643084
20	2009	0.40	3.00	64.43756	6581.74	95.408660	8.95841	7.15911	5.617	79.21989	49.3940	2.826491
21	2010	0.50	5.00	63.25558	7915.10	2.575536	6.88111	13.54363	5.542	80.10832	52.2400	3.009898
22	2011	1.00	11.00	62.39840	8952.23	2.171761	6.33116	18.98324	5.370	80.86755	55.4380	3.193306
23	2012	1.30	16.00	61.75018	10138.31	4.855946	7.00968	20.14062	5.020	81.13596	57.7230	3.399720
24	2013	1.50	22.00	61.98598	10201.68	8.091140	7.81213	18.73191	4.932	80.86220	59.5330	4.603282
25	2014	1.70	24.00	61.74167	10066.06	0.624974	7.97705	19.21037	4.770	80.24685	60.8440	5.806844
26	2015	1.80	26.00	61.56936	10061.38	0.367420	11.89247	18.31569	5.412	79.35018	61.6370	7.010406
27	2016	1.90	27.00	61.45115	9928.95	2.014095	17.50947	17.09856	5.918	78.28062	62.4160	8.213968
28	2017	1.80	28.00	60.87813	10110.90	3.056905	28.48099	16.87511	6.349	77.18140	62.9560	9.418530
29	2018	2.00	31.00	60.05815	10398.79	200.769580	14.33679	5.83027	6.767	76.12537	63.5940	14.589720
30	2019	0.70	7.00	60.52146	9568.33	225.394650	6.14448	5.23771	7.370	75.14504	63.6610	19.762909
31	2020	0.30	5.00	60.42904	8811.80	604.945860	1.62045	5.41507	8.651	74.19835	63.8620	18.599908
32	2021	1.10	14.00	60.47525	9369.30	113.294980	2.62106	6.98854	9.540	73.35996	62.0450	17.436903
33	2022	2.60	12.00	60.45214	9655.29	264.580610	3.83095	8.78568	9.256	72.50357	62.0940	17.436903

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