

Structural and Behavioral Determinants of Insurance Uptake among Small and Medium-Sized Enterprises in Malawi: Evidence from a Hierarchical Survey-Weighted Logistic Regression Analysis

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Abstract—Small and Medium-Sized Enterprises (SMEs) play a critical role in economic growth, employment creation, and poverty reduction in Malawi. Despite their contribution to national development, formal insurance uptake among SMEs remains persistently low, exposing enterprises to financial losses arising from operational, environmental, and market-related risks. While previous studies have examined insurance demand among households, farmers, and individual consumers, empirical evidence explaining insurance uptake among SMEs in Malawi remains limited. This study examined the determinants of insurance uptake among SMEs using nationally representative data from the 2019 FinScope Malawi Micro, Small and Medium Enterprise Survey. A quantitative cross-sectional research design was employed, and data were analysed using survey-weighted descriptive statistics and hierarchical survey-weighted logistic regression. The findings indicate that only 6.27% of SMEs possessed formal insurance. The final regression model showed that business registration, enterprise size, ownership of multiple businesses, business sector, awareness of SME support institutions, insurance perceptions, and rural residence significantly influenced insurance uptake, whereas demographic characteristics and conventional financial inclusion indicators, including banking, savings, borrowing, and digital financial services, did not retain independent statistical significance after adjustment. These findings demonstrate that insurance uptake among SMEs is driven primarily by enterprise-level structural and behavioural factors rather than financial inclusion alone. The study contributes to the literature by demonstrating the value of hierarchical modelling in distinguishing independent determinants of insurance uptake and highlights the need for policies that promote enterprise formalisation, insurance awareness, and institutional trust alongside broader financial inclusion initiatives.

Keywords: Insurance uptake; Small and Medium-Sized Enterprises; Malawi; Financial inclusion; Business registration; Insurance awareness; Hierarchical logistic regression.

I. INTRODUCTION

Small and Medium-Sized Enterprises (SMEs) are widely recognised as the backbone of national economies because of their substantial contribution to employment creation, innovation, productivity, and inclusive economic growth. In developing countries, SMEs constitute the largest proportion of private enterprises and provide employment opportunities for millions of people who would otherwise have limited access to formal labour markets (OECD, 2020) (FinMark Trust, 2019). Beyond their contribution to employment, SMEs stimulate entrepreneurship, promote local economic development, and enhance household livelihoods through income generation and value creation. Consequently, strengthening SME resilience has become an important component of sustainable economic development strategies across low- and middle-income countries (Robinson, 2019) (OECD, 2020).

Despite their economic importance, SMEs operate in environments characterised by considerable uncertainty. Enterprise owners routinely face risks arising from fire, theft, floods, droughts, business interruption, illness, macroeconomic instability, and market fluctuations. Unlike large corporations, however, most SMEs possess limited financial reserves and often operate without adequate risk management mechanisms, making them particularly vulnerable to adverse shocks (Churchill & Matul, 2020). Business losses resulting from unexpected events may therefore reduce enterprise productivity, constrain investment, interrupt operations, and ultimately lead to business failure. These challenges are particularly severe in developing economies where informal enterprises dominate the private sector and access to formal financial services remains constrained (OECD, 2020) (FinMark Trust, 2019).

Insurance represents one of the most effective financial mechanisms for managing enterprise risk because it enables businesses to transfer the financial consequences of uncertain future events to insurers in exchange for predetermined premium payments. By protecting productive assets and facilitating business continuity, insurance contributes to enterprise resilience, enhances investment confidence, improves access to finance, and supports long-term business growth (Churchill & Matul, 2020) (Robinson, 2019). From an economic perspective, insurance reduces uncertainty and allows entrepreneurs to undertake productive investments that might otherwise be considered excessively risky. These benefits have led governments, development partners, and financial regulators to promote insurance as an integral component of inclusive financial systems and private sector development.

Notwithstanding these recognised benefits, insurance penetration remains comparatively low across many developing countries, particularly within Sub-Saharan Africa. Previous studies have identified numerous factors contributing to low insurance uptake, including limited awareness of insurance products, low financial and insurance literacy, affordability constraints, inadequate trust in insurance providers, poor product design, and limited access to insurance distribution channels (Churchill & Matul, 2020) (Lin et al., 2019). As a result, many SMEs continue to rely on informal coping mechanisms such as personal savings, borrowing from family members, sale of productive assets, or reductions in business investment following adverse events instead of transferring risk through formal insurance markets.

Malawi provides an important context for examining these issues. SMEs dominate the country's private sector and contribute substantially to employment creation, household income, and economic activity. However, the majority of these enterprises operate informally and remain highly exposed to financial, environmental, and operational risks (FinMark Trust, 2019). Although national financial inclusion strategies have expanded access to banking services, savings products, mobile money, and credit facilities, insurance remains one of the least utilised formal financial services among SMEs. According to the 2019 FinScope Malawi MSME Survey, only 6.27% of SMEs possessed formal insurance, indicating that the overwhelming majority of enterprises remain financially vulnerable to unexpected business shocks.

The persistence of low insurance uptake raises important questions regarding the factors influencing insurance adoption among SMEs. Existing empirical evidence has primarily focused on household insurance, agricultural insurance, or general financial inclusion, while comparatively little attention has been devoted to enterprise insurance within low-income countries (Baguma, 2023) (Dayour et al., 2020) (Malambo, 2022). Furthermore, previous studies have frequently examined demographic characteristics, enterprise characteristics, behavioural factors, or financial inclusion independently, providing limited understanding of their relative importance after controlling for potential confounding influences. As a result, policymakers possess limited evidence regarding which interventions are most likely to increase insurance penetration among SMEs.

This study addresses these gaps by examining the determinants of insurance uptake among SMEs in Malawi using nationally representative data from the 2019 FinScope Malawi MSME Survey. Unlike previous studies that estimate single regression models, this study employs a hierarchical survey-weighted logistic regression approach in which explanatory variables are introduced sequentially according to their theoretical relevance. This analytical strategy allows the identification of variables that merely appear associated with insurance uptake from those that remain independently associated after controlling for demographic, socioeconomic, enterprise, behavioural, and financial inclusion characteristics. By distinguishing direct from indirect relationships, the study provides a more comprehensive understanding of the factors driving insurance adoption among SMEs.

The study makes three principal contributions to the literature. First, it provides one of the few nationally representative empirical investigations of insurance uptake among SMEs in Malawi, thereby addressing an important evidence gap within the country's financial inclusion literature. Second, it demonstrates the application of hierarchical survey-weighted logistic regression as a robust methodological approach for analysing insurance demand among SMEs. Third, the findings reveal that enterprise-level structural and behavioural characteristics—including business registration, enterprise size, ownership of multiple businesses,

awareness of SME support institutions, and insurance perceptions—exert stronger influences on insurance uptake than conventional indicators of financial inclusion. These findings challenge the common assumption that expanding access to financial services alone will substantially increase insurance penetration and instead suggest that enterprise formalisation, behavioural change, and institutional engagement should form central components of insurance development policy.

II. LITERATURE REVIEW

II.I. THEORETICAL PERSPECTIVES ON INSURANCE UPTAKE

Insurance demand has traditionally been explained through economic theories that assume individuals and firms make decisions under conditions of uncertainty by balancing expected costs against expected benefits. Expected Utility Theory provides the classical explanation for insurance demand, arguing that risk-averse decision-makers purchase insurance because the certainty associated with insurance coverage provides greater utility than facing uncertain but potentially catastrophic financial losses (Von Neumann & Morgenstern, 1944). Under this framework, enterprises with greater investments, larger asset bases, and higher exposure to operational risks should exhibit stronger incentives to purchase insurance than firms with limited assets or lower risk exposure.

Expected Utility Theory has been widely applied to explain insurance decisions among businesses because it predicts that enterprises invest in insurance when the expected financial consequences of remaining uninsured exceed the cost of insurance premiums. Previous studies have found that business registration, enterprise size, and asset ownership are positively associated with insurance uptake because these characteristics increase both the probability and financial consequences of business losses (Dansu & Olubusade, 2023) (Malambo, 2022). However, although Expected Utility Theory explains why insurance is economically rational, it assumes that entrepreneurs possess complete information and make fully rational decisions. These assumptions are frequently unrealistic within developing economies where insurance literacy remains limited and entrepreneurs often rely on imperfect information when making financial decisions (Churchill & Matul, 2020).

To address these limitations, behavioural theories have increasingly been used to explain insurance uptake. Prospect Theory argues that individuals evaluate decisions relative to perceived gains and losses rather than expected utility alone (Kahneman, D; Tversky, A, 1979). According to this theory, entrepreneurs frequently perceive insurance premiums as immediate and certain losses while viewing the potential benefits of insurance as uncertain future gains that may never materialise. Consequently, many business owners postpone or avoid purchasing insurance even when they recognise their exposure to substantial business risks. This behavioural tendency is particularly relevant among SMEs operating under severe liquidity constraints because preserving immediate cash flow often takes precedence over investments in future risk protection (Kahneman, 2011).

The Theory of Planned Behavior further suggests that insurance decisions are shaped by entrepreneurs' attitudes towards insurance, perceived social expectations, and perceived behavioural control (Ajzen, 1991). Entrepreneurs who view insurance positively, believe that insurance is valued within their business networks, and understand how insurance products operate are more likely to purchase insurance than those possessing negative attitudes or limited knowledge. Previous studies consistently identify awareness, trust, and positive insurance perceptions as important determinants of insurance adoption, particularly within developing countries where insurance markets remain relatively underdeveloped (Lin et al., 2019) (Churchill & Matul, 2020).

Information Asymmetry Theory provides an additional explanation for low insurance uptake by recognising that insurers generally possess substantially greater information regarding insurance products than potential policyholders. Entrepreneurs frequently experience uncertainty regarding policy conditions, premium calculations, exclusions, and claims procedures. Such information asymmetries increase transaction costs, reduce trust, and discourage participation in insurance markets (Churchill & Matul, 2020). SME support institutions therefore perform an important role by reducing information gaps through business advisory services, financial literacy programmes, and enterprise development initiatives.

II.II. EMPIRICAL EVIDENCE ON INSURANCE UPTAKE AMONG SMES

Empirical research demonstrates that insurance uptake among SMEs is influenced by multiple interrelated factors rather than by financial capacity alone. Existing evidence can broadly be grouped into four themes: demographic characteristics, enterprise characteristics, behavioural factors, and financial inclusion.

Demographic characteristics have produced inconsistent findings within the literature. Several studies report that older entrepreneurs are more likely to purchase insurance because business experience increases awareness of operational risks and the value of risk management (Malambo, 2022) (Robinson, 2019). Conversely, other studies find that age becomes statistically

insignificant after controlling for enterprise characteristics, suggesting that business experience rather than chronological age explains observed differences in insurance uptake. Similar inconsistencies exist regarding gender. Although female entrepreneurs are sometimes reported to exhibit lower insurance uptake than male entrepreneurs due to differences in business size, asset ownership, or access to finance, these relationships frequently weaken after enterprise characteristics are considered (Baguma, 2023).

Enterprise characteristics have demonstrated considerably more consistent associations with insurance uptake. Business registration repeatedly emerges as one of the strongest predictors of insurance ownership because formally registered enterprises interact more frequently with financial institutions, government agencies, and commercial partners, increasing both awareness of insurance products and incentives to adopt formal risk management practices (Baguma, 2023) (Dansu & Olubusade, 2023). Enterprise size similarly exhibits a strong positive association with insurance uptake. Larger firms generally possess greater asset exposure, employ more workers, and face more complex operational risks, increasing the expected benefits of insurance protection (Malambo, 2022). Sector of operation also influences insurance demand because businesses operating in manufacturing, transport, and service industries frequently possess higher-value assets and greater operational risks than enterprises engaged in small-scale trading (Churchill & Matul, 2020).

Behavioural factors have received increasing attention within recent insurance research. Insurance awareness consistently emerges as an important determinant of insurance adoption because entrepreneurs cannot purchase products they neither understand nor trust. Limited awareness of available insurance products, policy conditions, and claims procedures remains a major barrier to insurance development across many low-income countries (Lin et al., 2019). Positive perceptions of insurance providers similarly encourage insurance uptake by increasing confidence that claims will be honoured and premiums represent worthwhile investments. Conversely, previous negative experiences, misinformation, or distrust of insurance companies discourage insurance participation even where insurance products are readily available (Churchill & Matul, 2020).

The relationship between financial inclusion and insurance uptake remains less clear. Access to banking services, formal savings, credit facilities, and digital financial services is frequently assumed to increase insurance demand because financially included entrepreneurs possess greater opportunities to purchase financial products. Several studies report positive relationships between financial inclusion and insurance ownership (OECD, 2020) (Robinson, 2019). However, other studies demonstrate that these relationships weaken substantially after controlling for enterprise characteristics and behavioural variables, suggesting that financial inclusion may influence insurance uptake indirectly through enterprise development rather than acting as an independent determinant (Baguma, 2023) (Malambo, 2022).

Although these studies have substantially improved understanding of SME insurance demand, three important gaps remain. First, relatively little nationally representative evidence exists regarding insurance uptake among SMEs in Malawi. Second, previous studies frequently examine demographic, enterprise, behavioural, or financial inclusion characteristics independently rather than within integrated analytical frameworks. Third, few studies have employed hierarchical regression approaches capable of distinguishing variables that merely appear significant from those that remain independently associated with insurance uptake after controlling for confounding influences.

Accordingly, this study contributes to the literature by integrating demographic, socioeconomic, enterprise, behavioural, and financial inclusion variables within a hierarchical survey-weighted logistic regression framework. This approach provides a more comprehensive understanding of insurance uptake among SMEs while identifying the factors that independently influence insurance ownership after adjustment for multiple explanatory domains.

II.III. CONCEPTUAL FRAMEWORK

Guided by the reviewed theories and empirical evidence, the study conceptualises insurance uptake as the outcome of interactions among four broad groups of determinants: (i) demographic characteristics, (ii) enterprise characteristics, (iii) behavioural characteristics, and (iv) financial inclusion characteristics. Demographic factors describe the characteristics of enterprise owners, enterprise characteristics capture the structural attributes of businesses, behavioural factors reflect entrepreneurs' awareness and perceptions of insurance, while financial inclusion variables represent participation in formal financial systems.

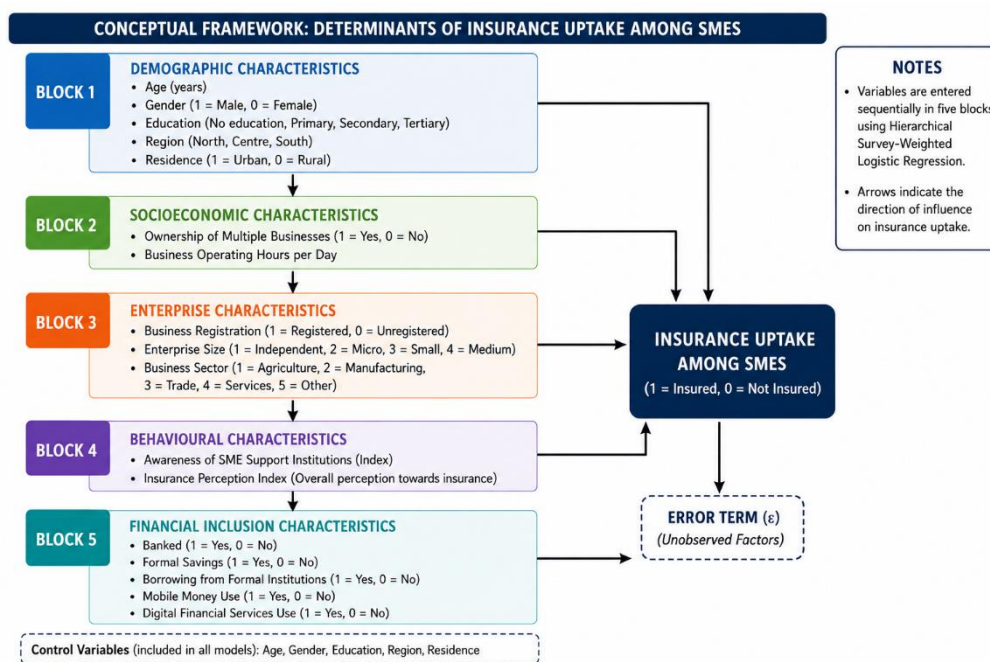


Figure 1: presents the conceptual framework underpinning the empirical analysis.

The framework proposes that demographic characteristics may influence insurance uptake directly but also indirectly through enterprise development and financial inclusion. Enterprise characteristics are expected to influence insurance demand by determining business risk exposure and the potential financial consequences of adverse events. Behavioural characteristics are expected to influence entrepreneurs' willingness to purchase insurance through awareness, perceptions, and confidence in insurance providers. Financial inclusion is hypothesised to facilitate access to insurance products, although its independent influence remains uncertain after controlling for enterprise and behavioural characteristics.

III. MATERIALS AND METHODS

III.I. STUDY DESIGN

This study employed a quantitative cross-sectional research design to examine the determinants of insurance uptake among Small and Medium-Sized Enterprises (SMEs) in Malawi. The quantitative approach was considered appropriate because the study sought to estimate the independent influence of demographic, socioeconomic, enterprise, behavioural, and financial inclusion characteristics on the likelihood of insurance ownership using nationally representative survey data. Cross-sectional designs are widely applied in financial inclusion research because they permit the examination of relationships between explanatory variables and binary outcomes within large populations while providing evidence suitable for informing policy and practice (FinMark Trust, 2019) (OECD, 2020).

Rather than collecting primary data, the study utilised secondary data from the 2019 FinScope Malawi Micro, Small and Medium Enterprise (MSME) Survey, which remains the most comprehensive nationally representative survey examining financial behaviour among SMEs in Malawi. The survey was implemented by FinMark Trust in collaboration with the Reserve Bank of Malawi and other national stakeholders to support evidence-based financial sector development and financial inclusion policy (FinMark Trust, 2019). The dataset provides extensive information on enterprise characteristics, financial behaviour, business performance, and access to formal financial services, making it particularly suitable for analysing insurance uptake among SMEs.

The use of nationally representative secondary data offers several methodological advantages. First, it permits analysis of a substantially larger and more diverse sample than would normally be feasible through independent primary data collection. Second, the survey employed rigorous probability sampling procedures that enhance the external validity and generalisability of the findings. Third, the dataset includes a comprehensive range of variables capturing demographic, enterprise, behavioural, and financial inclusion characteristics, thereby allowing a multidimensional assessment of insurance uptake.

III.II. DATA SOURCE AND SAMPLING

The analysis was based on data obtained from the 2019 FinScope Malawi MSME Survey, which interviewed 2,993 enterprises operating throughout Malawi. After excluding observations with incomplete information for variables included in the regression analysis, the final analytical sample comprised 2,974 SMEs, consistent with the regression models reported in this study.

The FinScope survey employed a nationally representative multi-stage sampling design covering rural and urban areas across Malawi's Northern, Central, and Southern regions. Sampling weights supplied with the dataset were applied throughout the analysis to account for unequal probabilities of selection and to ensure that all descriptive statistics and regression estimates were nationally representative. The application of survey weights also corrected standard errors for the complex sampling design, thereby improving the validity of statistical inference.

The survey includes enterprises operating across diverse economic sectors, including agriculture, trade, manufacturing, construction, transport, and services. Importantly, the dataset captures both formally registered and informal enterprises, allowing comparisons between businesses operating under different institutional arrangements.

III.III. STUDY VARIABLES

Dependent Variable

The dependent variable was formal insurance uptake, measured as whether an enterprise possessed any form of formal insurance at the time of the survey. Following the coding applied in the thesis, the variable was binary:

- 1 = Enterprise possesses formal insurance
- 0 = Enterprise does not possess formal insurance

The binary nature of the dependent variable justified the application of logistic regression techniques.

Independent Variables

Selection of explanatory variables was informed by the theoretical framework and previous empirical studies examining insurance uptake among SMEs (Ajzen, 1991) (Churchill & Matul, 2020) (Kahneman, D; Tversky, A, 1979) (Malambo, 2022). To facilitate hierarchical modelling, explanatory variables were organised into four conceptually related blocks. The first block comprised demographic characteristics, including age, gender, educational attainment, region, and place of residence. The second block included socioeconomic and enterprise characteristics, namely ownership of multiple businesses, business registration, enterprise size, business sector, and business operating hours. The third block consisted of behavioural characteristics capturing entrepreneurs' awareness of SME support institutions and perceptions towards insurance. The final block incorporated financial inclusion variables, including banking status, borrowing behaviour, savings behaviour, mobile money use, and other indicators of participation in formal financial systems. Grouping explanatory variables into sequential blocks enabled assessment of how relationships changed after progressively controlling for additional explanatory domains, thereby providing greater insight into the independent determinants of insurance uptake.

Table 1: Variables Included in the Hierarchical Regression Analysis

Variable Category	Variables
Demographic	Age, Gender, Education, Region, Rural/Urban
Socioeconomic	Multiple businesses, Business hours
Enterprise	Registration status, Enterprise size, Business sector
Behavioural	Awareness of SME support institutions, Insurance perception index

Variable Category Variables

Financial Inclusion Banking, Savings, Borrowing, Mobile money, Digital financial services

Outcome Formal insurance uptake

III.IV. STATISTICAL ANALYSIS

Data analysis was conducted using Stata version 17. Prior to estimation, survey design characteristics were specified using the svyset command to incorporate sampling weights and account for the complex survey design employed by the FinScope survey. Consequently, all descriptive statistics, regression coefficients, standard errors, confidence intervals, and significance tests reported in this study represent survey-weighted estimates.

The empirical analysis proceeded in three stages: First, descriptive statistics summarised the characteristics of the study sample. Continuous variables were summarised using weighted means and standard deviations, whereas categorical variables were described using weighted frequencies and percentages. Second, survey-weighted bivariate logistic regression models were estimated to examine the crude association between each explanatory variable and insurance uptake. These preliminary analyses informed the development of subsequent multivariable models. Third, hierarchical survey-weighted logistic regression was employed to identify the independent determinants of insurance uptake. Explanatory variables were entered sequentially in accordance with the conceptual framework developed from the literature. Model 1 included demographic characteristics only. Model 2 introduced socioeconomic characteristics. Model 3 incorporated enterprise and behavioural characteristics. Model 4 added financial inclusion variables. Finally, Model 5 estimated a parsimonious specification retaining variables that remained statistically significant after adjustment.

Compared with conventional single-stage regression models, hierarchical regression offers several analytical advantages. It permits assessment of how coefficient estimates change following the introduction of additional explanatory variables, facilitates comparison of successive model specifications, and identifies variables whose apparent significance is attributable to confounding rather than independent effects. Consequently, hierarchical modelling provides a more rigorous assessment of insurance uptake than models that estimate all explanatory variables simultaneously. Adjusted odds ratios (AORs), 95% confidence intervals (95% CI), and associated p-values are reported throughout the paper. Statistical significance was assessed at the 5% level, while variables significant at the 10% level are discussed where theoretically relevant.

III.V. MODEL SPECIFICATION

Insurance uptake was estimated using the following logistic regression model:

$$\text{logit}(P_i) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \varepsilon_i$$

where:

- P_i denotes the probability that enterprise i possessed formal insurance;
- β_0 represents the intercept;
- $X_1 \dots X_k$ represent the explanatory variables introduced within each hierarchical model; and
- ε_i denotes the random error term.

Because the dependent variable is dichotomous, logistic regression provides appropriate maximum likelihood estimates of the probability of insurance uptake while avoiding assumptions associated with ordinary least squares regression.

III.VI. ETHICAL CONSIDERATIONS

The study utilised anonymised secondary data obtained from the 2019 FinScope Malawi MSME Survey. The dataset contains no personally identifiable information, and all analyses were conducted in accordance with accepted principles governing the ethical use of secondary survey data. As no direct interaction occurred between the researcher and study participants, no additional ethical approval or informed consent procedures were required for the present analysis.

IV. RESULTS

IV.I. CHARACTERISTICS OF THE STUDY SAMPLE

The study analysed survey-weighted data from 2,974 Small and Medium-Sized Enterprises (SMEs) drawn from the nationally representative 2019 FinScope Malawi MSME Survey. The descriptive analysis demonstrated that the overwhelming majority of enterprises operated without formal insurance, highlighting the limited penetration of insurance services within Malawi's SME sector. Only 6.27% of enterprises reported possessing formal insurance, while approximately 94% remained uninsured, confirming that formal insurance continues to play only a marginal role in SME risk management. This finding reinforces the problem identified in the introduction and underscores the importance of understanding the factors constraining insurance adoption among SMEs in Malawi.

The descriptive analysis further showed considerable heterogeneity among SMEs with respect to demographic characteristics, enterprise structure, behavioural attributes, and financial inclusion. Most enterprises were micro or small businesses operating within the informal sector, and substantial differences were observed in business registration, enterprise size, business sector, financial behaviour, awareness of SME support institutions, and perceptions of insurance. These variations provided an appropriate basis for examining the determinants of insurance uptake using multivariable regression analysis.

IV.II. HIERARCHICAL REGRESSION RESULTS

To identify the independent determinants of insurance uptake, the study estimated five hierarchical survey-weighted logistic regression models. Variables were introduced sequentially according to the conceptual framework, beginning with demographic characteristics and progressively incorporating socioeconomic, enterprise, behavioural, and financial inclusion variables. This modelling strategy enabled assessment of how relationships changed after controlling for additional explanatory factors while distinguishing variables that merely appeared associated with insurance uptake from those that remained independently significant.

The hierarchical modelling approach demonstrated that explanatory power increased substantially following the introduction of enterprise-level structural characteristics and behavioural variables, whereas the subsequent addition of financial inclusion variables contributed relatively little additional explanatory value. Several demographic and socioeconomic variables that appeared significant in earlier models became statistically insignificant after enterprise characteristics were introduced, indicating that their apparent effects were explained by broader structural differences between enterprises rather than independent influences on insurance uptake.

Table 2: Hierarchical Results

Variable	Model 1	Model 2	Model 3	Model 4	Final Model
Demographic Characteristics					
Age (years)	1.021 **	1.011	0.991	0.984	0.990
Gender					
Male (Reference)	1.000	1.000	1.000	1.000	1.000
Female	0.180*	0.171*	0.795	0.821	0.920
Region					
Northern (Reference)	1.000	1.000	1.000	1.000	1.000
Central	0.783	0.760	0.577	0.653	0.485
Southern	2.703*	2.364	1.247	1.368	1.343



Residence					
Urban (Reference)	1.000	1.000	1.000	1.000	1.000
Rural	0.299*	0.344*	0.537	0.685	0.441 **
Socioeconomic Characteristics					
Education					
Primary or less (Reference)	—	1.000	1.000	1.000	—
Secondary	—	1.288	1.719	1.264	—
Post-secondary	—	3.622*	2.315	1.722	—
Businesses owned	—	2.640*	1.701	1.789*	1.738*
Business Opening Duration (Per day)					
Less than 5 hours (Reference)	—	1.000	1.000	1.000	—
5–8 hours	—	0.227*	0.590	0.602	—
More than 8 hours	—	0.088	0.307	0.358*	—
Structural & Behavioural Characteristics					
Business Registration					
Registered business	—	—	2.474*	2.083	2.802 **
Business Size					
Independent (Reference)	—	—	1.000	1.000	1.000
Micro	—	—	6.356*	5.066*	6.336*
Small/Medium	—	—	7.738*	5.545*	10.470*
Business Sector					
Trade (Reference)	—	—	1.000	1.000	1.000
Agriculture	—	—	1.229	1.327	1.316
Services	—	—	2.556	2.882	3.120 **

Industry	—	—	20.880*	22.930*	25.060*
Electricity	—	—	2.064*	1.960*	1.727
Awareness Index	—	—	0.834*	0.798*	0.820*
Insurance Perception Index	—	—	0.972*	0.969*	0.968*
Financial Inclusion Characteristics					
Banking services	—	—	—	0.846	—
Informal borrowing	—	—	—	1.441	—
No borrowing	—	—	—	1.084	—
Informal savings	—	—	—	0.356	—
No savings	—	—	—	1.770	—
Digital payments	—	—	—	1.754	—
Customer DFS	—	—	—	0.659	—

Overall, the sequential modelling process identified a relatively stable group of variables that consistently predicted insurance ownership throughout the latter stages of the analysis. These variables formed the basis of the final parsimonious model and therefore represent the principal determinants of insurance uptake among SMEs in Malawi.

IV.III. ENTERPRISE-LEVEL STRUCTURAL DETERMINANTS

The final regression model demonstrated that enterprise-level structural characteristics constituted the strongest predictors of insurance uptake. Formal business registration remained one of the most important determinants throughout the hierarchical modelling process. Registered enterprises exhibited significantly greater odds of possessing formal insurance than unregistered businesses after controlling for demographic, behavioural, and financial inclusion characteristics. This finding suggests that enterprise formalisation facilitates integration into formal financial markets and increases participation in insurance services. Enterprise size also demonstrated a strong positive association with insurance uptake. Compared with independent enterprises, both micro-enterprises employing one to four workers and small- or medium-sized enterprises employing five to ninety-nine workers were significantly more likely to possess insurance. Furthermore, the magnitude of these associations increased with enterprise size, indicating that insurance demand rises as businesses accumulate productive assets and become exposed to greater operational risks.

Business sector similarly influenced insurance ownership. Enterprises operating within industrial and service sectors demonstrated significantly greater probabilities of possessing insurance than businesses operating primarily in trade. Sectoral differences therefore appear to reflect variations in operational risk exposure and asset ownership across economic activities. Ownership of multiple businesses likewise remained positively associated with insurance uptake. Entrepreneurs operating more than one enterprise exhibited significantly greater odds of insurance ownership than those managing only a single business, suggesting that business diversification is associated with greater demand for formal risk management mechanisms. Collectively, these findings demonstrate that enterprise characteristics exert considerably stronger influences on insurance uptake than demographic characteristics alone.

IV.IV. BEHAVIOURAL DETERMINANTS

Behavioural characteristics also emerged as important independent determinants of insurance uptake.

The regression analysis demonstrated that awareness of SME support institutions remained significantly associated with insurance ownership throughout the hierarchical modelling process. Enterprises exhibiting greater awareness of available support institutions were significantly more likely to possess insurance than those with limited awareness, indicating that information and institutional engagement play important roles in facilitating insurance adoption. Similarly, insurance perceptions remained statistically significant within the final model. Although the direction of the estimated coefficient reflected the coding structure of the underlying variable, the persistence of statistical significance after controlling for enterprise characteristics demonstrates that entrepreneurs' attitudes and perceptions towards insurance independently influence insurance decisions.

These findings indicate that insurance uptake depends not only upon objective business characteristics but also upon entrepreneurs' knowledge, understanding, and perceptions of insurance products and institutions.

IV.V. DEMOGRAPHIC AND FINANCIAL INCLUSION CHARACTERISTICS

An important finding of the hierarchical modelling process was that several variables commonly associated with insurance uptake did not remain independently significant after adjustment.

The apparent influence of demographic characteristics including age, gender, educational attainment, and geographical region declined substantially following the introduction of enterprise characteristics. Likewise, conventional indicators of financial inclusion, including banking status, savings behaviour, borrowing behaviour, and digital financial services, lost statistical significance within the final model after controlling for enterprise and behavioural variables. These findings indicate that although demographic and financial inclusion characteristics may initially appear associated with insurance uptake, their observed relationships are largely explained by broader enterprise characteristics rather than direct independent effects. Consequently, expanding access to financial services alone may not substantially increase insurance penetration unless accompanied by interventions addressing enterprise formalisation, institutional engagement, and behavioural constraints.

IV.VI. SUMMARY OF FINDINGS

The hierarchical survey-weighted logistic regression identified rural residence, ownership of multiple businesses, formal business registration, enterprise size, business sector, awareness of SME support institutions, and insurance perceptions as the principal independent determinants of insurance uptake among SMEs in Malawi. Conversely, demographic characteristics and conventional financial inclusion variables did not retain independent statistical significance after adjustment for enterprise and behavioural characteristics. Overall, the findings demonstrate that insurance uptake among SMEs is driven primarily by enterprise structure and behavioural characteristics rather than financial inclusion alone. This represents the central empirical contribution of the study and provides the foundation for the discussion presented in the following section.

V. DISCUSSION

The objective of this study was to identify the determinants of insurance uptake among Small and Medium-Sized Enterprises (SMEs) in Malawi using nationally representative data from the 2019 FinScope Malawi MSME Survey. The hierarchical survey-weighted logistic regression analysis demonstrated that insurance adoption among SMEs is influenced predominantly by enterprise-level structural and behavioural characteristics rather than demographic or conventional financial inclusion variables. Specifically, business registration, enterprise size, ownership of multiple businesses, business sector, awareness of SME support institutions, insurance perceptions, and rural residence remained significant independent predictors of insurance uptake after sequential adjustment for demographic, socioeconomic, enterprise, behavioural, and financial inclusion characteristics. These findings contribute to the growing body of evidence suggesting that insurance adoption is a multidimensional phenomenon shaped by interactions between enterprise characteristics, institutional engagement, and behavioural factors rather than by financial access alone.

One of the most important contributions of this study is methodological. Previous empirical studies examining insurance uptake among SMEs have frequently estimated single logistic regression models in which all explanatory variables are entered simultaneously (Baguma, 2023) (Dansu & Olubusade, 2023) (Malambo, 2022). While such models identify statistically significant predictors, they provide limited insight into whether observed associations persist after controlling for conceptually related variables. By employing a hierarchical modelling strategy, this study demonstrated that several variables initially associated with insurance uptake—including age, gender, educational attainment, and financial inclusion indicators—lost statistical significance once enterprise characteristics and behavioural variables were introduced. This finding illustrates the

importance of considering confounding relationships when analysing insurance adoption and suggests that previous studies may have overestimated the independent influence of demographic characteristics.

The findings also provide empirical support for the integrated theoretical framework adopted in this study. Expected Utility Theory predicts that enterprises with greater exposure to financial loss should exhibit stronger demand for insurance because the expected utility of transferring risk exceeds the certainty associated with paying insurance premiums (Von Neumann & Morgenstern, 1944). The positive associations observed between enterprise size, business registration, ownership of multiple businesses, and insurance uptake are consistent with this prediction. Larger and formally registered enterprises generally possess greater investments in physical assets, employ more workers, and participate more actively in formal markets, thereby increasing both their exposure to financial losses and the potential benefits of insurance protection. Consequently, the empirical findings broadly support the economic rationale underlying Expected Utility Theory.

However, the findings simultaneously demonstrate that rational economic incentives alone cannot fully explain insurance adoption behaviour. Behavioural variables remained independently associated with insurance uptake even after controlling for enterprise characteristics, indicating that entrepreneurs' decisions are influenced not only by objective financial considerations but also by awareness, institutional engagement, and perceptions of insurance. This observation is consistent with the Theory of Planned Behavior (Ajzen, 1991), which argues that behaviour is influenced by attitudes, subjective norms, and perceived behavioural control. Entrepreneurs who possess greater awareness of support institutions and more favourable perceptions of insurance are likely to develop stronger behavioural intentions to adopt insurance than those lacking information or confidence in insurance providers.

Similarly, the findings reinforce propositions from behavioural economics, particularly Prospect Theory (Kahneman, D; Tversky, A, 1979). Behavioural economists argue that individuals frequently overweight immediate costs relative to uncertain future benefits. Insurance premiums therefore represent certain present expenditures, whereas insurance benefits remain contingent upon uncertain future events. Consequently, entrepreneurs operating under financial constraints may postpone insurance purchases despite recognising their exposure to considerable business risks. The persistence of behavioural variables within the final regression model provides empirical evidence that psychological considerations remain important determinants of insurance adoption beyond purely economic calculations.

V.I. ENTERPRISE STRUCTURE AS THE PRIMARY DRIVER OF INSURANCE UPTAKE

Perhaps the strongest finding emerging from this study is that enterprise characteristics explained substantially more variation in insurance uptake than demographic or financial inclusion variables. Business registration consistently emerged as one of the strongest predictors of insurance ownership throughout the hierarchical modelling process. This finding is unsurprising because formally registered enterprises interact more frequently with financial institutions, regulatory authorities, commercial banks, and government agencies, thereby increasing opportunities for exposure to insurance products and formal risk management practices.

This finding corroborates evidence reported by Baguma (2023), who found that formalisation significantly increased insurance participation among SMEs in Uganda, and by Dansu and Olubusade (2023), whose study in Nigeria similarly demonstrated that registered enterprises were considerably more likely to purchase commercial insurance than informal businesses. These studies collectively suggest that business registration does more than satisfy legal requirements; it facilitates integration into formal economic systems where insurance becomes both more accessible and more valuable.

From a policy perspective, this finding challenges approaches that attempt to expand insurance uptake independently of broader enterprise development. Increasing insurance penetration may depend less upon subsidising insurance premiums than upon encouraging enterprise formalisation, simplifying business registration procedures, and strengthening institutional linkages between SMEs and formal financial markets. Consequently, insurance promotion should be integrated into broader SME development policies rather than implemented as a standalone financial inclusion intervention.

Enterprise size also emerged as a strong predictor of insurance ownership, with larger enterprises exhibiting substantially greater probabilities of purchasing insurance than independent enterprises. This finding aligns closely with Expected Utility Theory because larger businesses possess more productive assets, employ more workers, and face greater potential financial losses following adverse events. Consequently, insurance provides greater expected utility for larger enterprises than for very small businesses possessing limited physical assets.

The positive association between enterprise size and insurance uptake is consistent with previous studies conducted across Sub-Saharan Africa (Malambo, 2022) (Robinson, 2019). These studies similarly conclude that enterprise growth increases demand

for formal risk management mechanisms because expanding businesses become increasingly vulnerable to operational disruptions, asset losses, and contractual liabilities. The present study therefore reinforces the argument that insurance demand evolves alongside enterprise development rather than preceding it. Business sector likewise remained independently associated with insurance ownership after adjustment for all other explanatory variables. This suggests that insurance demand varies according to differences in operational risk exposure across economic sectors. Enterprises operating within manufacturing and service industries frequently possess more expensive equipment, specialised machinery, and permanent business premises than enterprises engaged primarily in small-scale trading. Consequently, insurance provides greater protection against potential losses arising from theft, fire, equipment damage, or business interruption.

Ownership of multiple businesses also remained positively associated with insurance uptake. Entrepreneurs managing several enterprises may possess greater managerial experience, larger asset portfolios, and stronger engagement with formal financial institutions than single-business owners. Multiple business ownership may also reflect greater entrepreneurial sophistication and improved understanding of business risk, thereby increasing the perceived value of insurance as a strategic risk management instrument.

Collectively, these findings indicate that insurance uptake should be understood primarily as an outcome of enterprise development rather than merely a component of financial inclusion. Enterprises become more likely to purchase insurance as they formalise, expand, diversify, and accumulate productive assets.

V.II. BEHAVIOURAL FACTORS REMAIN CRITICAL DETERMINANTS OF INSURANCE UPTAKE

An equally important finding of this study is that behavioural factors remained significant predictors of insurance uptake even after controlling for demographic, socioeconomic, enterprise, and financial inclusion characteristics. Specifically, awareness of SME support institutions and entrepreneurs' perceptions of insurance continued to demonstrate statistically significant associations with insurance ownership in the final hierarchical model, highlighting that insurance adoption is influenced not only by enterprise characteristics but also by how entrepreneurs understand, perceive, and engage with insurance markets.

The persistence of behavioural variables after sequential adjustment provides strong evidence that insurance decisions extend beyond purely economic calculations. Although enterprise formalisation and business size increase the objective need for insurance, entrepreneurs must also recognise the value of insurance, trust insurance providers, and possess sufficient knowledge to evaluate available products before adoption occurs. Consequently, behavioural characteristics appear to operate independently of enterprise characteristics by shaping entrepreneurs' willingness to convert awareness of risk into actual insurance purchasing behaviour.

This finding is consistent with the Theory of Planned Behavior (TPB), which proposes that behavioural intentions are influenced by attitudes towards a behaviour, subjective norms, and perceived behavioural control (Ajzen, 1991). Within the context of SME insurance, entrepreneurs who possess favourable attitudes towards insurance and greater confidence in insurance institutions are more likely to perceive insurance as an appropriate risk management strategy than entrepreneurs who associate insurance with unnecessary expenditure or uncertainty. The continued significance of the insurance perception index therefore suggests that entrepreneurs' beliefs regarding insurance remain important determinants of insurance uptake even after controlling for objective enterprise characteristics.

The findings are also consistent with previous empirical evidence demonstrating that limited insurance awareness constitutes one of the principal barriers to insurance adoption among SMEs in developing economies. Churchill and Matul (2020) argue that many small business owners possess only limited understanding of available insurance products, policy conditions, and claims procedures, reducing both demand for insurance and confidence in insurance providers. Similarly, Lin et al. (2019) found that inadequate insurance literacy significantly constrained insurance uptake among SMEs because entrepreneurs frequently lacked sufficient information to evaluate the costs and benefits of insurance relative to alternative risk management strategies. The present study extends these findings by demonstrating that awareness remains an independent determinant even after enterprise characteristics and financial inclusion are considered simultaneously.

The importance of awareness may also reflect the role played by SME support institutions in reducing information asymmetries within insurance markets. Information Asymmetry Theory suggests that markets function inefficiently when consumers possess substantially less information than service providers, leading to uncertainty, mistrust, and lower participation (Churchill & Matul, 2020). Insurance products are often characterised by complex policy documents, technical terminology, and uncertainty regarding future claims, making them particularly susceptible to information asymmetry. Entrepreneurs who engage with SME support institutions may therefore receive information that reduces uncertainty, improves understanding of insurance products,

and strengthens confidence in formal insurance markets. Consequently, awareness should not be viewed simply as knowledge of insurance but rather as access to reliable institutional information that enables informed decision-making.

Another important behavioural finding concerns entrepreneurs' perceptions of insurance. Although the estimated coefficient reflected the coding structure of the insurance perception index, its statistical significance throughout the hierarchical modelling process demonstrates that attitudes towards insurance independently influence insurance adoption. This observation reinforces previous studies suggesting that insurance demand depends not only on product availability but also on entrepreneurs' confidence that insurers will honour contractual obligations fairly and efficiently (Churchill & Matul, 2020) (Robinson, 2019). Where entrepreneurs perceive insurance companies as unreliable, expensive, or unwilling to settle claims promptly, insurance premiums may be interpreted as unnecessary costs rather than investments in business resilience.

The present findings therefore support behavioural explanations of insurance demand that recognise trust as a fundamental component of financial decision-making. Prospect Theory provides an additional explanation by arguing that individuals evaluate decisions relative to perceived gains and losses rather than objective probabilities (Kahneman, D; Tversky, A, 1979). Entrepreneurs facing liquidity constraints may attach greater weight to the immediate certainty of paying insurance premiums than to the uncertain possibility of future compensation following business losses. Consequently, insurance may be perceived as reducing current business resources rather than protecting future enterprise sustainability. Positive perceptions towards insurance can therefore modify these behavioural biases by increasing entrepreneurs' confidence that future benefits justify present expenditure.

The significance of behavioural variables also has important implications for insurance market development in Malawi. Considerable attention has traditionally been directed towards expanding access to financial services through banking infrastructure, mobile money platforms, and credit programmes. While these initiatives remain important for broader financial inclusion, the present findings indicate that improving physical access alone is unlikely to generate substantial increases in insurance uptake unless accompanied by interventions that address entrepreneurs' knowledge, attitudes, and confidence in insurance markets. Behavioural constraints therefore represent a distinct policy challenge requiring targeted responses rather than assuming that insurance adoption will naturally increase alongside broader financial inclusion.

These findings further suggest that insurance providers should strengthen communication strategies directed towards SMEs. Rather than focusing exclusively on product promotion, insurers should invest in insurance literacy programmes that explain the role of insurance within enterprise risk management, clarify policy conditions, simplify technical language, and improve transparency regarding claims procedures. Such interventions may reduce uncertainty, strengthen trust, and encourage greater participation in formal insurance markets. Partnerships between insurers, SME support organisations, business associations, and government agencies could provide effective mechanisms for delivering insurance education while simultaneously expanding outreach to underserved enterprises.

Collectively, these findings demonstrate that behavioural factors constitute an indispensable component of insurance demand among SMEs. Enterprise characteristics may determine the objective need for insurance, but awareness, trust, and perceptions influence whether entrepreneurs translate that need into actual insurance ownership. Consequently, strategies designed to increase insurance uptake should integrate behavioural interventions with enterprise development policies if sustainable improvements in insurance penetration are to be achieved

V.III. FINANCIAL INCLUSION ALONE DOES NOT GUARANTEE INSURANCE UPTAKE

One of the most significant findings emerging from the hierarchical regression analysis is that conventional indicators of financial inclusion—including banking status, savings behaviour, borrowing, and the use of digital financial services—did not remain statistically significant after enterprise-level structural and behavioural characteristics were introduced into the regression models. Although some of these variables appeared associated with insurance uptake during the bivariate and early multivariable analyses, their statistical significance disappeared following adjustment for business registration, enterprise size, business sector, awareness of SME support institutions, and insurance perceptions. This finding demonstrates that the apparent relationship between financial inclusion and insurance uptake is largely explained by broader enterprise characteristics rather than by financial inclusion itself.

This finding is particularly important because financial inclusion policies frequently assume that expanding access to banking services, formal savings, credit facilities, and digital financial services will naturally stimulate demand for other financial products, including insurance. Such assumptions underpin many national financial inclusion strategies across Sub-Saharan Africa, where increasing access to financial services is expected to improve household welfare, enterprise resilience, and

economic development (OECD, 2020) (FinMark Trust, 2019). However, the present findings suggest that insurance differs from other financial products because access alone does not necessarily translate into utilisation.

Several explanations may account for this observation. Banking services, savings accounts, and digital payment systems increase entrepreneurs' access to financial infrastructure but do not automatically improve their understanding of insurance products or their confidence in insurance providers. Entrepreneurs may therefore become financially included while continuing to perceive insurance as unnecessary, unaffordable, or excessively complex. Consequently, participation in formal financial systems should not be interpreted as evidence that entrepreneurs are equally willing to adopt all financial products.

The hierarchical modelling strategy employed in this study provides important insight into these relationships. Financial inclusion variables appeared relevant when examined independently, but their effects diminished substantially after enterprise characteristics and behavioural factors were introduced. This pattern suggests that financial inclusion may operate indirectly through enterprise development rather than exerting a direct influence on insurance uptake. Enterprises that are formally registered, larger, and more actively engaged with SME support institutions are simultaneously more likely to possess bank accounts, access formal savings, utilise digital financial services, and purchase insurance. Once these enterprise characteristics are taken into account, financial inclusion contributes little additional explanatory value to insurance ownership.

This interpretation is consistent with previous studies reporting that financial inclusion does not necessarily result in increased insurance adoption after enterprise characteristics are controlled. Malambo (2022) observed that enterprise growth and formalisation explained substantially more variation in insurance demand than banking behaviour alone, while Baguma (2023) similarly reported that business characteristics weakened the apparent influence of financial access on insurance uptake. The present study extends this evidence by demonstrating that the same pattern exists within Malawi using nationally representative survey data and a hierarchical analytical framework.

However, the findings differ from studies suggesting that access to formal financial services directly promotes insurance adoption by reducing transaction costs and facilitating premium payments (Robinson, 2019) (OECD, 2020). One possible explanation for these contrasting findings relates to differences in study context. In many higher-income settings, financial inclusion is accompanied by relatively mature insurance markets, widespread insurance literacy, and stronger institutional trust. Under such conditions, banking relationships may naturally facilitate insurance uptake. By contrast, Malawi's insurance market remains comparatively underdeveloped, and many SMEs continue to operate informally with limited exposure to insurance products. Consequently, financial access alone may be insufficient to overcome persistent behavioural and institutional barriers to insurance adoption.

The findings therefore contribute to the broader financial inclusion literature by challenging the assumption that expanding access to financial services automatically increases demand for insurance. Instead, they suggest that insurance represents a specialised financial product requiring distinct behavioural, institutional, and enterprise-level conditions before adoption occurs. This distinction has important theoretical implications because it demonstrates that financial inclusion and insurance uptake, although related, should not be treated as synonymous concepts.

From a policy perspective, the findings imply that national financial inclusion strategies should explicitly distinguish between expanding financial access and increasing insurance penetration. Investments in banking infrastructure, digital financial services, and mobile money platforms remain essential for improving financial inclusion more broadly. Nevertheless, these interventions should be complemented by targeted insurance promotion strategies that strengthen enterprise formalisation, insurance literacy, and institutional trust if meaningful improvements in insurance uptake are to be achieved. The findings also suggest that insurance providers should reconsider distribution strategies that rely primarily on existing banking relationships. While bancassurance and digital distribution channels remain valuable, they should be accompanied by active insurance education programmes, simplified insurance products, and outreach initiatives targeting informal and micro-enterprises. Strengthening collaboration between insurers, financial institutions, SME support organisations, and government agencies may therefore generate greater improvements in insurance uptake than expanding financial infrastructure alone.

Overall, the present findings indicate that insurance adoption among SMEs cannot be understood simply as another outcome of financial inclusion. Instead, insurance represents a distinct behavioural and institutional decision that requires entrepreneurs to recognise business risks, trust insurance providers, understand available products, and perceive insurance as a worthwhile investment. Accordingly, financial inclusion should be viewed as a necessary but insufficient condition for expanding insurance uptake among SMEs in Malawi.

V.IV. GEOGRAPHICAL INEQUALITIES AND THE RURAL INSURANCE GAP

Another important finding of this study is that rural residence remained a statistically significant negative predictor of insurance uptake after controlling for demographic, enterprise, behavioural, and financial inclusion characteristics. This indicates that SMEs operating in rural areas were significantly less likely to possess formal insurance than comparable enterprises located in urban areas. The persistence of this relationship throughout the hierarchical modelling process suggests that geographical disparities cannot be explained solely by differences in enterprise size, financial inclusion, or business registration but instead reflect broader structural constraints affecting rural enterprises.

This finding is consistent with evidence reported in previous studies conducted across developing countries, which have consistently shown that rural entrepreneurs experience lower levels of insurance uptake than their urban counterparts because of limited physical access to insurance providers, weaker financial infrastructure, lower insurance literacy, and reduced exposure to insurance marketing campaigns (Churchill & Matul, 2020) (Robinson, 2019). Rural enterprises also tend to operate within highly informal business environments where insurance products are less visible and informal risk-sharing arrangements frequently substitute for formal insurance mechanisms. Within the Malawian context, the rural insurance gap may also reflect the spatial concentration of insurance companies and financial institutions in major urban centres. Entrepreneurs operating in rural districts often face higher transaction costs associated with obtaining insurance information, purchasing policies, and submitting claims. These challenges may discourage insurance uptake even where entrepreneurs recognise the potential benefits of insurance. Furthermore, many rural SMEs operate within agricultural value chains characterised by seasonal income patterns and irregular cash flows, making regular premium payments more difficult than for enterprises operating in urban commercial sectors.

The persistence of rural residence as an independent determinant after adjustment for financial inclusion variables is particularly noteworthy. If geographical differences were driven solely by limited access to banking services or digital financial infrastructure, the rural coefficient would be expected to lose significance after financial inclusion characteristics were introduced. Instead, the continued significance of rural residence suggests that additional institutional and behavioural barriers remain unaddressed. These may include lower insurance awareness, weaker trust in insurance providers, reduced availability of appropriate insurance products, and limited interaction with SME support institutions.

From a policy perspective, this finding highlights the need for geographically targeted insurance interventions rather than nationally uniform approaches. Insurance providers should strengthen outreach through district-level business associations, agricultural cooperatives, microfinance institutions, and mobile distribution networks capable of reaching rural enterprises. Government agencies responsible for SME development should similarly integrate insurance awareness into rural entrepreneurship programmes while encouraging partnerships between insurers and organisations already serving rural business communities. Reducing geographical inequalities in insurance uptake will therefore require more than expanding physical access to insurance providers. Sustainable improvements are likely to depend upon integrated interventions that simultaneously strengthen awareness, improve trust, simplify insurance products, and adapt premium payment mechanisms to the realities of rural enterprise operations.

V.V. OVERALL CONTRIBUTION TO THEORY AND PRACTICE

The findings of this study make several important contributions to the literature on SME insurance adoption and financial inclusion. While previous studies have examined demographic characteristics, enterprise characteristics, behavioural factors, or financial inclusion independently, relatively few have investigated these determinants simultaneously using a hierarchical analytical framework capable of distinguishing variables that merely appear significant from those that remain independently associated with insurance uptake after controlling for confounding influences. By progressively introducing explanatory variables into conceptually related blocks, this study demonstrated that enterprise-level structural characteristics and behavioural factors explain substantially more variation in insurance uptake than demographic characteristics or conventional indicators of financial inclusion.

These findings extend existing empirical evidence in several ways. First, they demonstrate that enterprise formalisation represents more than an administrative requirement; it is an important mechanism through which SMEs become integrated into formal financial systems and gain greater exposure to insurance markets. Second, they show that behavioural characteristics—including awareness of SME support institutions and entrepreneurs' perceptions of insurance—continue to influence insurance decisions even after accounting for enterprise size, business registration, and other structural characteristics. Third, the findings challenge the assumption that expanding financial inclusion

alone will substantially increase insurance penetration among SMEs. Instead, the study demonstrates that financial inclusion and insurance adoption represent related but distinct dimensions of financial development.

From a theoretical perspective, the study provides support for the complementary application of Expected Utility Theory, the Theory of Planned Behavior, and Information Asymmetry Theory. Expected Utility Theory explains why enterprises with larger asset bases, greater operational risks, and more formal business structures demonstrate stronger incentives to purchase insurance (Von Neumann & Morgenstern, 1944). The Theory of Planned Behavior explains why awareness and perceptions remain significant even after controlling for enterprise characteristics, emphasising that insurance adoption depends partly upon entrepreneurs' attitudes and perceived ability to engage with insurance markets (Ajzen, 1991). Information Asymmetry Theory further explains why awareness of SME support institutions remained significant, suggesting that institutional engagement reduces uncertainty regarding insurance products and improves entrepreneurs' confidence in formal insurance providers (Churchill & Matul, 2020).

Importantly, the findings suggest that these theoretical perspectives should not be viewed as competing explanations but rather as complementary components of a broader conceptual framework. Enterprise characteristics determine exposure to business risks and therefore the potential economic benefits of insurance. Behavioural characteristics influence how entrepreneurs interpret those risks and evaluate insurance products. Institutional factors shape the availability of information and entrepreneurs' ability to participate effectively in insurance markets. Together, these perspectives provide a more comprehensive explanation of insurance uptake than any individual theory considered in isolation.

The study also contributes methodologically by demonstrating the advantages of hierarchical survey-weighted logistic regression for analysing insurance adoption. Sequential modelling revealed that several variables commonly reported as determinants of insurance uptake—including age, gender, education, banking, borrowing, savings, and digital financial services—lost statistical significance after enterprise characteristics and behavioural variables were introduced. This finding illustrates the importance of controlling for confounding relationships and suggests that some previous studies relying on single-stage regression models may have overstated the independent influence of these variables. Future studies examining SME financial behaviour may therefore benefit from adopting hierarchical analytical approaches that distinguish direct from indirect determinants of financial decision-making.

From a policy perspective, the findings indicate that strategies aimed at increasing insurance penetration among SMEs should move beyond traditional financial inclusion approaches focused primarily on expanding access to banking services or digital financial platforms. Instead, greater emphasis should be placed on enterprise formalisation, insurance literacy, institutional trust, and behavioural change. Integrating insurance promotion into existing SME development programmes may prove considerably more effective than implementing insurance interventions in isolation. For insurance providers, the findings suggest that increasing market penetration will require stronger engagement with SME support institutions, business associations, and entrepreneurship programmes. Simplifying policy documentation, improving transparency in claims management, strengthening consumer education, and designing insurance products tailored to the operational realities of micro and small enterprises may significantly improve insurance uptake. Similarly, collaboration between insurers, financial institutions, government agencies, and SME development organisations may reduce information asymmetries while strengthening entrepreneurs' confidence in formal insurance markets.

Overall, this study demonstrates that insurance uptake among SMEs is best understood as the product of interactions between enterprise development, behavioural characteristics, and institutional engagement rather than as a simple consequence of financial inclusion. Consequently, policies that simultaneously strengthen enterprise formalisation, insurance awareness, and confidence in insurance institutions are likely to produce greater improvements in insurance penetration than interventions focusing exclusively on financial access.

V.VI. STRENGTHS AND LIMITATIONS OF THE STUDY

The study possesses several important strengths. First, it utilised nationally representative data from the 2019 FinScope Malawi MSME Survey, enabling findings to be generalised to Malawi's SME population. Second, the application of survey weights ensured that descriptive statistics and regression estimates reflected the complex sampling design employed by the survey, thereby improving the validity of statistical inference. Third, the hierarchical regression approach provided a more rigorous assessment of insurance uptake than conventional regression models by distinguishing variables that remained independently associated with insurance ownership after controlling for multiple explanatory domains.

Despite these strengths, several limitations should be acknowledged. The analysis was based on cross-sectional data, which limits the ability to establish causal relationships between explanatory variables and insurance uptake. Consequently, the observed associations should be interpreted as correlational rather than causal. Future longitudinal studies would enable examination of how changes in enterprise characteristics influence insurance adoption over time.

The study was also constrained by the variables available within the FinScope dataset. Important determinants such as insurance premium affordability, previous claims experience, entrepreneurs' risk preferences, insurer reputation, and product-specific characteristics could not be examined because they were not captured by the survey. These omitted variables may explain additional variation in insurance uptake beyond the factors included in the present analysis. Finally, the study examined whether enterprises possessed formal insurance but did not distinguish among different insurance products, levels of insurance coverage, or the adequacy of insurance protection. Future research should therefore examine product-specific insurance demand while integrating qualitative approaches capable of exploring entrepreneurs' decision-making processes, perceptions of insurers, and experiences with insurance claims. Notwithstanding these limitations, the study provides one of the most comprehensive empirical analyses of insurance uptake among SMEs in Malawi and offers robust evidence capable of informing insurance policy, SME development strategies, and future research.

VI. CONCLUSION

This study examined the determinants of insurance uptake among Small and Medium-Sized Enterprises (SMEs) in Malawi using nationally representative data from the 2019 FinScope Malawi MSME Survey and a hierarchical survey-weighted logistic regression approach. Against a backdrop of persistently low insurance penetration among SMEs, the study sought to determine whether demographic, socioeconomic, enterprise, behavioural, and financial inclusion characteristics independently influenced insurance adoption after controlling for potential confounding effects. The hierarchical modelling framework enabled a more rigorous assessment of insurance uptake by distinguishing variables that merely appeared associated with insurance ownership from those that remained significant after sequential adjustment for multiple explanatory domains.

The study demonstrates that insurance uptake among SMEs in Malawi is driven primarily by enterprise-level structural characteristics and behavioural factors rather than by demographic characteristics or conventional indicators of financial inclusion. Formal business registration, enterprise size, ownership of multiple businesses, business sector, awareness of SME support institutions, insurance perceptions, and rural residence emerged as the principal independent determinants of insurance uptake. In contrast, variables frequently assumed to influence insurance adoption—including age, gender, educational attainment, banking status, savings behaviour, borrowing, and digital financial services—did not retain independent statistical significance after enterprise characteristics and behavioural variables were introduced into the hierarchical models.

These findings contribute to the literature in three important ways. First, the study provides one of the few nationally representative empirical analyses of SME insurance uptake in Malawi, thereby addressing an important evidence gap within the country's financial inclusion and enterprise development literature. Second, it demonstrates the analytical value of hierarchical survey-weighted logistic regression in identifying independent determinants of insurance uptake while accounting for confounding influences. Unlike conventional regression approaches, the hierarchical framework revealed that several variables commonly reported as determinants of insurance ownership lost significance once enterprise-level and behavioural characteristics were considered. Third, the findings challenge the frequently held assumption that expanding access to financial services will automatically increase insurance uptake. Instead, they indicate that insurance adoption represents a distinct behavioural and institutional decision requiring enterprise formalisation, insurance awareness, and confidence in insurance markets in addition to financial access.

From a theoretical perspective, the study supports the complementary application of Expected Utility Theory, the Theory of Planned Behavior, and Information Asymmetry Theory in explaining insurance adoption among SMEs. Enterprise characteristics such as registration status and business size support the economic logic of Expected Utility Theory, which predicts that enterprises facing greater potential losses have stronger incentives to transfer risk through insurance. The continued significance of

awareness and insurance perceptions reinforces the behavioural propositions of the Theory of Planned Behavior by demonstrating that entrepreneurs' attitudes and knowledge influence insurance decisions independently of objective business characteristics. The importance of awareness of SME support institutions further highlights the relevance of Information Asymmetry Theory, suggesting that reducing informational barriers can facilitate greater participation in formal insurance markets. Collectively, these findings demonstrate that insurance uptake is shaped by interactions between economic incentives, behavioural processes, and institutional environments rather than by any single explanatory mechanism.

The findings also have important implications for public policy. First, enterprise formalisation should be recognised as an important component of insurance development policy. Simplifying business registration procedures and encouraging transitions from informal to formal enterprise operations may simultaneously improve access to financial services and increase insurance uptake. Second, insurance awareness should become an integral component of SME development programmes implemented by government agencies, business associations, and development partners. Awareness campaigns should focus not only on the availability of insurance products but also on strengthening entrepreneurs' understanding of risk management, policy conditions, and claims procedures. Third, insurers should strengthen consumer trust by improving transparency, simplifying policy documentation, enhancing claims management systems, and developing affordable insurance products tailored to the operational realities of micro and small enterprises. Finally, geographically targeted interventions are required to address the persistent rural insurance gap identified in this study, ensuring that SMEs operating outside major urban centres have equitable access to insurance information and services.

The study also provides practical implications for the insurance industry. Insurance providers should strengthen collaboration with SME support institutions, chambers of commerce, microfinance institutions, and entrepreneurship programmes to improve awareness and outreach. Distribution models that combine digital technologies with community-based engagement may prove particularly effective in reaching underserved enterprises while reducing transaction costs. Furthermore, insurers should consider developing flexible premium payment arrangements and simplified insurance products that better reflect the financial circumstances and risk profiles of Malawi's predominantly micro-enterprise sector.

Despite these contributions, several limitations should be acknowledged. The cross-sectional nature of the FinScope dataset limits the ability to infer causal relationships between explanatory variables and insurance uptake. Future longitudinal studies could provide stronger evidence regarding how changes in enterprise characteristics influence insurance adoption over time. The study was also limited by the variables available within the survey and therefore could not examine potentially important determinants such as premium affordability, previous claims experience, entrepreneurial risk preferences, insurer reputation, or product-specific characteristics. Additionally, the analysis focused on the presence or absence of formal insurance rather than the type, adequacy, or quality of insurance coverage. These limitations provide important directions for future research.

Future studies should extend this work by combining nationally representative quantitative surveys with qualitative approaches capable of exploring entrepreneurs' perceptions, experiences, and decision-making processes in greater depth. Comparative studies across countries within Sub-Saharan Africa would further enhance understanding of whether the determinants identified in Malawi are consistent across different institutional and insurance market contexts. Research examining specific insurance products, including property insurance, business interruption insurance, agricultural insurance, and health insurance for SMEs, would also provide valuable evidence for product development and insurance market expansion.

In conclusion, this study demonstrates that increasing insurance uptake among SMEs requires moving beyond a narrow focus on financial inclusion towards a broader strategy centred on enterprise development, behavioural change, and institutional engagement. Insurance should not be regarded merely as another financial product but as a strategic mechanism for strengthening enterprise resilience, protecting productive assets, and promoting sustainable private sector development. By identifying the structural and behavioural factors that most strongly influence insurance adoption, the study provides evidence capable of informing insurance policy, SME development strategies, and financial inclusion initiatives in Malawi while contributing to the broader literature on enterprise risk management in developing economies.

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ETHICS STATEMENT

This study was based exclusively on anonymised secondary data obtained from the 2019 FinScope Malawi MSME Survey. No direct contact with human participants occurred during the research, and the dataset contained no personally identifiable information. Consequently, no additional ethical approval or participant consent was required for the present analysis.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are derived from the 2019 FinScope Malawi MSME Survey. Access to the dataset is subject to the data-sharing policies of the data owner.

CONFLICT OF INTEREST

The author declares that there are no competing financial or non-financial interests that could have influenced the conduct or reporting of this research.

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