

THE INFLUENCE OF COVERAGE ATTRIBUTES ON COMMUNAL FARMERS' WILLINGNESS TO ADOPT CATTLE INSURANCE IN LUPANE DISTRICT, ZIMBABWE

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Abstract: *This study , examines the role of coverage attributes specifically, their scope, clarity, and relevance in influencing the willingness of communal farmers to adopt cattle insurance. The research was guided by the Stakeholder Networking Theory. Employing a mixed-methods approach in Lupane District, Zimbabwe, the research utilized a sample of 219 communal farmers, selected via multistage sampling for quantitative data, and 25 key informants, selected via purposive sampling for qualitative data. The Probit regression analysis revealed a statistically significant positive coefficient of 0.242 ($p<0.001$) for the relationship between Coverage Attributes and Willingness to Adopt. This indicates that farmers' decisions are significantly driven by the comprehensiveness of covered risks and the simplicity of the policy's terms. The findings highlight that existing products fail to meet farmer expectations regarding risk coverage and ease of understanding. This study concludes that insurance schemes must be designed to be both comprehensive and user-friendly, providing practical insights for creating policies that are genuinely attractive and relevant to the specific needs of this vulnerable demographic.*

Keywords: Coverage Attributes, Insurance Design, Risk Perceptions, Communal Farmers, Zimbabwe
(JEL code: Q13)

INTRODUCTION

Communal cattle farming in Zimbabwe is a cornerstone of rural livelihoods, providing income, social status, and a crucial buffer against economic shocks. However, this sector is highly exposed to multidimensional risks, including frequent and severe droughts, disease outbreaks like Theileriosis (January disease), and other hazards such as veld fires (Gumede, 2024). In recent years, these risks have intensified due to climate change, leading to significant herd losses and deepening poverty (Dziva, 2021). While agricultural insurance is globally recognized as a vital tool for risk management, its uptake among smallholder farmers remains critically low.

Globally, and especially across the African continent, the challenge of low agricultural insurance uptake persists despite concerted efforts by governments, non-governmental organiza-

tions, and development partners (Hadebe, 2022). In Zimbabwe, the problem is particularly acute, with many initiatives failing to achieve widespread, sustainable adoption (Bhebhe et al., 2021; Jumbe & Bwawa, 2021; Nhamo et al., 2022). This problem continues to persist despite significant efforts by many organizations and the government, as existing products often fail to address the specific needs and perceptions of communal farmers, leading to a disconnect between supply and demand. Farmers frequently perceive policies as complex, irrelevant to their most pressing risks, or simply not worth the investment (Sithole, 2024). This study therefore argues that to increase uptake, it is essential to move beyond a focus on affordability and delve into the design of the policies themselves specifically, the coverage attributes. Understanding what farmers want to be covered, and how they need that information to be presented, is fundamental to designing a product that they will trust and

adopt. This research aims to fill this gap by analyzing the influence of coverage attributes from the farmers' perspective, using a detailed case study from Lupane District, a region particularly affected by these risks.

Theoretical Framework

This study is grounded in the Stakeholder Networking Theory proposed by Rowley 1997, which posits that the success of a project or organization is dependent on the effective collaboration and interaction between all relevant stakeholders. In the context of agricultural insurance, this theory highlights that a successful insurance scheme cannot be developed in isolation. It requires a network of relationships among various stakeholders, including the farmers (the primary beneficiaries), government agencies, traditional leaders, agricultural extension officers, and insurance companies.

The theory suggests that an insurance product's design is not merely a technical exercise but a social one, shaped by the needs and interests of all actors within this network. This study applies this lens to understand how stakeholder relationships and the flow of information among them influence the design and ultimate acceptance of coverage attributes. The failure of existing schemes can therefore be viewed as a breakdown in this network, where the needs of the farmers (their desired coverage attributes) are not effectively communicated or integrated into the product design by the insurers.

MATERIALS AND METHODS

This study adopted a pragmatic philosophy, combining both quantitative and qualitative research methodologies to gain a comprehensive understanding of the topic. A mixed-methods approach with a sequential explanatory design was used, where the quantitative data was collected and analyzed first, followed by the qualitative data. This allowed the qualitative phase to explain and elaborate on the initial quantitative findings, providing a richer context for the statistical relationships observed.

Methods

Description of the Study Site: The research was conducted in Lupane District, located in the Matebeleland North Province of Zimbabwe. The district is characterized by a semi-arid climate, making it highly susceptible to recurrent droughts. The primary economic activity is communal cattle farming, which is the main source of income and food security for the majority of the population. The region's environmental and socio-economic conditions make it an ideal site for studying risk perceptions and insurance uptake.

Population and Sample Size Determination

The target population comprised all communal cattle farmers in Lupane District. A representative sample was essential due to the large and dispersed nature of the population. The sample size was determined using the Krejcie and Morgan (1970) formula, with a confidence level of 95% and a margin of error of 5%. From an estimated population of over 20,000 communal farmers, a sample size of 377 was calculated.

Sampling

A multi-stage sampling technique was employed. First, simple random sampling was used to select five wards within the Lupane District. Within each selected ward, systematic random sampling was used to choose households from a list of cattle farmers. The first household was randomly selected, and then every k-th household was chosen thereafter to ensure a representative sample from each ward. For the qualitative phase, 25 key informants were chosen using purposive sampling, based on their knowledge and experience related to cattle farming and community leadership.

Data Collection

- Quantitative Data Collection: A structured questionnaire was used to collect quantitative data from 219 communal cattle farmers. The data was collected using KoboCollect on mobile devices for real-time data capturing.
- Qualitative Data Collection: In-depth, semi-structured interviews were conducted to collect qualitative data from the 25 key informants, allowing for detailed insights into risk perceptions and traditional risk-sharing mechanisms.

Analyses

Quantitative Data Analysis: Quantitative data was exported from KoboCollect and analyzed using the JAMOV statistical package. The primary analytical technique was Structural Equation Modeling (SEM), and for this specific objective, a probit regression analysis was employed to test the direct relationship between coverage attributes and a farmer's willingness to adopt cattle insurance.

Qualitative Data Analysis: Qualitative data from the interviews were analyzed using thematic analysis. Interview transcripts were read, coded, and then synthesized to identify recurring themes and patterns related to coverage attributes.

Diagnostic and Reliability Tests: To ensure the validity and reliability of the data, a series of diagnostic tests were performed:

Reliability Test

The reliability of the measurement scale was assessed using Cronbach's Alpha (α), with a value above 0.70 considered acceptable.

Table 1. Reliability and validity measures employed in the study

Scale Reliability Statistics		
Mean	Cronbach's α	McDonald's ω
2.98	0.844	0.847

Source: Primary Data (2025)

The Mean of 2.98 indicates the average score across the items measured. The overall Cronbach's α (Alpha) value of

0.844 suggests that the scale has good internal consistency. Generally, a Cronbach's α value above 0.70 is considered acceptable, while values above 0.80 indicate good reliability. This high value implies that the items on the scale are measuring the same underlying construct and are highly correlated. The McDonald's ω (Omega) value of 0.847 further supports the reliability of the scale. McDonald's ω is often considered a more accurate estimate of reliability than Cronbach's α , especially when the assumptions of α are not met. The close values of Cronbach's α and McDonald's ω indicate that the scale is robust

and reliable. This approach ensured that the questionnaire effectively measured the intended constructs.

Validity Tests

The model's validity and overall fit were assessed using key fit indices, including the Chi-Square Test (χ^2), Root Mean Square Error of Approximation (RMSEA) (<0.08), Comparative Fit Index (CFI) (>0.90), and Tucker-Lewis Index (TLI) (>0.90).

Table 2. Model Fit Indices

Fit Index	Value	Threshold	Interpretation
Chi-square/df (CMIN/df)	1.53	< 3.00	Good fit
SRMR (Standardized Root Mean Square Residual)	0.054	≤ 0.08	Excellent fit
RMSEA (Root Mean Square Error of Approximation)	0.070 (Classical), 0.118 (Scaled)	< 0.08 acceptable, < 0.05 excellent	Acceptable to moderate fit
CFI (Comparative Fit Index)	0.994 (Classical), 0.969 (Robust)	≥ 0.90 acceptable, ≥ 0.95 excellent	Excellent fit
TLI (Tucker-Lewis Index)	0.991 (Classical), 0.954 (Robust)	≥ 0.90 acceptable, ≥ 0.95 excellent	Excellent fit
NFI, IFI, RFI, NNFI	≥ 0.95	≥ 0.90	Strong incremental and comparative fit
GFI	≥ 0.90	≥ 0.90	Acceptable fit (used with caution)

Source: Primary data analysis by Jamovi, 2025

The model's fit to the data was evaluated using both absolute and incremental fit indices. The User Model yielded a chi-square value of 58.0 with 38 degrees of freedom, and $p = 0.020$, indicating a statistically significant but not unacceptable fit given the sample size. More importantly, the Satorra-Bentler Scaled Chi-Square was 95.7 ($df = 38$, $p < .001$), which again confirmed model significance under robust estimation. The Standardized Root Mean Square Residual (SRMR) was 0.074, within the acceptable threshold of ≤ 0.08 . The Root Mean Square Error of Approximation (RMSEA) under the classical approach was 0.070, with a 90% confidence interval ranging from 0.028 to 0.104, and a p-close of 0.180, suggesting an acceptable fit. Although the Scaled RMSEA was slightly elevated at 0.118, its effect was counterbalanced by strong incremental fit indices: Comparative Fit Index (CFI) = 0.969, Tucker-Lewis Index (TLI) = 0.954, Normed Fit Index (NFI) = 0.950, and Incremental Fit Index (IFI) = 0.969all comfortably exceeding the minimum recommended threshold of 0.90, with some even approaching 0.95. The Parsimony Normed Fit Index (PNFI)

was 0.645, indicating a balance between model complexity and goodness of fit. The diagnostic tests confirm that the SEM model developed in this study is statistically robust and empirically sound. The sample size is sufficient, reliability and validity measures are consistently above recommended thresholds, and multicollinearity and outlier issues are absent. Despite minor deviations in normality and a slightly elevated scaled RMSEA, the model's overall fit is strongly supported by the majority of fit indices, especially CFI (0.969), TLI (0.954), SRMR (0.074), and NFI (0.950). These results affirm that the model is appropriately specified and suitable for further interpretation and hypothesis testing regarding factors influencing communal farmers' adoption of cattle insurance in Lupane District.

RESULTS AND DISCUSSION

The analysis revealed a positive and statistically significant relationship between coverage attributes and communal farmers' willingness to adopt cattle insurance.

Table 3. Probit regression model results

Predictor	Coefficient (β)	Std. Error	z-value	p-value	Marginal Effect (dy/dx)	Interpretation
Intercept (β_0)	-0.823	0.287	-2.867	0.004		Baseline probability without CA
Coverage Attributes (CA)	0.614	0.149	4.122	< 0.001	0.241	A one-unit increase in CA increases probability of uptake by 24.1%

Source: Survey Results, 2025

Quantitative Results: The Probit regression analysis showed a statistically significant positive coefficient of 0.242 for the relationship between Coverage Attributes (CA) and Willingness to Adopt (WIA), with a p-value of < 0.001 . This indicates that for a one-unit increase in the perceived quality of coverage attributes, the likelihood of a farmer being willing to adopt insurance increases by a factor of 0.242.

Qualitative Insights: Thematic analysis confirmed that the comprehensiveness of covered risks and the clarity of policy terms are the most critical issues for farmers. Interviews revealed that farmers often perceive existing products as too limited, frequently excluding the most common threats like specific diseases or drought-related losses. They also expressed frustration with complex language and a lack of transparency, which undermines their trust and willingness to commit. The degree to which coverage attributes resonate with farmers' lived realities and needs strongly shapes their insurance decisions.

• Excerpt 7 (P22, Communal Farmer):

"Coverage must match local challenges. For example, in Lupane we struggle with both drought and theft. Insurance must address these."

• Excerpt 8 (P4, Agritex Officer):

"Sometimes insurers design policies based on urban models, ignoring communal farmers' realities. This disconnect reduces uptake."

• Excerpt 9 (P16, Cattle Insurer):

"We tailor policies after consultations with local farmers, ensuring coverage is relevant to their specific risks."

This convergence of quantitative and qualitative findings strongly suggests that insurance providers must prioritize designing policies that are both comprehensive in their coverage and straight-forward in their communication to meet the expectations of this community.

CONCLUSION

This study concludes that coverage attributes are a significant determinant of cattle insurance uptake among communal farmers. The research provides a clear message to policymakers and insurers: to increase adoption, they must move beyond simply offering a product and instead focus on designing policies that are truly relevant, comprehensive, and clear. By aligning policy coverage with the multidimensional risks farmers face and simplifying the language used, stakeholders can build the trust necessary to drive long-term adoption.

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Conflict of Interest

The authors declare no conflict of interest in conducting this research or in the publication of this article.

Author Contributions

• Nyasha Nyakuchena: Conceptualization, Methodology, Data Curation, Formal Analysis, Writing - Original Draft Preparation.

• Dr. Joseph P. Musara: Supervision, Validation, Review & Editing.

• Dr. Emmanuel Zivenge: Supervision, Validation, Review & Editing.

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