OPTIMISING RURAL LIVELIHOODS IN ZIMBABWE

Enhancing Quality of Life and Economic Opportunities for People Living in Rural Areas – 2025 Rural Livelihoods Assessment

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LIST OF ACRONYMS

CBNRM	Community-Based Natural Resource Management
EA	Enumeration Area
FAO	Food and Agriculture Organization of the United Nations
FCS	Food Consumption Score
FGD	Focus Group Discussion
FNC	Food and Nutrition Council of Zimbabwe
FNSP	Food and Nutrition Security Policy
GAM	Global Acute Malnutrition
GoZ	Government of Zimbabwe
HDDS	Household Dietary Diversity Score
HHS	Household Hunger Scale
ISALs	Internal Savings and Lending Schemes
KII	Key Informant Interview
NDS1	National Development Strategy 1 (2021–2025)
NDS2	National Development Strategy 2 (2026–2030)
RLA	Rural Livelihoods Assessment
RIMA	Resilience Index Measurement and Analysis
SDGs	Sustainable Development Goals
SLF	Sustainable Livelihoods Framework
TVET	Technical and Vocational Education and Training
UNICEF	United Nations Children's Fund
USD	United States Dollar
ZimLAC	Zimbabwe Livelihoods Assessment Committee
ZimSTAT	Zimbabwe National Statistics Agency

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EXECUTIVE SUMMARY

Rural communities in Zimbabwe continue to play a crucial role in ensuring food and nutrition security, safeguarding natural resources and supporting the broader social and economic fabric of the country. However, they remain vulnerable to shocks from the climate, markets and broader economic conditions. In an effort to deepen understanding of these livelihood dynamics, the Food and Nutrition Council (FNC), carried out the 2025 Rural Livelihoods Assessment (RLA). The main objective was to produce timely and evidence-based insights that can guide national responses. Using the Sustainable Livelihoods Framework, the study explored how different forms of capital, natural, human, social, physical and financial, interact with shocks and livelihood strategies to influence the resilience and well-being of rural households. The results offer strong guidance for policymakers and development partners working to strengthen rural livelihoods, reduce vulnerability and accelerate the country's progress towards Vision 2030 and the Sustainable Development Goals (SDGs).

Key Findings

The Sustainable Livelihoods Framework provides a structured lens for assessing how households access, combine and transform various forms of capital to achieve improved welfare outcomes. This section presents the results from Chapter 4 of this report within the Sustainable Livelihoods Framework, examining how different livelihood strategies, forms of capital and exposure to shocks influence household income, nutrition and access to basic services.

Vulnerability Context

- The vulnerability context in rural Zimbabwe is shaped by recurrent climatic, economic, ecological and health-related shocks, which influence access to assets and determine household exposure and sensitivity to risks.
- Meteorological disasters such as drought and water inundation were also identified as significant threats to livelihood security. Dry seasons were highly associated with lower household income (coef = -0.067, $p < 0.05$), lowered food consumption score (coef = -0.524, $p < 0.1$) and household hunger (coef = 0.056, $p < 0.01$). These results confirm prior observations that variable rainfall and long periods of drought are associated with crop failure and food insecurity in sub-Saharan Africa.
- Agricultural shocks, especially crop pests (coef = -0.106, $p < 0.01$ with income) and livestock deaths (coef = 0.084, $p < 0.05$ with hunger), had negative effects on income and nutrition. The presence of a livestock disease, however, contributed to an increase in food consumption score (FCS) (coef = 2.021, $p < 0.01$) that could potentially be related to distress slaughter, lack of access to water and clean energy reflecting overall household stress.

- Economic impacts were extensive. Income, dietary diversity, food consumption scores and access to basic services were significantly lower when there were cash shortages (coef = -0.087, $p < 0.01$).
- There was a negative relationship between food consumption score and access to clean water supply and sanitation (coef = -0.286, $p < 0.05$) as well as food price (coef = -0.703, $p < 0.05$) in the model.
- The vulnerability setting unequally affects the households with low capacity to adapt, such as those that depend on casual labour, subsistence farming, or lack social or financial buffers.

Human Capital

- Human capital refers to the skills, knowledge, health and nutrition that enable individuals to pursue livelihood strategies and achieve well-being.
- The assessment shows a strong correlation between human capital indicators, particularly dietary diversity, food consumption , hunger reduction and specific livelihood strategies.
- Households engaged in livestock production exhibited significantly higher household dietary diversity score (coef = 0.402, $p < 0.01$), food consumption score (coef = 4.512, $p < 0.01$) and reduced hunger (coef = -0.118, $p < 0.01$). This suggests that ownership and management of livestock not only contributes to income but also directly improves access to animal-source foods and dietary quality.
- Salaried employment improved household dietary diversity score (coef = 0.611, $p < 0.01$) and food consumption score (coef = 5.938, $p < 0.01$), although it also corresponded with increased hunger (coef = -0.232, $p < 0.01$). On the other hand, casual labour had negeative effects as household dietary diversity score dropped significantly (coef = -0.439, $p < 0.01$), same as food consumption score (coef = -4.574, $p < 0.01$) and hunger rose (coef = 0.177, $p < 0.01$).
- Households depending on casual labour appeared to be trapped in low-return, short-term livelihoods with limited opportunity for dietary improvement.
- Access to information and health services, such as early warning systems and village health workers, also contributed significantly to human capital development.
- Early warning access increased household dietary diversity score (coef = 0.400, $p < 0.01$) and food consumption score (coef = 1.353, $p < 0.01$), while reducing hunger (coef = -0.182, $p < 0.01$). Access to a village health worker had similarly positive effects on household dietary diversity score (coef = 0.414, $p < 0.01$), food consumption score (coef = 3.325, $p < 0.01$) and hunger (coef = -0.181, $p < 0.01$), underlining the transformative potential of localised service delivery.

Social Capital

- Social capital relates to networks, social relationships, trust and mutual support. The analysis shows that households benefitting from urban and diaspora remittances had significantly better outcomes.
- Remittances from outside the community improved income (coef = 0.286, $p < 0.01$), household dietary diversity score (coef = 0.260, $p < 0.01$) and food consumption score (coef = 1.905, $p < 0.01$) and lowered hunger. Diaspora support was the strongest social capital asset, increasing income (coef = 0.518, $p < 0.01$), household dietary diversity score (coef = 0.561, $p < 0.01$), food consumption score (coef = 4.733, $p < 0.01$) and energy access (coef = 0.030, $p < 0.05$).
- In contrast, support from rural relatives had mixed results. While it modestly increased income (coef = 0.104, $p < 0.01$) and household dietary diversity score (coef = 0.080, $p < 0.05$), it was associated with reduced food consumption score (coef = -1.698, $p < 0.01$). This may reflect the limited productive base of rural relatives or over-reliance on reciprocal exchanges in low-resource settings.
- Community-based informational support, particularly early warning systems, also proved to be a form of productive social capital, enabling households to make informed decisions, mitigate shocks and improve food security.

Natural Capital

- Natural capital includes land, livestock, water and other environmental resources. The strongest positive impacts in this domain came from livestock production, which significantly improved income (coef = 0.181, $p < 0.05$), household dietary diversity score and food consumption score.
- Food crop production, while improving food consumption score (coef = 0.794, $p < 0.05$) and reducing hunger (coef = 0.104, $p < 0.01$), reduced income (coef = -0.158, $p < 0.01$) and basic service access (water coef = -0.036, $p < 0.01$; energy coef = -0.028, $p < 0.01$). This reflects the subsistence orientation of most crop farming in rural Zimbabwe and suggests low-value crop outputs.
- Shocks affecting natural capital were widespread. Dry spells reduced income (coef = -0.067, $p < 0.05$), food consumption score (coef = -0.524, $p < 0.1$) and increased hunger (coef = 0.056, $p < 0.01$).
- Crop pests reduced income (coef = -0.106, $p < 0.01$) and service access.
- Households that experinced livestock disease showed an increased food consumption score (coef = 2.021, $p < 0.01$), , but worsened water and energy access.
- These trends underline the fragility of rural livelihoods dependent on natural capital without adequate risk management.

Physical Capital

- Physical capital includes infrastructure and access to essential services such as water, sanitation and energy.
- Salaried workers, petty traders and those receiving remittances reported better access to clean energy and sanitation. For example, vending improved sanitation access (coef = 0.051, $p < 0.01$), while salaried employment improved clean energy access (coef = 0.086, $p < 0.01$).
- Households relying on casual labour suffered significant reductions in water (coef = -0.040, $p < 0.01$), sanitation (coef = -0.069, $p < 0.01$) and energy (coef = -0.043, $p < 0.01$), reflecting the broader vulnerability of this group.
- Shocks such as cash shortages and price increases significantly reduced access to water, sanitation and energy services, highlighting how economic shocks disrupt physical capital infrastructure and access.

Financial Capital

- Financial capital refers to income, savings, credit and remittances. Livelihoods with high financial returns included salaried employment (income coef = 0.904, $p < 0.01$), vending (income coef = 0.347, $p < 0.01$), cash crops (income coef = 0.296, $p < 0.01$) and remittances (diaspora income coef = 0.518, $p < 0.01$).
- Access to loans increased income (coef = 0.366, $p < 0.01$), household dietary diversity score (coef = 0.406, $p < 0.01$) and food consumption score (coef = 1.866, $p < 0.01$), confirming the importance of rural financial services.

Livelihood outcomes

- The findings presented in this report underscore the fragile and shock-sensitive nature of rural livelihoods in Zimbabwe.
- The trends in cereal insecurity between 2020 and 2025 reflect the cyclical and volatile exposure of households to climatic and economic shocks. Cereal insecurity peaked in 2020 (56%) and again in 2024 (57%), both periods associated with widespread droughts.
- The lowest level was recorded in 2025 at 15%, suggesting improved weather patterns, stronger resilience programming and more targeted food assistance interventions.
- Encouragingly, the significant drop in cereal insecurity in 2025 may indicate the early effects of improved programming, such as expanded irrigation, food aid targeting and productive safety nets. However, unless supported by long-term strategies, such as climate-smart agriculture, financial inclusion, inclusive markets and social protection, households remain vulnerable to future shocks.
- Additionally, the fluctuations reveal that food security gains are often temporary and easily reversed in the absence of sustained investment in resilience and agricultural productivity.

- Livelihood outcome indicators further illustrate the depth of vulnerability. The average household income was USD 129.77 per month, but with a wide disparity (ranging from USD 0 to USD 750). This income level remains inadequate to meet household needs, particularly when food prices are high or during lean seasons.
- The household dietary diversity score of 5.44 and food consumption score of 41.57 suggest great efforts by the Government in improving the nutrition status of the rural hosueholds.

In conclusion, whilst the assessment revealed an improvement in food security indicators, the broader livelihood outcomes demonstrate that rural Zimbabwe remains deeply vulnerable, with pockets of poverty. Resilience building must be multisectoral, combining nutrition education, climate adaptation, livelihood diversification and infrastructure investment, to sustainably improve rural well-being and reduce chronic food insecurity.

Furthermore, findings from the 2025 Rural Livelihoods Assessment treatment effect analysis, viewed through the lens of the Sustainable Livelihoods Framework, underscore the multidimensional and interlinked nature of rural livelihoods in Zimbabwe. Households that managed to diversify their income sources, particularly through livestock rearing, petty trade, remittances and salaried employment, demonstrated significantly better welfare outcomes in terms of income, dietary quality, food consumption and access to essential services. These households benefited from stronger human, financial and social capital and in many cases had better access to formal and informal institutions that support adaptive and absorptive capacities.

In contrast, households dependent on casual labour, external support, or subsistence-based food production showed persistent signs of vulnerability, including low income, hunger and limited access to water, sanitation and energy services. The vulnerability context, defined by climatic, economic and ecological shocks, further amplified these inequalities, disproportionately affecting asset-poor and socially marginalised households. The Sustainable Livelihoods Framework clearly demonstrates that resilience is not achieved through asset ownership alone, but through the ability to combine, adapt and transform capital assets in the face of external stressors. Livelihoods must therefore be supported by enabling policies, functional institutions and equitable access to markets, information and financial services. Without this systemic support, the poorest households remain trapped in cycles of vulnerability and dependency.

The cereal insecurity trend from 2020 to 2025 highlights the fragile and shock-sensitive nature of rural food systems in Zimbabwe. While there are years of improvement, these gains could be reversed due to climatic and systemic shocks. The decline in food insecurity in 2025 is a positive development but sustaining it will require consistent investment in climate-smart agriculture, early warning and response systems, improved input access and strong rural safety nets. Strategic

planning and programming must move beyond reactive responses and focus on building long-term resilience to break the cycle of food insecurity among Zimbabwe's rural population.

Recommendations

i. Enhance the implementation of the Rural Development 8.0 Concept

- Transform the rural economy through agricultural advancement and rural industrialisation.
- Scale up the establishment of business units in rural communities, including school-based, village-level and youth-led enterprises, to improve livelihoods, promote value addition and generate sustainable employment opportunities.

ii. Promote sustainable agricultural intensification for rural transformation

- Scale up adoption of high yielding and climate-resilient crop varieties and promote integrated soil fertility management to boost productivity.
- Expand irrigation infrastructure and water harvesting technologies to enable multiple cropping seasons and reduce reliance on rainfed agriculture.
- Strengthen agricultural extension and input delivery systems to improve farmer knowledge, input use efficiency and access to appropriate technologies.

iii. Strengthen asset accumulation and livelihood diversification

- Promote livestock development, especially small livestock, as a pathway to both income and improved dietary outcomes.
- Facilitate small business training and access to microenterprises, especially for vulnerable households, particularly women and youth. The Village Business Units will go a long way in rural industrialisation and the Government of Zimbabwe is applauded for this innovation.
- Provide technical and financial support for climate-smart agriculture to increase returns from food and vegetable production.

iv. Expand access to financial capital

- Strengthen rural financial inclusion mechanisms, including low-interest loans, mobile banking and savings groups.
- Strengthen and support diaspora investment and remittance platforms to channel financial flows into rural enterprises that enhance productivity, value addition and livelihoods.
- Scale up access to shock-responsive credit for agricultural inputs, healthcare and education.

v. Invest in human capital and local institutions

- Scale up community-based health and nutrition services, such as village health workers and child feeding programmes.

- Scale up investment in early warning systems and climate information services that are accessible, timely and localised.
- Continue to promote education and vocational training, with a focus on transferable skills relevant to rural economies.

vi. Reform external aid and social protection models

- Redesign government and NGO support to be more transformative and less dependency-inducing, with an emphasis on productive asset transfers rather than short-term handouts.
- Continue to integrate shock-sensitive social protection systems (e.g., cash-for-work, food-for-assets) that build long-term adaptive capacities.
- Encourage multi-stakeholder targeting approaches that improve the reach and relevance of social assistance programmes.

vii. Strengthen physical capital and infrastructure

- Prioritise rural water, sanitation and energy infrastructure, especially in vulnerable wards identified as service-poor.
- Invest in rural road networks and marketplaces to enhance market access and mobility of goods and services.
- Promote renewable energy options to reduce reliance on unsustainable and inaccessible energy sources.

viii. Embed resilience thinking in development planning

- Align all interventions with the absorptive, adaptive and transformative capacities outlined in the SLF.
- Support local governance structures in participatory planning, resource allocation and accountability.
- Ensure that all rural development strategies contribute to Zimbabwe's NDS2, Vision 2030 and relevant Sustainable Development Goals (SDGs).

1. CHAPTER 1 INTRODUCTION

Zimbabwe's rural landscape remains central to the nation's socioeconomic fabric, with most of the population residing in rural areas and depending on agriculture and natural resources for their livelihoods. However, these livelihoods are often undermined by a combination of climatic, economic and social shocks, which threaten household food and nutrition security and erode development gains. In this context, reliable and up-to-date information on the conditions and dynamics of rural livelihoods is critical for policymakers, humanitarian actors and development partners. The Food and Nutrition Council (FNC) plays a vital role in generating such information through periodic Rural Livelihoods Assessments (RLAs). The 2025 RLA was a nationwide, multisectoral survey conducted to provide a comprehensive and systematic understanding of the current status of livelihoods in Zimbabwe's rural communities. It aims to offer an annual update that informs planning, programming and policymaking in the food and nutrition security domain. Through this assessment, stakeholders gain insights into prevailing livelihood patterns, vulnerability levels, the extent of food insecurity and the impact of ongoing shocks such as drought, economic instability and climate change.

The FNC plays a crucial role in operationalising Commitment Six of the Food and Nutrition Security Policy (GoZ, 2012), which emphasises the Government of Zimbabwe's dedication to establishing a national integrated food and nutrition security information system. FNC's livelihoods assessments have consistently proven to be an invaluable resource, shaping policies and programs that respond to the country's evolving food and nutrition security landscape. To date, FNC has produced 12 urban and 25 rural livelihoods reports, significantly enhancing Zimbabwe's understanding and response capabilities in this critical area. These assessments have allowed the government and its partners to refine targeting mechanisms, monitor trends, evaluate program effectiveness and craft interventions that are better tailored to the realities on the ground. Through the collaborative efforts of government agencies, development partners, academic institutions and civil society, the FNC continues to affirm its value as a cornerstone of Zimbabwe's food and nutrition security governance architecture.

The 2025 Rural Livelihoods Assessment was undertaken against the backdrop of intensifying climate-related stressors, particularly the effects of the El Niño-induced drought experienced during the 2023/2024 agricultural season. This drought resulted in severe water shortages, reduced crop yields and stressed livelihood sources, particularly among vulnerable households reliant on rain-fed agriculture. It is against this complex and dynamic backdrop, that the 2025 assessment was not only a routine update but also a strategic effort to capture the real-time impacts of these compounding shocks.

Objectives

The overall objective was to assess and analyse the status, dynamics and determinants of rural livelihoods in Zimbabwe, with the aim of informing evidence-based planning, policy development and targeted interventions that enhance food and nutrition security, resilience and sustainable rural development.

In addition, the specific objectives were:

i. To evaluate household access to and utilisation of key livelihood assets (natural, financial, human, social and physical) and their impact on food security and welfare outcomes.
ii. To examine the impact of shocks (climatic, economic and social) on household livelihoods and coping strategies across different districts.
iii. To assess levels of access to information, credit and social services and how these influence adaptive and transformative capacities at household and community levels.
iv. To identify and analyse livelihood strategies, including income sources, diversification efforts and productive activities, used by rural households to build resilience.
v. To evaluate the alignment of observed livelihood outcomes with national policy targets, particularly those outlined in NDS1 and relevant Sustainable Development Goals (SDGs).

Collectively, these objectives reflect a multidimensional understanding of rural livelihoods that goes beyond food availability to encompass the underlying systems and structures that influence well-being and resilience. The data generated through the RLA will not only serve to inform immediate response strategies but also contribute to the ongoing development of Zimbabwe's National Development Strategy (NDS) II and the Sustainable Development Goals (SDGs). The findings will support the targeting and design of longer-term interventions aimed at building resilient rural communities.

The data analysis and reporting presented in this report are guided by the Sustainable Livelihoods Framework (SLF), which provides a holistic lens to examine household assets, vulnerability contexts, transforming structures and processes, livelihood strategies and resultant outcomes. The SLF enables a comprehensive understanding of the interlinkages between livelihoods, food security and resilience, offering valuable insights into both short-term needs and long-term development pathways.

2. CHAPTER 2 LITERATURE REVIEW

2.1. Introduction

The complexity of rural livelihoods in the Global South demands frameworks that account for the dynamic interplay between resources, institutions, vulnerabilities and adaptive strategies. The Sustainable Livelihoods Framework (SLF) has emerged as one of the most widely adopted tools for this purpose. Initially developed by Chambers and Conway (1992) and formalised by DFID (1999), the SLF has been extensively used to explore how rural populations construct and sustain their livelihoods in the face of risk, scarcity and institutional change. The utility of the SLF lies in its holistic, people-centered approach, facilitating integrated analysis of how assets, vulnerabilities and institutional arrangements shape livelihood strategies and outcomes. In recent years, the SLF has gained traction as a tool for resilience analysis, particularly in the contexts of climate change, food insecurity and socio-economic transformation (Armitage *et al.*, 2012; Béné *et al.*, 2012; Scoones, 2015). This review evaluates recent scientific literature on the SLF's applicability to the analysis of rural livelihoods and resilience, emphasising both theoretical insights and empirical findings.

The SLF conceptualises livelihoods as the capabilities, assets and activities required for a means of living. It places people at the center of development analysis by focusing on five types of capital assets: human, natural, physical, financial and social and how these interact within a vulnerability context to produce livelihood outcomes (Ellis, 2000; Solesbury, 2003). The framework also emphasises the role of transforming structures (e.g., institutions, markets) and processes (e.g., laws, norms) in mediating access to assets and shaping the feasibility of various strategies. Over time, the SLF has been adapted to incorporate dynamic elements such as power relations, environmental feedback loops and institutional resilience, enhancing its ability to assess long-term sustainability and responsiveness to shocks (Natarajan *et al.*, 2022; Haider & Cleaver, 2023). Its versatility enables application in varied rural settings, from smallholder farming systems to forest-based communities and pastoralist societies. The framework departs from income-based poverty analyses by offering a multidimensional lens that acknowledges the various forms of capital, natural, human, physical, social and financial, that households draw upon to maintain and improve their well-being. The SLF has become a widely used tool for analysing the effectiveness of interventions and understanding household behavior under stress, particularly in the Global South. Its flexible structure allows for application across diverse sectors such as agriculture, fisheries, forestry, water management and climate adaptation.

This literature review critically examines the SLF’s theoretical foundations and practical applicability in assessing rural livelihoods. Drawing on recent empirical literature, the review also

explores evidence of successful livelihood strategies in developing countries, including agricultural intensification, off-farm income diversification, community-based natural resource management and human capital development. The review concludes by synthesizing best practices and key steps toward achieving sustainable livelihoods and resilience.

2.2. Core Components of the Sustainable Livelihoods Framework

The SLF consists of five interlinked components that collectively define and influence how people pursue and sustain their livelihoods.

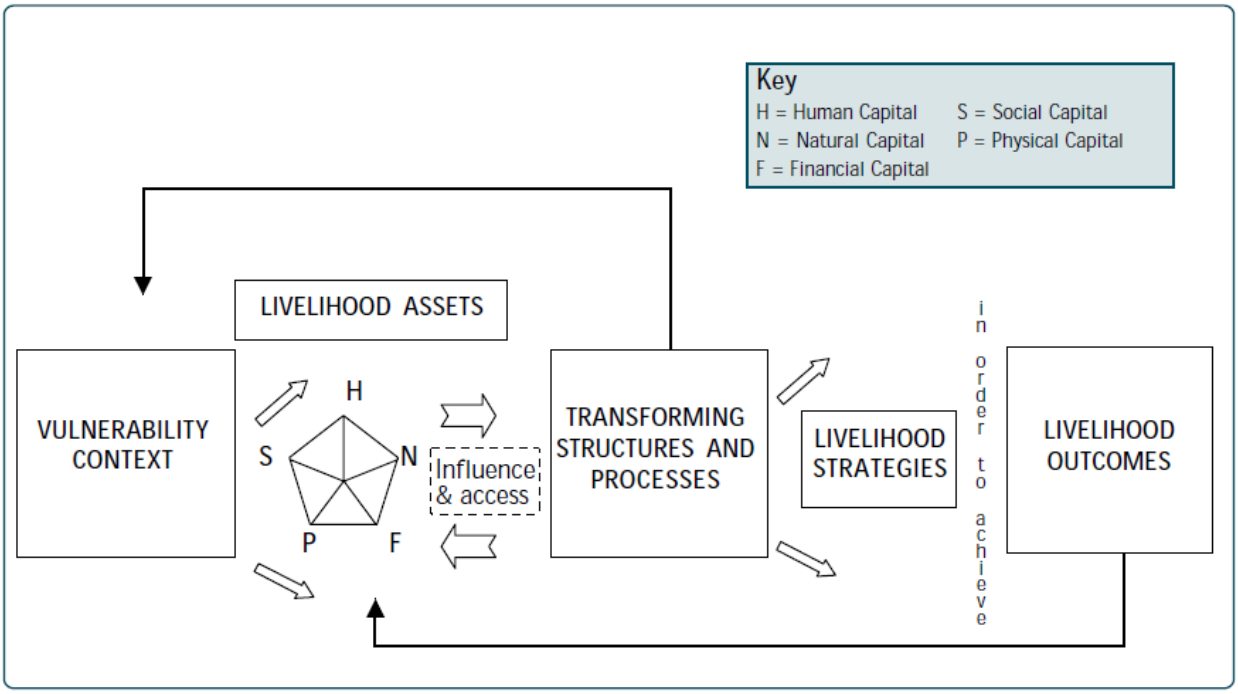

Figure 1. Sustainable Livelihoods Framework (DFID, 2001)

i. Vulnerability Context

The vulnerability context comprises of external trends (e.g., demographic change, technological progress), shocks (e.g., conflict, natural disasters, health epidemics) and seasonality (e.g., seasonal fluctuations in employment, food availability, or prices). These factors shape people's asset base, exposure to risk and ability to maintain or enhance livelihoods. These include:

- Shocks (e.g., droughts, floods, pandemics).
- Trends (e.g., climate change, demographic shifts, economic globalisation).
- Seasonality (e.g., seasonal variations in employment, food prices, or disease prevalence).

These elements shape livelihood risks and determine households' exposure and capacity to cope or adapt. The SLF recognises that the vulnerability context is largely beyond the immediate control of individuals, yet profoundly impacts their well-being (Scoones, 2015; Olivier, 2019).

ii. Livelihood Assets

The SLF identifies five types of capital assets that people combine and convert into livelihood strategies. These are:

- **Human Capital**: refers to the skills, knowledge, education, health and labor ability of individuals or households. It forms the foundation for persuing livelihood strategies, such as farming, employment, or entrepreneurship. Without adequate human capital, households may be unable to fully exploit other assets or respond effectively to shocks.
- **Social Capital**: reflects the networks, relationships, membership in groups, trust and norms that facilitate cooperation and mutual support among individuals and communities. It enables access to resources, information, financial services and emotional or physical support, particularly during times of crisis. Social capital is often the least tangible but most critical buffer in resource-constrained contexts (Mbiba *et al.*, 2019; Chuong, 2023).
- **Natural Capital**: includes the natural resource stocks and environmental services from which rural people derive their livelihoods. These resources include land, water, wildlife, biodiversity and ecosystem services that contribute directly to subsistence, income and ecological sustainability. The quality, accessibility and sustainability of these resources significantly determine the resilience of rural livelihoods.
- **Physical Capital**: encompasses the basic infrastructure and producer goods needed to support livelihoods. Infrastructure such as roads, irrigation systems, energy supply and telecommunications enhances access to markets, services and opportunities. Producer goods include tools and equipment that increase the productivity and efficiency of economic activities. The availability and quality of physical capital influences mobility, storage, production capacity and time-use in production and services.
- **Financial Capital**: represents the financial resources available to people to pursue livelihood strategies. This includes cash, savings, credit, remittances, pensions and other forms of economic transfers. Access to financial capital determines the capacity to invest in human development, expand enterprises, or respond to emergencies.

These assets are visualised in a pentagon structure to reflect their interdependence and relative distribution (Morse *et al.*, 2013; Morse, 2025). The diversity and quality of assets available to a household significantly influence its livelihood resilience and ability to pursue preferred strategies.

iii. Transforming Structures and Processes

Transforming structures and processes refer to institutions, policies, laws, cultural norms and governance mechanisms that determine how people access and control assets. Structures include both public (e.g., governments, service providers) and private (e.g., NGOs, markets) entities. Processes refer to the dynamics, rules and customs that govern decision-making and social behavior. Together, these determine the degree of inclusion, equity and empowerment within livelihood systems. Key institutions include:

- Government agencies and local authorities.
- Markets and private sector actors.
- Civil society and community-based organisations.
- Traditional and religious institutions.

Processes refer to governance quality, legislation, power dynamics, bureaucratic efficiency and cultural norms. Together, these structures and processes either enable or constrain the equitable and sustainable use of assets (Ribot & Larson, 2012). A central insight of the SLF is that well-functioning, inclusive institutions are critical for translating assets into sustainable outcomes.

iv. Livelihood Strategies

Livelihood strategies are the range and combination of activities and choices that people undertake to achieve their livelihood goals. These may include agricultural intensification, diversification, migration, wage labor, entrepreneurship, or a mix of these. The strategies adopted depend on available assets, aspirations, institutional contexts and exposure to vulnerability. These include:

- On-farm and off-farm agriculture.
- Casual and formal employment.
- Microenterprise and petty trading.
- Natural resource-based activities (e.g., fishing, forestry).
- Migration and remittances.

Households typically diversify their strategies to manage risks and smooth income across seasons. The choice and success of these strategies depend on access to assets, institutions and the prevailing vulnerability context (Wan *et al.*, 2016; Macours *et al.*, 2022).

v. Livelihood Outcomes

Livelihood outcomes result from the strategies and interventions pursued. Desired outcomes include increased income, improved food security, reduced vulnerability, enhanced well-being and sustainable use of natural resources. These outcomes also feedback into the asset base, either

reinforcing or eroding it, depending on the sustainability and equity of the strategy. Typical outcomes include:

- Improved income and asset base.
- Food and nutrition security.
- Increased well-being (education, health, dignity).
- Reduced vulnerability and risk exposure.
- Sustainable use of natural resources.
- Greater social and political inclusion.

Positive outcomes often reinforce the asset base, while negative ones (e.g., environmental degradation, indebtedness) can erode long-term sustainability (Pretty, 2018).

2.3. Strengths of the Sustainable Livelihoods Framework

The SLF is dynamic and iterative, recognising that livelihoods are not static. It allows for feedback loops, whereby livelihood outcomes influence asset accumulation and institutional change. The strength of the SLF lies in its ability to integrate complex and diverse factors affecting rural livelihoods, providing a structured lens through which development practitioners can design, implement and evaluate interventions that are context-sensitive, participatory and sustainable.

Over time, scholars have expanded the SLF to address critiques regarding its static nature and insufficient attention to power relations, culture and structural constraints. For instance, Natarajan *et al*. (2022) proposed a 21st -century SLF emphasising structural, spatial and ecological coherence. Morse (2025) advocated for the inclusion of cultural and faith-based dimensions to enhance relevance in diverse socio-political settings. The SLF's multidimensional and dynamic features have enabled its adoption across a range of rural development issues. Its core utility lies in capturing the interconnectedness of livelihood systems, enabling integrated planning and providing entry points for resilience-building, poverty reduction and sustainable development.

The SLF offers several conceptual and operational strengths including:

- Holistic and Integrative: It goes beyond monetary measures of poverty to include capabilities, assets and institutional access (Scoones, 2015).
- People-Centered: The framework emphasises local perspectives, knowledge and aspirations.
- Participatory: It supports stakeholder engagement in identifying development priorities and solutions.
- Dynamic and Adaptive: It is flexible across different contexts and has been adapted for use in urban, post-conflict and climate-affected environments (Natarajan et al., 2022).
- Multi-Level Utility: It can be used for project planning, policy design, monitoring and impact evaluation.

2.4. Relevance to Sustainable Development and Resilience Building

The SLF provides a robust and integrative approach that aligns with the principles of sustainable development, particularly in contexts of vulnerability and systemic shocks. By addressing the interconnected dimensions of human well-being, natural, physical, social, human and financial capital, the SLF supports long-term sustainability, inclusive growth and adaptive resilience. Its participatory and people-centered design ensures that development interventions are contextually grounded, equity-focused and responsive to the lived realities of communities. At country level, Zimbabwe, the relevance of the SLF is underscored by its alignment with key national development frameworks, particularly the Food and Nutrition Security Policy (FNSP), National Development Strategy 1 (NDS1: 2021–2025) and the forthcoming National Development Strategy 2 (NDS2: 2026–2030). On the global level, the SLF directly contributes to the realisation of the Sustainable Development Goals (SDGs) by enabling comprehensive analyses of livelihood strategies, risks and institutional dynamics. Its practical application informs targeted multisectoral interventions that enhance resilience and sustainability across sectors.

2.5. Contribution to the Food and Nutrition Security Policy (FNSP)

The FNSP outlines a coordinated, multisectoral approach to addressing food and nutrition insecurity, aiming to ensure adequate, diverse and nutritious food for all Zimbabweans. The SLF directly complements this vision by guiding interventions that:

- Enhance household and community food systems through strengthened asset bases.
- Support livelihood diversification to reduce dependency on single sources of income.
- Improve access to productive resources, technologies and market linkages.

The SLF's emphasis on social capital and participatory processes reinforces FNSP pillars focused on community empowerment, inclusive planning and institutional coordination.

2.6. Alignment with the National Development Strategy 1 (NDS1)

NDS1 prioritises economic transformation, poverty reduction, climate resilience and inclusive development. The SLF provides a practical and locally adaptable lens through which these objectives can be achieved by:

- Addressing the five capitals (natural, physical, human, financial, social), which are at the core of NDS1's focus on human capital development,
- Promoting increased agricultural productivity, especially through smallholder support and climate-smart technologies,
- Supporting rural industrialisation through value addition, agro-processing and decentralised enterprise development,

- Enhancing access to finance, innovation and markets, particularly for women and youth,
- Integrating climate risk assessments and promoting adaptive planning, particularly in water management, ecosystem conservation and climate-sensitive sectors such as agriculture and forestry.

2.7. Linkage to the National Development Strategy 2 (NDS2)

As Zimbabwe transitions into NDS2 (2026-2030), the focus will be on deepening structural transformation, enhancing value chains and consolidating inclusive, green growth. The SLF is well positioned to support the NDS2 priorities through:

- Strengthening resilient livelihoods in the face of climate change, economic shocks and global crises.
- Supporting youth and women empowerment through targeted asset-building and financial inclusion strategies.
- Promoting development and rural transformation by anchoring interventions in local resource endowments, capacities and knowledge systems.
- Advancing nutrition-sensitive agriculture and food systems aligned with both climate action and health goals.
- Facilitating multi-stakeholder engagement and bottom-up development planning, key for responsive and adaptive governance envisioned in NDS2.

At the global level, SLF is highly relevant for:

i. SDG 1 (No Poverty) and SDG 2 (Zero Hunger): By promoting sustainable income-generating activities, food security and diversification of livelihoods, the framework supports pathways out of poverty and hunger, particularly for rural populations.
ii. SDG 5 (Gender Equality): Through its emphasis on social capital and intra-household power relations, the SLF facilitates gender-sensitive analysis and empowers women by highlighting their role in sustaining livelihoods and influencing decision-making.
iii. SDG 13 (Climate Action): The framework enhances adaptive capacity and climate resilience by integrating environmental risk assessments, supporting community-based adaptation strategies and promoting sustainable use of ecosystem services.
iv. SDG 15 (Life on Land): It strengthens linkages between sustainable land use, biodiversity conservation and livelihoods, ensuring that resource management practices are environmentally sound and socially inclusive.

Moreover, the SLF supports resilience-building by fostering anticipatory and transformative capacities, enabling households and communities not only to recover from shocks but also to reconfigure their livelihood systems in response to long-term environmental and socio-economic changes. This positions the SLF as a critical tool for driving inclusive, locally anchored and climate-

smart development interventions. Recent studies demonstrate that integrating sustainability explicitly into SLF-based analyses enhances their utility in designing development interventions that are both inclusive and environmentally sound (Kunjuraman, 2023).

2.8. Applicability of the Sustainable Livelihoods Framework in Analysing Rural Livelihoods and Resilience

The SLF continues to serve as a critical analytical tool for understanding and enhancing rural livelihoods and resilience due to its holistic, flexible and participatory nature. By emphasising diverse capital assets and institutional dynamics, the SLF captures the complexity of rural livelihoods across sectors and scales. This section explores how the SLF supports resilience assessments, stakeholder engagement and evidence-based planning, making it a valuable tool for adaptive and sustainable development in diverse rural contexts.

At its core, the SLF is designed around five capital assets, human, social, natural, physical and financial, through which people derive the means to pursue their livelihood strategies. These capital assets, in dynamic interaction with contextual vulnerabilities (e.g., shocks, trends and seasonality), transforming structures (institutions and policies) and livelihood strategies, shape livelihood outcomes such as improved well-being, reduced vulnerability and enhanced food security (Serrat, 2017). This asset-based orientation allows the SLF to capture the complexity and diversity of rural livelihoods across geographies and socio-economic contexts, making it adaptable to a wide range of development and humanitarian planning scenarios.

Holistic asset-based understanding **-** One of the SLF's core strengths is its asset-based approach. Rather than focusing solely on income or consumption metrics, it emphasises the various forms of capital that households draw upon to sustain their livelihoods (Scoones, 2015). This asset pentagon provides a multidimensional lens to assess household well-being, vulnerability and adaptive capacity. For instance, studies in Southeast Asia have used the SLF to understand how combinations of land ownership (natural capital), skills (human capital) and savings (financial capital) influence the ability of farming households to diversify into high-value crops or non-farm employment (Nguyen-Anh *et al.*, 2023). Similarly, in sub-Saharan Africa, researchers have applied the framework to assess how livestock ownership, remittance flows and access to cooperatives mediate resilience to drought and price shocks (Bahta & Myeki, 2022).

Applicability across scales and sectors **-** The SLF is highly scalable and can be applied at the individual, household and community levels. It is also sectorally flexible and has been used to analyse livelihoods in agriculture, fisheries, forestry, tourism and more recently, in renewable energy transitions (Morse, 2025; Kunjuraman, 2023). This adaptability makes it particularly useful in multisectoral programmes aimed at integrated rural development. In Tanzania, for example, the

SLF was employed to evaluate the impacts of integrated water and agricultural projects on household resilience, revealing how improved water infrastructure (physical capital) and strengthened farmer groups (social capital) led to enhanced food security and income diversification (Nnko, 2022).

Participatory and diagnostic use **-** The participatory nature of the SLF supports inclusive stakeholder engagement. It encourages community members to define their own priorities, map their asset base and identify opportunities for livelihood enhancement. This participatory focus has been particularly impactful in rural Africa and Asia, where bottom-up planning is essential for sustainability. For example, in Uganda, Atube *et al.* (2021) applied the SLF to evaluate the role of local institutions in promoting sustainable agricultural practices, demonstrating that community involvement was integral to success. The framework's participatory nature enhances legitimacy, fosters local ownership and supports context-sensitive programming.

SLF and resilience analysis **-** As resilience has gained prominence in development policy and practice, the SLF has increasingly been used as a foundation for resilience assessment. Resilience in this context is understood as the capacity of individuals, households, or systems to absorb, adapt and transform in response to shocks and stresses (Béné et al., 2012).

Asset portfolios and resilience capacity **-** The SLF enables a nuanced understanding of how access to and combinations of capital assets contribute to absorptive, adaptive and transformative resilience capacities. For example, households with diversified income sources, strong social networks and financial reserves tend to have greater capacity to absorb shocks such as illness or crop failure (WHO/FAO, 2020). Adaptation studies have utilised the SLF to examine how investments in human capital, such as extension services and education, facilitate shifts to climate-smart agriculture, agroecology, or off-farm employment (Suckall *et al.*, 2017; Boh *et al.*, 2023). Similarly, investments in social capital through farmer cooperatives or community savings groups have been shown to strengthen both anticipatory and recovery capacities.

Institutional and structural resilience **-** The SLF's recognition of transforming structures and processes aligns well with systems thinking in resilience studies. Resilience is not only about individual capacity but also about how supportive and responsive institutions are in enabling adaptive strategies (Berman *et al.*, 2012; Boh *et al.*, 2023). By identifying institutional bottlenecks, such as discriminatory land policies, weak service delivery, or market exclusion, the SLF provides a foundation for designing interventions that not only protect assets but also improve the governance environment in which households operate. This has been demonstrated in post-disaster recovery efforts in South Asia and East Africa, where SLF-based assessments highlighted

the need for reform in credit access and land tenure to support recovery and long-term adaptation (Natarajan et al., 2022; Reed et al., 2021).

Integration with resilience tools **-** The SLF has been integrated into newer tools such as the Resilience Index Measurement and Analysis (RIMA) developed by FAO, which links household asset data with resilience capacity metrics (Upton *et al.*, 2021; Mossie *et al.*, 2024). RIMA builds on the SLF by operationalising the linkages between capital assets and capacities, enabling quantitative tracking of resilience over time. Moreover, dynamic livelihood modeling approaches, such as scenario-based planning and agent-based models, have incorporated SLF concepts to simulate household responses to policy and climate scenarios (Thornton et al., 2019).

Integration of vulnerability context - The SLF integrates the vulnerability context, which accounts for external stressors such as climate variability, market fluctuations and policy disruptions. This dimension enables stakeholders to understand livelihood risks and plan adaptive responses. For instance, a resilience assessment in the Lower Mekong Basin, a transboundary river in East and Southeast Asia, used the SLF to incorporate seasonal flooding, labour migration patterns and gendered vulnerabilities into development planning, thereby improving livelihood outcomes for marginalised groups (Nabikolo et al., 2022).

In summary, the SLF remains an indispensable tool in livelihood and resilience analysis. Its continued relevance lies in its capacity to evolve with emerging challenges, embrace multidimensional assessment and inform policy and practice through a systems-oriented, participatory lens. The framework provides a robust lens for diagnosing livelihood vulnerabilities, planning adaptive interventions and measuring resilience across spatial and temporal scales. As the rural development agenda increasingly focuses on climate adaptation, sustainability and social equity, the SLF offers a practical yet sophisticated platform for guiding research, programming and policy. Its continued evolution through interdisciplinary integration and localised adaptation ensures its relevance in an increasingly complex and uncertain world.

2.9. Empirical Examples of SLF Application in Developing Countries

Agricultural Intensification and the Green Revolution - The Green Revolution serves as a prominent example of how agricultural intensification can lead to poverty reduction. By introducing high-yielding crop varieties and improved farming techniques, countries like India experienced significant increases in food production and rural incomes. Studies indicate that during the Green Revolution period (1966–1985), the share of the world's population living in extreme poverty declined sharply and per capita calorie supply increased in both poor and wealthy countries (Mehta, 2018). However, the Green Revolution also underscored the importance of equitable access to resources and the need for sustainable practices to prevent environmental degradation.

In China, recent studies have shown that agricultural green development, emphasising environmentally friendly practices, effectively reduces poverty, particularly in regions of deep poverty. This approach contributes to poverty alleviation through infrastructure development, industrial restructuring and green technology innovation (Jiang *et al.*, 2024). In Africa, similar efforts have been made to adapt the principles of agricultural intensification in environmentally sustainable and context-specific ways. For example, in Malawi, the Farm Input Subsidy Programme (FISP) has aimed to improve food security by providing subsidised fertiliser and hybrid maize seeds to smallholder farmers. Chirwa and Dorward (2013) found that, when well-targeted, the programme increased maize production, reduced food gaps and supported rural income generation. In Nigeria, the Growth Enhancement Support Scheme (GESS) built on similar concepts by using mobile technology to distribute vouchers for fertiliser and seed directly to farmers. As part of Nigeria's Agricultural Transformation Agenda, this initiative reached over 10 million farmers between 2012 and 2015 and was associated with yield increases and improved access to inputs, particularly for previously excluded smallholders (Liverpool-Tasie *et al.*, 2015).

Off-Farm Income Diversification - Diversifying income sources beyond traditional agriculture has proven effective in enhancing rural livelihoods (Eshetu & Mekonnen, 2016). In Ethiopia, off-farm employment opportunities have contributed to increased household incomes and reduced poverty levels. A study highlighted that households engaged in non-farm activities were better positioned to cope with economic shocks and had improved food security. This is corroborated by findings in a study conducted in Zimbabwe, where Nyathi (2024) examined livelihood diversification in the dryland agrarian settings of Matabeleland. The study found that households combining livestock rearing with informal trade, artisanal mining, or remittances fared better in managing drought risk and reducing food insecurity. The research also highlighted that such diversification was particularly important in areas with declining rainfall and fragile soils, where reliance on rain-fed agriculture alone would be unsustainable.

In Kenya, Wanyama *et al.* (2010) documented how off-farm livelihood options such as boda-boda (motorbike taxi) services, rural tourism and handicrafts offered crucial supplementary income to farming households. The SLF was used to assess the types of capital assets required to access these opportunities, revealing the critical role of financial capital (access to credit) and human capital (skills training). Similarly, in Malawi, the integration of Information and Communication Technologies (ICTs) has empowered women micro-entrepreneurs, enabling them to access new markets and improve their businesses (Malanga & Banda, 2021). The use of mobile phones and other ICT tools facilitated better communication, marketing and access to information, leading to improved livelihoods for women in rural areas (Porter *et al.*, 2020; Malanga & Banda, 2021). These examples illustrate that successful off-farm income diversification requires enabling policy

environments, targeted capacity-building interventions and robust infrastructure, particularly digital infrastructure, to unlock new livelihood possibilities for marginalised populations.

Community-Based Resource Management - Community-based approaches to resource management have successfully promoted sustainable livelihoods. Nepal's community forestry programme, for instance, has empowered local communities to manage forest resources, leading to improved environmental conservation and enhanced income generation (Baral *et al.*, 2022; Dhungana *et al.*, 2024). The programme has been instrumental in halting environmental degradation and regenerating forests in barren areas. In the Philippines, community-based forest management initiatives have facilitated the sustainable use of forest resources while providing alternative livelihood options for rural populations (Pulhin & Pulhin, 2003), These programs emphasise the importance of local participation and the integration of traditional knowledge in resource management. From an African perspective, Community-Based Natural Resource Management (CBNRM) has similarly played a critical role in enhancing both ecological health and rural livelihoods. In Namibia, the establishment of communal conservancies under the CBNRM policy enabled rural communities to derive income from tourism and wildlife conservation. Between 1998 and 2018, more than 80 conservancies were established, generating millions in revenue and supporting local employment in eco-tourism, craft production and conservation (Naidoo *et al.*, 2016).

Importantly, the SLF was used in evaluations to analyse how the program impacted different types of capital assets at the household level. In Zimbabwe, Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) was a pioneering model of devolved wildlife management. It allowed rural communities to benefit from trophy hunting revenues and tourism, reinvesting proceeds into community projects such as schools and water points. While results have been mixed due to political and governance challenges, evaluations highlight how such models, when managed transparently, can contribute to sustainable livelihoods (Balint & Mashinya, 2006). These examples confirm that community-based resource management programs in Africa align strongly with the SLF by promoting social, natural and financial capital, while building local ownership and adaptive capacity.

Vocational Training and Skill Development - Investing in vocational training and skill development is crucial for enabling rural populations to diversify their livelihoods. In Nepal, vocational training programs have significantly improved youth employment outcomes, particularly for women, by equipping them with skills for non-farm employment (Chakravarty *et al.*, 2019). These programmes have led to increased income levels and reduced reliance on subsistence agriculture. In African contexts, vocational education has similarly shown promise in addressing youth unemployment and livelihood vulnerability. In Rwanda, the government's Technical and Vocational Education and

Training (TVET) strategy, embedded within the National Employment Policy, has enabled thousands of youth to access formal employment in sectors such as construction, hospitality, agribusiness and ICT. A study by Diop (2020) found a strong positive relationship between participation in TVET programs and enhanced employability prospects among Rwandan youth. Another study by Tusiime *et al.* (2024) concluded that there was a positive and statistically significant correlation between the skills gained from TVET schools and youth job creation. These examples show that skill development, when aligned with labor market needs and supported by financial services and institutional backing, can unlock new livelihood frontiers. Within the SLF, such interventions represent a critical enhancement of human and financial capital that empowers households to navigate livelihood transitions.

2.10. Summary of Lessons from African Applications

The application of the SLF across African countries underscores several consistent themes:

- Asset integration: Successful rural livelihoods rely on the combination of multiple asset types. Access to land or credit alone is insufficient; the full asset pentagon must be considered in program design.
- Institutional mediation: Access to assets is profoundly shaped by institutions, formal and informal. Whether through cooperatives, extension systems, or traditional authorities, institutions play a gatekeeping role.
- Vulnerability context: Climate change, market volatility and political instability are persistent drivers of vulnerability. The SLF's recognition of external shocks enhances its relevance in fragile contexts.
- Participatory planning: Studies consistently show that interventions designed with local input and grounded in asset analysis (as facilitated by SLF) are more effective and sustainable.
- Gender and inclusion: Several studies emphasise the importance of considering intra-household dynamics, especially around gender, to ensure equitable access to resources and decision-making.

2.11. Steps Towards Attaining Sustainable Livelihoods in Rural Communities

Attaining sustainable livelihoods, particularly in rural and vulnerable contexts, requires a holistic and integrated approach that encompasses social, economic, institutional and environmental dimensions. Drawing from empirical studies and global best practices, the following five interrelated steps are critical.

i. **Asset Building** - A foundational step toward sustainable livelihoods is the enhancement of access to the five livelihood capitals: human, social, natural, physical and financial. These assets form the building blocks from which individuals and communities derive their means of

living. Human capital includes education, skills and health; social capital encompasses networks, social norms and trust; natural capital refers to natural resources like land and water; physical capital includes infrastructure and tools; and financial capital comprises income, savings, credit and remittances. For example, a study by Liang et al. (2024) in rural China found that improved access to financial and social capital significantly enhanced household resilience in poverty alleviation relocation zones.

ii. **Diversification** - Diversification of income sources is crucial in reducing household vulnerability to shocks such as droughts, market fluctuations, or health crises (Ellis, 2000). Livelihood diversification enables households to spread risk and increase income stability by engaging in multiple income-generating activities, both on- and off-farm. In Zimbabwe's drylands, Nyathi (2024) found that combining subsistence farming with artisanal mining, trade and livestock keeping improved household adaptation to declining rainfall.

iii. **Institutional Support** - Effective institutions, government, private sector and civil society, play a vital role in enabling access to resources, enforcing rights, delivering services and fostering an enabling policy environment for sustainable livelihoods (Scoones, 2015). Institutional coordination enhances governance, ensures equity in resource distribution and supports infrastructure for scaling up interventions.

in rural communities

iv. Capacity Building - Building human capital through education, vocational training and knowledge transfer is essential for adapting to dynamic economic and environmental conditions. Skills development allows individuals to exploit new livelihood opportunities, adopt climate-smart practices and participate in market systems.

v. Community Engagement - Sustainable livelihood interventions must be people-centered and community-driven. Participatory planning ensures that development efforts align with local priorities, harness indigenous knowledge and foster ownership and sustainability. It also strengthens social capital through trust and cooperation, enhancing the effectiveness of collective actions. In Zimbabwe, the CAMPFIRE programme illustrated the potential of participatory models to translate environmental management into tangible community benefits (Balint & Mashinya, 2006).

Figure 2. *Steps to attaining sustainable livelihoods*

vi. Gender Equality and Inclusion - Gender equality and social inclusion are essential for achieving sustainable livelihoods. Women and marginalised groups often face barriers in accessing land, credit, education and decision-making spaces. Addressing these inequalities improves household productivity, food security and resilience. Programs in Ethiopia and Kenya show that empowering women through agribusiness training, land rights and cooperative membership leads to better development outcomes. Inclusive livelihood strategies must mainstream gender, establish equity targets and ensure youth and marginalised communities also benefit. Ensuring equal access to the five livelihood capitals—human, social, natural, physical and financial supports more equitable and sustainable rural transformation.

vii. **Monitoring and Adaptive Management** - Monitoring and adaptive management are critical for sustaining effective livelihood interventions. This process involves tracking changes in household resilience and adjusting strategies based on real-time evidence. Tools such as FAO's RIMA assess resilience across key domains like assets, access to services and adaptive capacity. Participatory approaches, including community scorecards, foster inclusion and ensure that programmes remain context specific. Adaptive management enhances accountability and learning, enabling timely responses to climate shocks, market changes, or policy shifts. When integrated into robust M&E systems, it ensures continuous improvement and maximises impact, particularly in dynamic environments where rural livelihoods face multiple stressors.

Chapter 2 Conclusion

The Sustainable Livelihoods Framework remains one of the most robust and flexible tools for analysing poverty and resilience in rural areas. Its asset-based, participatory and systems-oriented approach makes it well-suited for understanding complex livelihood dynamics in diverse contexts. Evidence from developing countries across Africa and Asia demonstrates that successful strategies including agricultural intensification, off-farm income, community-based resource management and vocational training can significantly improve livelihoods and reduce poverty. However, their success depends on enabling policies, inclusive institutions and sustained investment in human and social capital. By centering on people's assets, choices and institutions and integrating resilience thinking, the SLF continues to guide development actors toward inclusive, adaptive and sustainable rural futures.

3. CHAPTER 3 RESEARCH AND METHODOLOGICAL CHOICES

The 2025 Rural Livelihoods Assessment adopted a comprehensive analytical approach rooted in the Sustainable Livelihoods Framework (SLF). This framework conceptualises livelihoods as a dynamic interaction between five forms of capital- human, social, natural, physical and financial and how these are shaped by institutional processes, external shocks and household strategies. The approach aims to provide a detailed and nuanced understanding of the status and drivers of rural livelihoods, resilience and vulnerability across Zimbabwe. The assessment employed a rigorous and statistically representative sampling and data collection methodology to generate high-quality evidence for national food and nutrition security planning. The process was designed to ensure broad geographic coverage, comparability across districts and accurate representation of rural household conditions throughout Zimbabwe.

3.1 Methodological Choice

The Zimbabwe Livelihoods Assessment Committee (ZimLAC) consequently ensures that for each research it undertakes, the selection of the research philosophy is based on the relevance of the philosophy to the research questions set out. The intentions of ZimLAC's research shape the methodologies that are employed and consequently influence the results that they obtain. Concomitantly, the findings manifest an epistemological bias by reflecting ZimLAC's persuasions. Thus, the standard employed in identifying the research philosophy focuses on the relevance of the philosophy behind the research. Different methodologies are used for different research, thereby necessitating that current assessment to review available methodologies and select a methodology that was suitable. Given the mandate and objectives of ZimLAC that include both surveys and operational research, it is important to recognize that a context-based methodology is adopted at the time of the research. Thus, ZimLAC concurs with Boland (2014) that the objectives of the researcher generally determine the methods of approach and shape the results that are attained. This assessment recognizes that such results manifest an epistemological bias by consequently reflecting the researcher's intentions. In this regard, the authors take note of the epistemological concerns that lie behind the differences in approach between quantitative and qualitative methodologies. Methodological choices and their epistemological base, if not well understood, can create divisions in research communities. Thus, in choosing between the two methodologies or combining them, the current assessment strove to avoid the risk of developing polarized tendencies.

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to provide a detailed and nuanced understanding of the status and drivers of rural livelihoods, resilience and vulnerability across Zimbabwe. The assessment employed a rigorous and statistically representative sampling and data collection methodology to generate high-quality evidence for national food and nutrition security planning. The process was designed to ensure broad geographic coverage, comparability across districts and accurate representation of rural household conditions throughout Zimbabwe.

3.2 Study Design

Figure 3 shows the study design that was used.

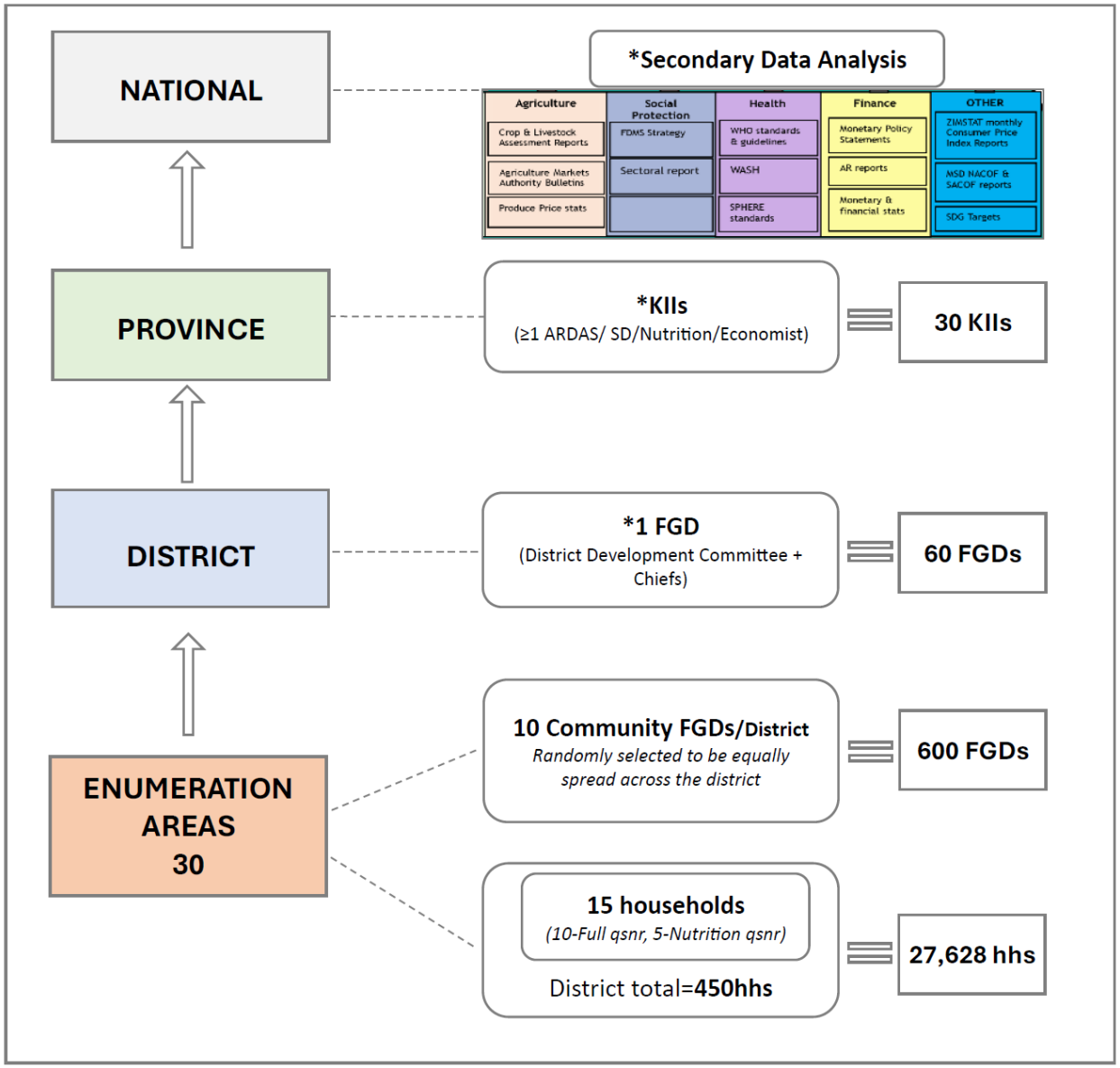

Figure 3: *Current assessment study design framework, 2025*

3.3 Sampling Frame and Design

The sampling strategy was based on the Zimbabwe National Statistics Agency (ZimSTAT)'s master sampling frame. A multi-stage cluster sampling technique was adopted to select a representative sample of households in all rural districts. This approach allowed for probability-based selection at multiple levels, district, ward, enumeration area (EA) and household, thereby minimising selection bias and ensuring that all households had a known, non-zero chance of selection. All 60 rural districts in Zimbabwe were included in the assessment. Within each district, wards were selected using Probability Proportional to Size (PPS), meaning wards with larger populations had a higher chance of being selected. Within each selected ward, enumeration areas (EAs) were also selected using PPS. To ensure broad coverage, a minimum of 30 EAs per district were enumerated.

3.3.1 Sample Size Determination

The formula below was used to calculate the sample size for the assessment:

$n = (D)(z^2 * p *(1-p))/d^2$

Where:

n = Required minimum sample size

D = Design effect (often assumed to be 2, but varies by type of sampling and by indicator)

z = z-score corresponding to the degree of confidence (1.96 if degree of confidence is 95 percent)

p = Estimated proportion of key indicator expressed as a decimal (e.g. 20 percent = .20)

d = Minimum desired precision or maximum tolerable error expressed in decimal form (e.g. +/- 10 percentage points = .10)

Design effect (D): The design effect for simple random sampling is equal to 1 (meaning there is no design effect). The design effect for cluster or two-stage cluster sampling is the factor by which the sample size must be increased to produce survey estimates with the same precision as with a simple random sample. A typical value for cluster and two-stage cluster sampling is 2, resulting in a doubling of the sample size requirement. However, it may be possible to reduce this value by increasing the number of clusters and hence having a lesser number of households in each cluster, or when design effect estimates for the same indicator are available from previous surveys.

Z: Since estimates are based on a sample, rather than total enumeration of the population (as in a census), it is not possible to be 100 % confident that the estimate derived from a sample is a true reflection of the population. The conventional degree of confidence for almost all social research is 95 %, meaning that if you were to perform the assessment 100 times, 95 of the 100 assessments would yield range estimates known as confidence intervals (e.g. 20 percent +/- 5 percentage points) containing the true population proportion. By contrast, 5 of the 100 assessments would

yield confidence intervals that do not contain the true population proportion due to chance. The z-score corresponding with 95 percent confidence is 1.96, which is the standard used in ZimLAC.

p: An estimate (in decimal form) of the primary food and nutrition security indicator of interest allows the sample size to be produced. Where no reasonably accurate estimate can be found, a default value of 50 percent should be used. This default offers a safe, albeit more expensive, alternative, as the value of 50 percent will yield the largest required sample size. Since the Zimbabwe livelihoods assessment report a variety of indicators (not just percentage of food insecure), it is generally recommended to use the default of 50 percent, knowing that certain indicators with a higher or lower prevalence than 50 percent will have tighter confidence intervals (i.e. more precision). When carrying out a nested ZimLAC food security and nutrition assessment with several indicators of interest, the primary indicator of choice for sample size calculation is the one that yields the largest sample size.

d: The primary technical choice in determining sample size for a non-stratified sample is defining a minimum level of precision (or maximum tolerable error). Precision refers to the degree of error (or confidence interval) around the estimate since the estimate is based on a sample.

3.3.2 Selection of enumeration areas

A two-stage stratified probability sampling design is used. In the first stage enumeration areas are selected using Probability Proportional to Size sampling method (PPS). This type of sampling ensures that all households, whether from a small or a big EA, always have an equal probability of being selected. The number of selected EAs in each stratum/district was 30.

3.3.3 Selection of Households

For the current assessment, once the sampling frame had been constructed, the guidance given for simple random sampling or systematic sampling was followed for selecting households for inclusion. The households were selected systematically. A sampling interval was calculated by dividing the total number of households in an EA by the number of households to be interviewed to get the sampling interval. The following procedures were used for selecting households in each sampled EA:

All the households in valid, i.e. occupied, housing units listed in the sample EA were assigned a serial number from 1 to M'_{hi}, the total number of households listed.

To obtain the sampling interval for the selection of households within the sample EA (I_{hi}), M'_{hi} was divided by m_{hi}, 2 decimal places were mantained. A random number (R_{hi}) with 2 decimal places,

between 0.01 and I_{hi} was selected. The sampled households within the sample EA were identified by the following selection numbers:

$$S_{hij} = R_{hi} + \left[I_{hi} \times (j-1)\right], \text{ rounded up,}$$

where j = 1, 2, 3... m_{hi}

The j-th selected household was the one with a serial number equal to S_{hij}.

In each selected EA, 15 households were randomly selected. Enumerators first reviewed EA maps provided by ZimSTAT to ensure a clear understanding of boundaries, including alignment with Zimbabwe's devolved administrative structures. Upon entering the EA, enumerators identified the total number of households, using available village registers where possible.

For example, if an EA had 50 households, the interval would be 3. A random starting number between 1 and 3 was selected using the "hat method," and every 3rd household thereafter was chosen. In cases where a dwelling unit housed more than one household, one household was randomly selected. If a selected household was vacant, it was replaced by the next household on the right, preserving the original selection sequence. Each district had a minimum sample size of 450 households, yielding a robust data set for both national and sub-national analysis. To carter for any reduction in sample size due to data cleaning and non-response, the enumerators were allowed to select one additional household in an EA.

3.3.4 Data collection protocols

A set of standardised protocols guided the administration of modules to ensure consistency and data reliability.

i. Anthropometric measurements were taken for all children aged 6-59 months, 5-9 years and adolescents aged 10-19 years, as well as adults in the first 10 randomly selected households. In an additional five households, only children aged 6-59 months were measured. These measurements were used to assess stunting, wasting and underweight prevalence.
ii. For the dietary diversity module, in households with more than one woman of reproductive age, one woman was randomly selected using the hat method. This ensured unbiased reporting of dietary intake patterns.
iii. The child nutrition questionnaire was administered in five additional households drawn from the extra ten households sampled per EA, targeting information on feeding practices, supplementation and recent illness episodes.

All data collection tools were digitalised and administered using handheld tablets to enhance data accuracy, reduce manual errors and facilitate real-time data submission and monitoring. Data

collection was conducted from 21 May 2025 to 11 June 2025 Enumerators and supervisors underwent intensive training on the tools, ethical considerations, anthropometric techniques and community engagement strategies to ensure the integrity of the data collection process.

3.4 Estimation of Sampling Errors

The estimates from a sample survey are affected by two types of errors: non-sampling errors and sampling errors. Non-sampling errors are when the results of the assessment made in implementing data collection and data processing, such as failure to locate and interview the correct household; understanding of the questions on the part of either the interviewer or the respondent; and data entry errors. Although numerous efforts are made during the implementation of the livelihoods assessment to minimize this type of error, non-sampling errors are impossible to avoid and difficult to evaluate statistically. Sampling errors, on the other hand, can be evaluated statistically.

If the sample of respondents is selected as a simple random sample, it would be possible to use straightforward formulas for calculating sampling errors. However, the assessment sample is the result of a multi-stage stratified design and, consequently, it is necessary to use more complex formulas. Sampling errors are computed in either ISSA or SAS, using programs developed by ICF International. These programs use the Taylor linearization method of variance estimation for survey estimates that are means, proportions, or ratios like the ones in the ZimLAC survey. The Taylor linearization method treats any percentage or average as a ratio estimate, $r = y / x$, where y represents the total sample value for variable y and x represents the total number of cases in the group or subgroup under consideration. The variance of r is computed using the formula given below, with the standard error being the square root of the variance:

$$v(\hat{Y}) = \sum_{h=1}^{L} \left[\frac{n_h}{n_h - 1} \sum_{i=1}^{n_h} \left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h} \right)^2 \right],$$

where:

$$\hat{Y}_{hi} = \sum_{j=1}^{m_h} w_{hij} \, y_{hij}$$

$$\hat{Y}_h = \sum_{i=1}^{n_h} \hat{Y}_{hi}$$

Many of the estimates are in the form of proportions or percentages, which are types of ratios. The variance estimator of a ratio module can be expressed as follows:

$$V(\hat{R}) = \frac{1}{\hat{X}^2}\left[V(\hat{Y}) + \hat{R}^2\, V(\hat{X}) - 2\,\hat{R}\, COV(\hat{X},\hat{Y})\right],$$

where:

$$COV(\hat{X},\hat{Y}) = \sum_{h=1}^{L}\left[\frac{n_h}{n_h - 1}\sum_{i=1}^{n_h}\left(\hat{X}_{hi} - \frac{\hat{X}_h}{n_h}\right)\left(\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h}\right)\right]$$

$V(\hat{Y})$ and $V(\hat{X})$ are calculated according to the formula for the variance of a total.

In addition to the standard error, the design effect (DEFT) for each estimate is also calculated. The design effect is defined as the ratio between the standard error using the given sample design and the standard error that would result if a simple random sample had been used. A DEFT value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error due to the use of a more complex and less statistically efficient design. Relative standard errors and confidence limits for the estimates are also calculated. Sampling errors for the assessment are calculated for selected variables considered to be of primary interest.

3.5 2025 Rural Livelihoods Analytical Framework

The methodology was designed to align closely with the 2025 rural livelihoods assessment's household questionnaire, ensuring the collected data could be directly mapped onto the analytical framework. Data was gathered through household surveys, anthropometric measurements, Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). The analysis was structured around six core dimensions:

3.5.1. Vulnerability context

This dimension focuses on the external environment in which households operate and largely beyond their control but that significantly influences their livelihoods. Vulnerability is shaped by both sudden shocks (e.g., floods, droughts, pandemics) and ongoing stressors (e.g., economic instability, seasonal food shortages). The 2025 rural livelihoods assessment examined how various types of shocks, i.e., climatic, health and economic affect household well-being, food security and adaptive capacity.

3.5.2. Livelihood Assets (Pentagon Analysis)

Livelihood outcomes are heavily influenced by the resources and opportunities available to households. The assessment examined access to five types of livelihood assets and how their availability, or lack thereof, shapes households' capacity to survive, adapt and thrive.

i. *Human Capital:* Assesses education, health and access to basic services, which directly influence the productivity and resilience of household members.
ii. *Social Capital:* Examines the strength of social networks and support systems that help households cope with hardship and recover from shocks.
iii. *Natural Capital:* Measures access to natural resources essential for rural livelihoods, particularly for farming and water needs.
iv. *Physical Capital:* Evaluates the infrastructure and tools that support daily life and production.
v. *Financial Capital:* Explores household income sources, savings and financial inclusion.

Understanding these asset portfolios helps explain disparities in resilience and guides targeted programming, such as input support, microfinance and vocational training.

3.5.3. Transforming Structures and Processes

This dimension investigates the role of governance, institutions and policy frameworks in enabling or constraining, household livelihoods. Access to services and participation in decision-making are critical for long-term development and resilience. This dimension allows for an analysis of how public policy and service delivery impact household opportunities and identify potential gaps.

3.5.4. Livelihood Strategies

This dimension examines the various strategies households employ to secure their livelihoods. Access to services and participation in decision-making are critical for long-term development and resilience. This dimension facilitates the analysis of how public policy and service delivery impact household opportunities and highlights potential system gaps.

3.5.5. Livelihood Outcomes

This dimension evaluates the tangible results of household livelihood activities. These outcomes are essential for assessing well-being and identifying areas that need urgent attention or long-term investment. These outcome indicators enable the monitoring of existing programmes' effectiveness and help direct resources to where they are most needed.

Table 1. Analytical dimensions and indicators

Dimension	Focus Area	Key Indicators
1. Vulnerability Context	Shocks, trends, seasonality	Climate events, price shocks, health crises
2. Livelihood Assets	Human, Social, Natural, Physical, Financial capital	Education, health, land access, infrastructure, credit
3. Transforming Structures & Processes	Institutions, policies, governance	Policy access, institutional support, inclusion
4. Livelihood Strategies	Livelihood portfolios and activities	On-farm/off-farm employment, migration, diversification
5. Livelihood Outcomes	Resilience and well-being	Food security, income, nutrition, inclusion

3.5.6. Integrating Resilience Analysis

In addition to the core components of the SLF, the current assessment incorporated a resilience lens to better understand the capacity of rural households to cope with, adapt to and transform in the face of shocks and long-term stressors. This approach categorises resilience into three interrelated capacities, absorptive, adaptive and transformative, each aligned with SLF principles but focused on a household's ability to manage risk and build long-term sustainability. By embedding this resilience typology within the SLF framework, the analysis transcends static vulnerability assessments to capture the dynamic ways households and communities respond to shocks. It also supports more targeted programming and investments that address immediate needs while fostering long-term development and risk reduction.

3.6 Data Triangulation

As shown in **Figure 4** data used in the study was collected from various sources and at different levels.

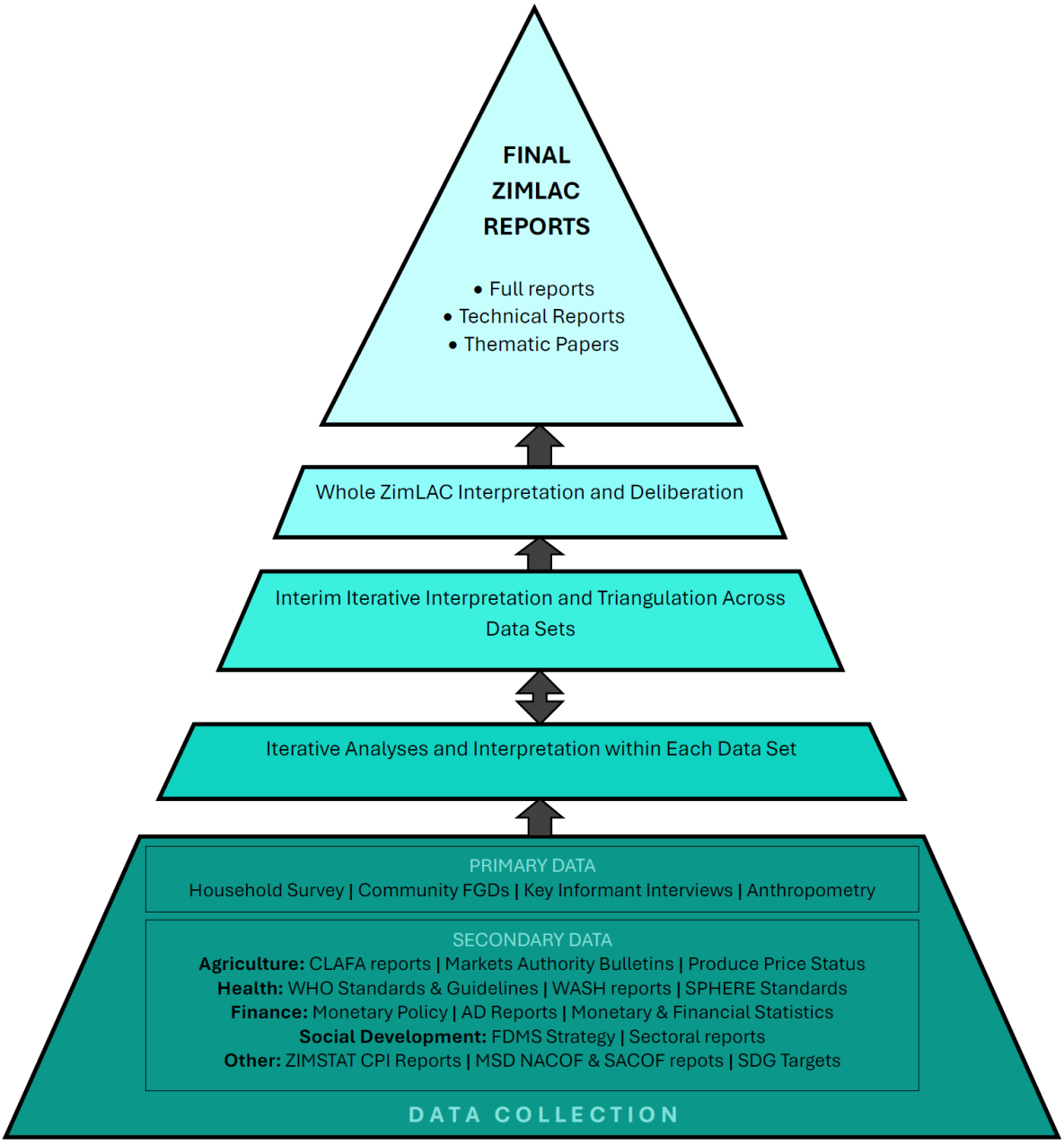

Figure 4: *The ZimLAC Data Triangulation Framework. FNC, 2023*

Section Conclusion

The methodology adopted for the 2025 Rural Livelihoods Assessment provides a robust and integrated foundation for understanding the complex dynamics shaping rural livelihoods in Zimbabwe. Grounded in the Sustainable Livelihoods Framework (SLF), the approach captures not only household access to assets and their livelihood strategies, but also how these are shaped by external shocks, institutional systems and long-term structural conditions. The use of a multi-stage

cluster sampling design based on the ZimSTAT master frame ensures statistical representativeness across all 60 rural districts, while the standardised household selection procedures and sampling protocols guarantee consistency, transparency and inclusivity in data collection.

By incorporating both quantitative and qualitative methods, including household surveys, anthropometric assessments, FGDs and KIIs, the assessment captures a wide spectrum of indicators related to vulnerability, resilience, service delivery, income and nutrition. The integration of resilience analysis, through absorptive, adaptive and transformative capacities, adds a forward-looking lens to the traditional livelihoods approach, enabling a deeper understanding of how households cope with and adapt to shocks over time.

3.7. CONTEXTUAL ANALYSIS

The Rural Livelihoods Assessment was conducted in the context of converging risks and opportunities. The El Niño induced drought, severe food insecurity and climate variability are immediate threats to household resilience. But the government's active policy response, especially with regard to climate-smart agriculture, social protection and macroeconomic stabilisation, reflects a strong commitment to long-term resilience construction. More significantly, the assessment is coherent with the medium and long-term development plans of Zimbabwe, i.e., NDS1 (2021–2025) and the prospective NDS2 (2026–2030). These frameworks place inclusive growth, rural transformation, climate resilience and food and nutrition security at the heart of sustainable development. The findings and insights from this assessment will be important for the articulation of NDS2 implementation priorities, including that of enhancing livelihoods systems in districts that are vulnerable. The 2024 National Budget and Budget Strategy Paper also reinforce this path with specific allocations to agriculture, social safety nets, education and rural infrastructure. Those investments signal a government-wide commitment to poverty reduction and economic empowerment. With sufficient support from development partners, better policy coherence and inclusive implementation, Zimbabwe can tap into its robust institutional systems to work towards food and livelihoods security and improved resilience. These insights from this assessment are critical to help inform recovery initiatives and fast-track progress towards the attainment of Vision 2030 and SDGs.

3.7.1. Climatic Conditions and the 2024–2025 Rainfall Season

The climatic context for this assessment was dominated by the impact of the El Niño phenomenon, which significantly affected the 2023–2024 agricultural season. The 2024-25 production season generally experienced a delayed start. A normal to below normal rainfall pattern was experienced from October to November 2024, influenced by a weak La Niña. However, a transition into a

stronger La Niña phase in the second half of the season resulted in more favourable rainfall, providing optimal conditions for planting and growth of crops. The second half of the season was largely influenced by the impact of Tropical Depression Cyclone Chido, which triggered prolonged and intense wet spells in many parts of the country. According to the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development's Crops, Livestock and Fisheries Assessment Report (CLAFA – 2), there was a 290% increase in food crop production compared to last season. The season also experienced an increased production of sorghum and pearl millet due to improved agroecological tailoring of crops.

3.7.2. Food and Nutrition Security

Food security outcomes had deteriorated markedly due to below-average harvests, high staple food prices and declining purchasing power. Compounding the food availability situation is a rise in malnutrition among children under five. The 2023 Zimbabwe National Nutrition Survey revealed an increase in the prevalence of Global Acute Malnutrition (GAM) in arid and semi-arid regions, particularly in districts with limited access to health services and clean water. School feeding programmes and the supply of therapeutic feeding supplies have also been affected by resource constraints. The government, through the Food and Nutrition Council (FNC), has scaled up implementation of the Multi-Sectoral Food and Nutrition Security Strategy (2023–2025), which integrates emergency food relief, nutrition-sensitive agriculture and targeted nutrition interventions. These efforts are complemented by UN agencies and development partners.

3.7.3. Economic Context

Zimbabwe's economy continues to face structural vulnerabilities, which are magnified by climate shocks. In early 2024, the annual inflation rate increased to 55.3% before moderating to around 40% by mid-2025. The introduction of the Zimbabwe Gold (ZWG) currency in April 2024 was a major monetary policy intervention aimed at stabilising inflation and promoting macroeconomic confidence. Rural households continue to rely heavily on informal markets, undermining formal sector integration and financial inclusion. On a positive note, the government's macroeconomic framework has demonstrated commitment to fiscal consolidation. The Ministry of Finance, Economic Development and Investment Promotion has targeted a budget deficit of below 3% of GDP, supported by enhanced domestic revenue mobilization and reduced quasi-fiscal activities by the central bank. Development spending in agriculture, energy and social protection remains a government priority despite fiscal tightening. The 2024 National Budget, themed "Consolidating Economic Transformation," projected a total expenditure of ZWL$58.2 trillion, representing 19.8% of GDP. According to the Ministry of Finance, Economic Development and Investment Promotion has, the budget prioritised social services, agriculture, infrastructure and social protection. ZWL$1.2 trillion was allocated to the agriculture sector to support productivity, especially under

the Pfumvudza/Intwasa climate-smart farming model, while ZWL$500 billion was allocated to social protection programmes such as the Basic Education Assistance Module (BEAM) and the Harmonised Social Cash Transfer (HSCT). An additional ZWL$2.5 trillion was dedicated to infrastructure development, aligned with NDS1 goals of improving rural livelihoods and market access.

3.7.4. Climate Change Impacts and Environmental Stressors

The 2024-2025 period also coincides with intensifying climate change impacts. Studies by the World Bank and UNDP project[1,2] that Zimbabwe's mean annual temperature will rise by 2°C by 2050 under a high emissions scenario, with increased rainfall variability and frequency of extreme events also expected to increase. Communities in ecological Regions IV and V are particularly vulnerable due to poor soils, low rainfall and limited market access. Land degradation, deforestation and siltation of rivers continue to threaten agricultural productivity and ecosystem services. The Environmental Management Agency (EMA) has reported increased land degradation in communal areas, driven by overgrazing and artisanal mining. To address these issues, the government has launched several climate adaptation programmes, including the National Climate Policy, the National Adaptation Plan (NAP) and implementation of the Climate Smart Agriculture Investment Plan (CSAIP). The government is also expanding renewable energy access and supporting smallholder farmers through training in agroecological practices and conservation agriculture.

3.7.5. Government Measures to Build Resilience and Improve Livelihoods

Despite the current challenges, the Government of Zimbabwe has adopted several proactive strategies to improve livelihoods and food security. Key measures include:

i. Climate-Smart Agriculture (CSA) - The Ministry of Lands, Agriculture, Fisheries, Water and Rural Development has scaled up promotion of Pfumvudza/Intwasa, a conservation farming model aimed at improving yields under low-input conditions. Households received seed, fertilisers and training on soil and water conservation techniques.
ii. Input Support Programmes - The government has continued the Presidential Input Scheme and Accelerated Irrigation Rehabilitation programs, targeting increased productivity on both communal and A1 farms. More than 180,000 hectares have been rehabilitated under smallholder irrigation schemes.

[1] https://dicf.unepgrid.ch/zimbabwe/climate-change
[2] Zimbabwe Economic Update: Improving Resilience to Weather Shocks and Climate Change. https://www.worldbank.org/en/country/zimbabwe/publication/zimbabwe-economic-update-improving-resilience-to-afe-weather-shocks-and-climate-change

iii. Village Business Unit (VBU) programme - The Ministry of Lands, Agriculture, Fisheries, Water and Rural Development is implementing a rural development initiative focused on establishing commercial farming operations within villages to boost income generation, food security and overall livelihoods. The Zimbabwean government plans to establish 35,000 VBUs across the country, demonstrating a commitment to this rural development strategy. The VBU programme is aligned with the country's broader Vision 2030, which aims to uplift rural communities and achieve upper-middle-income status by 2030. The VBUs, comprising of a one-hectare drip-irrigated horticulture project, a solar-powered borehole and other related infrastructure, are designed to be self-sustaining businesses run by local communities.
iv. Social Protection and Safety Nets - The Ministry of Public Service, Labour and Social Welfare has expanded cash-based transfers and the Harmonised Social Cash Transfer (HSCT) programme. In 2024, over 700,000 households benefited from social assistance, particularly in drought-prone districts.
v. Early Warning and Risk Reduction - Through the Department of Civil Protection, the government has improved early warning systems. The launch of the National Early Warning and Response Plan (2024–2026) has enhanced disaster preparedness and response coordination.
vi. Infrastructure Development - As part of the National Development Strategy 1 (NDS1), the government has prioritised rural infrastructure, including road upgrades, electrification of rural schools and clinics and the rollout of digital extension services to improve market access.
vii. Youth and Women Empowerment - The Ministry of Women Affairs, Community, Small and Medium Enterprises Development has rolled out livelihood empowerment programmes for youth and women, including vocational training, business incubation hubs and start-up financing through the Women's Bank and Empower Bank. The government's efforts are reinforced by partnerships with development agencies, NGOs and the private sector.

Furthermore, in building resilience, the Government of Zimbabwe has strategically engaged in various partnerships over the past few years, including:

i. Zimbabwe Idai Recovery Project (ZIRP) - Implemented with support from the World Bank and the UN, this project aims to restore livelihoods, rehabilitate infrastructure and strengthen disaster risk reduction systems in cyclone-affected areas such as Chimanimani and Chipinge.
ii. UNICEF Nutrition Resilience Programme - This programme supports nutrition-sensitive and nutrition-specific interventions in rural districts, linking food security with maternal and child health outcomes, particularly through the Ministry of Health and Child Care.
iii. World Food Programme (WFP) Urban and Rural Resilience Initiatives - WFP collaborates closely with government ministries to implement integrated food security, cash-based

transfers and asset creation programmes in vulnerable communities under the Food Assistance for Assets (FFA) and Lean Season Assistance (LSA) frameworks.

iv. FAO's Technical Cooperation Programme and Hand-in-Hand Initiative - These initiatives enhance climate-smart agriculture, sustainable land management and value chain development through capacity-building and institutional support for the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development.
v. Green Climate Fund (GCF) Readiness Support via UNDP and EMA - This initiative focuses on strengthening institutional capacities for climate finance absorption and integrating climate risk into national and sub-national development planning.
vi. African Development Bank's Post-COVID Recovery and Resilience Support - This programme enhances adaptive social protection, rural entrepreneurship and smallholder irrigation development to improve household incomes and reduce vulnerability to future shocks.
vii. USAID-funded Amalima Loko and Takunda Projects - These multi-year resilience food security activities strengthen community capacities in Matabeleland and Manicaland provinces through gender-transformative livelihoods, disaster preparedness and nutrition programming.

These initiatives, including many others not mentioned, collectively foster systemic resilience by addressing underlying vulnerabilities, improving household food and nutrition security, enhancing early warning and anticipatory action and promoting inclusive economic participation.

Section Conclusion

The Rural Livelihoods Assessment underscores the urgent need for a multifaceted approach to address the intersecting challenges of climate change, food security and economic stability in Zimbabwe. The impact of the El Niño phenomenon has significantly threatened agricultural productivity and household resilience. However, the government's proactive measures—ranging from the promotion of climate-smart agriculture to enhanced social protection initiatives—demonstrate a commitment to building long-term resilience and improving livelihoods. Aligning immediate responses with medium- and long-term development plans, such as NDS1 and the upcoming NDS2, will be crucial for mitigating current crises and laying a foundation for future resilience. Collaboration with development partners is essential for resource mobilization and effective implementation of interventions. Ultimately, this assessment highlights the importance of coordinated efforts to enhance food and nutrition security, promote economic empowerment and strengthen community resilience, enabling Zimbabwe to work towards achieving its Vision 2030 goals and the Sustainable Development Goals for a more secure and prosperous future.

4. CHAPTER 4 RESULTS

4.1. Sampled households

At least 450 households were sampled in each district, culminating in a total of 27,628 households interviewed across all participating districts (**Table 2**). In addition to household surveys, 592 community Focus Group Discussions (FGDs) were conducted nationwide to gather qualitative insights. Anthropometric measurements were also undertaken as part of the survey. These measures contributed to a comprehensive understanding of nutritional outcomes across different age groups within the sampled population.

Table 2. Sampled households

Province	Sampled Households	Extra households sampled for assessment of child nutrition outcomes	Total
Manicaland	2096	1072	3168
Mash Central	2400	1242	3642
Mash East	2699	1472	4171
Mash West	2092	1050	3142
Mat North	2095	1081	3176
Mat South	2074	1241	3315
Midlands	2402	1225	3627
Masvingo	2116	1271	3387
National	**17974**	**9654**	**27628**

4.1.1. Background Characteristics of Sampled Households

Table 3 presents a range of demographic, social and economic characteristics of the sampled households in the ZimLAC 2025 RLA, providing a comprehensive view of Zimbabwe's rural population.

Table 3. Descriptive statistics for background characteristics

Background characteristics	Mean	Standard Deviation
Household head age	46.2525	14.703
Male-headed households	0.644	0.479
Female-headed households	0.356	0.479
None	0.084	0.277
Primary level	0.340	0.474
ZJC level	0.169	0.375
O' level	0.370	0.483
A' level and above	0.0384	0.187
Married living together	0.602	0.489

Married living apart	0.101	0.301
Divorced/separated	0.074	0.262
Widow/widower	0.197	0.398
Cohabiting	0.003	0.056
Never married	0.023	0.150
Roman Catholic	0.070	0.255
Protestant	0.076	0.266
Pentecostal	0.115	0.320
Apostolic Sect	0.373	0.484
Zion	0.108	0.310
Other Christian	0.063	0.243
Islam	0.004	0.061
Traditional	0.023	0.151
Other religion	0.013	0.115
No religion	0.154	0.361
Household size	3.888	1.711
Household head disability	0.022	0.149
Household head chronic condition	0.048	0.213
Asset index	6.363	3.389
Manicaland	0.117	0.321
Mash Central	0.134	0.340
Mash East	0.150	0.357
Mash West	0.116	0.321
Mat North	0.117	0.321
Mat South	0.115	0.319
Midlands	0.134	0.340
Masvingo	0.118	0.322

Demographic profile

The average age of the household head was 46.25 years (SD = 14.70), reflecting mature household leadership across rural communities. The age distribution suggests a population with significant experience in managing household livelihoods, although the wide standard deviation indicates a mix of both younger and older heads. In terms of gender, 64% of households were male-headed, while 36% were headed by females. This gender distribution points to a predominant male household leadership structure in rural Zimbabwe but also highlights the notable presence of female-headed households, who may face additional vulnerabilities due to gendered access to resources and support systems.

Geographical representation

The sample was geographically distributed across the country's eight rural provinces in near-equal proportions, ensuring national representativeness. Mashonaland East accounted for the largest share of sampled households at 15%, followed by Midlands and Mashonaland Central (both 13%).

The other provinces, Manicaland, Mashonaland West, Matabeleland North, Matabeleland South and Masvingo, each accounted for about 12% of the sample.

Education attainment

Education levels varied, with the highest proportion of household heads (37%) having attained Ordinary Level education, followed by 34% with primary-level education and 17% had attained ZJC. Only 4% of household heads had attained to A' Level or obtained any form of tertiary qualification, such as a diploma, certificate, or graduate/post-graduate education. A significant proportion (8%) had no formal education at all.

Marital Status

A majority (60%) of household heads were married and living with their spouses. However, 10% were married but living apart and another 20% were widowed. Divorced or separated individuals accounted for 7% and only 2% had never married. These figures reflect the traditional and predominantly marital household structures common in rural Zimbabwe while also indicating a substantial proportion of households, particularly those led by widowed or separated individuals.

Religious affiliation

The results in **Table 3** reveal that religious affiliation in the surveyed rural communities is diverse. The Apostolic Sect emerged as the largest religious grouping, with 37% of household heads belonging to it. Pentecostal (12%), Zionist (11%), Protestant (8%) and Roman Catholic (7%) churches were also popular. However, 15% of respondents reported having no religion and smaller percentages identified with traditional beliefs or other Christian and non-Christian denominations. Religious beliefs may influence household decisions around health, education and social support and are relevant in shaping community engagement strategies.

Household structure and health

Table 3 also indicates that the average household size was 3.89 persons (SD = 1.71), suggesting relatively small rural family units, which may affect labour availability for agricultural and income-generating activities. Approximately 2% of households reported having a head with a disability and 5% of households heads had a chronic condition. These statistics signal the importance of inclusive programming that considers the needs of households with health vulnerabilities.

Wealth status

Using an asset index as a proxy for household wealth, the average score was 6.36 (SD = 3.39). While the index itself is context-specific, the relatively high standard deviation indicates marked disparities in wealth among rural households. Asset ownership remains a crucial determinant of livelihood resilience and access to coping strategies during shocks.

4.1.2. Section Discussion

The background characteristics of the sampled households reveal a largely mature population with moderately sized households and predominantly headed by males. While most individuals have attained basic education, the proportion with higher education remains low. The prevalence of female-headed households (36%) and widowed or separated individuals (27%) further points to the need for targeted support for potentially vulnerable groups. Religious affiliation, particularly the dominance of the Apostolic Sect, may influence the uptake of health and nutrition-related interventions, given known associations with vaccine hesitancy and restricted access to formal health services in certain sects. Similarly, the presence of chronic conditions and disabilities in a significant number of households calls for integrated health and social protection measures. Disparities in the asset index suggest that while some households possess a reasonable level of resilience, others are highly vulnerable and may require sustained support to build their livelihoods. The near-equal provincial distribution of the sample enhances confidence in the national representativeness of these findings.

Overall, these background indicators are essential for interpreting the assessment results presented in the following sections of this report. The characteristics in this section, provide a socio-economic and demographic lens through which food security, resilience and vulnerability must be understood. Tailoring interventions to address the varied realities reflected in this data will be critical for ensuring equitable and effective programming.

4.2 Descriptive Statistics

This section presents descriptive statistics on key components of rural livelihoods. The results cover sources of income, access to capital, exposure to shocks and selected livelihood and well-being outcomes. These indicators provide an overview of rural households' vulnerability and resilience, helping to inform programming and policy responses.

Table 4. Descriptive statistics for income sources

Income sources	Mean	Standard Deviation
Food crop production/sales	0.239	0.426
Vegetable production/sales	0.183	0.387
Cash crop production/sales	0.097	0.296
Livestock production/sales	0.089	0.285
Casual labour	0.448	0.497
Salary/wages	0.120	0.325
Remittances from within	0.190	0.393
Remittances from outside	0.109	0.312
Vending/petty trade	0.079	0.270

Small-scale mining	0.095	0.293
Deals	0.050	0.218

4.2.1 Sources of livelihoods

The results presented in **Table 4** indicate that households in rural Zimbabwe engage in various income-generating activities, with casual labour being the most prevalent source, reported by 44.8% of households (SD = 0.497). This heavy reliance on casual work suggests a fragile economic foundation. Food crop production and sales contributed to the livelihoods of 23.9.6% of households, followed by remittances from within Zimbabwe (19.0%) and vegetable production and sales (13.0%). Salary and wages were reported by 12.0% of households, while small-scale mining (9.5%) and cash crop production (9.7%) had slightly lower representation. Sales from livestock contributed to 8.9% of household income, indicating that while culturally and economically significant, livestock may not serve as a primary source of cash income for most households. Other income sources included remittances from outside the country (10.9%), vending/petty trade (7.9%) and informal "deals" (5.0%).

Before controlling confounding factors, these findings suggest that rural livelihoods remain largely informal, diverse and vulnerable to external shocks such as market volatility, weather variations and price fluctuations. The findings also indicate a continued reliance low-return livelihood sources in rural Zimbabwe. The dominance of casual labour underscores limited formal job creation. Moreover, although agriculture remains important, its low contribution to cash income may reflect climate-related yield losses and restricted market access. Weak livelihood diversification points to the need for interventions that build income resilience and enhance access to viable economic opportunities.

4.2.2 Access to Capital

Access to capital and support mechanisms varied widely across households (**Table 5**). The most frequently reported source was support from village health workers (82.2%), highlighting the strong presence of community health structures. Government support was also significant, reported by 64.6% of households, followed by access to early warning information (52.6%). Support from relatives, both in rural (23.0%) and urban (15.1%) areas, played a modest role. UN and NGO support reached 16.2% of households, while only 7.9% reported receiving diaspora support. Participation in Internal Savings and Lending groups (ISALs) was reported by 13.3% of households and only 8.9% had accessed formal loans.

Table 5. Descriptive statistics for Access to Capital

Access to Capital	Mean	Standard Deviation
Government support	0.646	0.478
UN/NGO support	0.162	0.368
Relatives rural support	0.230	0.421
Relatives urban support	0.151	0.359
Diaspora support	0.079	0.269
ISALs access	0.133	0.339
Loans access	0.089	0.285
Access to village health worker	0.822	0.382
Early warning info access	0.526	0.499

The results described above and presented in **Table 5** reveal a generally low level of access to financial services and social capital, with informal and community-based support structures playing a more prominent role than formal financial systems. While government programmes appear to have good reach, especially in the wake of recent shocks, the low uptake of ISALs and credit schemes reflects barriers such as limited group coverage and mistrust in financial institutions. Strengthening financial inclusion, promoting savings groups and facilitating access to credit could significantly enhance livelihood resilience.

The map shown in **Figure 5** reveals that social protection coverage across Zimbabwe varies significantly by district, reflecting differing levels of access to support services such as food assistance, cash transfers and livelihood interventions. Generally, most districts across the country recorded moderate to high coverage, with a substantial number of them falling within the 60 to 100 percent range. This suggests that a large proportion of rural households have received at least one form of support, likely in response to persistent economic challenges, drought and food insecurity.

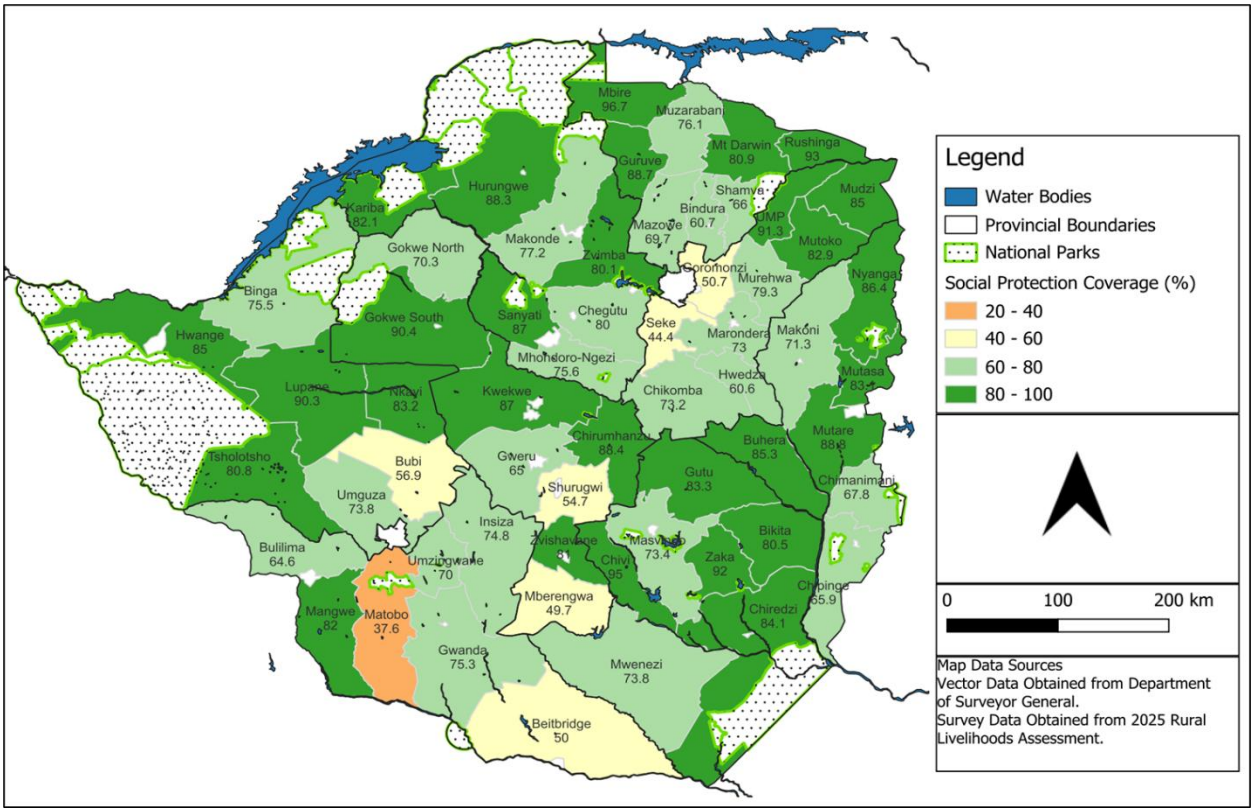

Figure 5. National overview of social protection coverage

Notably, several districts stand out with very high social protection coverage, above 90%. These include Mbire (96.7%), Chivi (95%), Rushinga (93%), Zaka (92%), UMP (91.3%), Gokwe South (90.4%) and Lupane (90.3%). These high figures reflect strong outreach from government and development partners, high vulnerability levels in those areas and the effectiveness of multi-sectoral coordination mechanisms. Other districts such as Buhera (85.3%), Hwange (85%), Chiredzi (84.1%), Kariba (82.1%) and Mangwe (82%) also recorded high coverage, showing relatively equitable access in many rural communities. Overall, the results indicate that Zimbabwe has made commendable strides in expanding social protection services across districts.

4.2.3 Shocks

Households reported exposure to multiple shocks, as presented in

Table 6. The most prevalent shocks were dry spells, experienced by 62.9% of households (SD = 0.483), followed by cash shortages reported by 57.4%. Crop pests affected 34.6% and sharp increases in cereal price were reported by 32.9%. Other shocks included livestock deaths (22.3%), livestock diseases (16.8%) and drop in livestock prices (9.9%). Chronic illness within the household was reported by 10.3% and human-wildlife conflict by 11.6%. Waterlogging affected 15.3%, with 8.9% of households reporting higher transaction costs when using mobile money or swipe facilities.

Table 6. Descriptive statistics for shocks and stressors

Shocks	Mean	Standard deviation
Chronic illness	0.103	0.304
Cash shortage	0.574	0.495
Cereal price-sharp increase	0.329	0.470
Livestock price changes-sharp drop	0.099	0.299
Livestock disease	0.168	0.373
Livestock deaths	0.223	0.416
Dry spells	0.629	0.483
Human wildlife conflict	0.116	0.320
Crop pests	0.346	0.476
Waterlogging	0.153	0.360
Being charged more for using mobile money or swipe	0.089	0.285

The prevalence of drought-related shocks underscores the ongoing vulnerability of rain-fed agriculture and the need for broader adoption of climate-smart agricultural practices. The occurrence of market-related shocks, such as cash shortages and food price inflation, reflects macroeconomic instability and reduced household purchasing power. Health-related and environmental stressors further exacerbate vulnerability. Therefore, strengthening early warning systems, improving market access and investing in health services and climate-resilient infrastructure are critical for mitigating the effects of these shocks.

Figure 6 shows a comparative analysis of the average number of shocks and stressors experienced by households in Zimbabwe over three consecutive years: 2023, 2024 and 2025. A clear upward trend is observed, indicating that households have been exposed to an increasing number of shocks over time. In 2023, the average number of shocks per household was just above 2.0, suggesting relatively moderate exposure. This figure increased in 2024 but then decreased slightly in 2025. The year 2024 marks the highest levels of reported shocks in the three-year period. This trend suggests a deteriorating livelihood environment, likely driven by intensifying climate-related events such as prolonged dry spells, erratic rainfall and pest outbreaks. The data underscores the need for multi-year, layered and shock-responsive programming that not only addresses immediate needs but also strengthens household and community-level resilience. Interventions must move beyond relief to long-term strategies that reduce risk exposure and enhance adaptive capacity in the face of worsening external stressors.

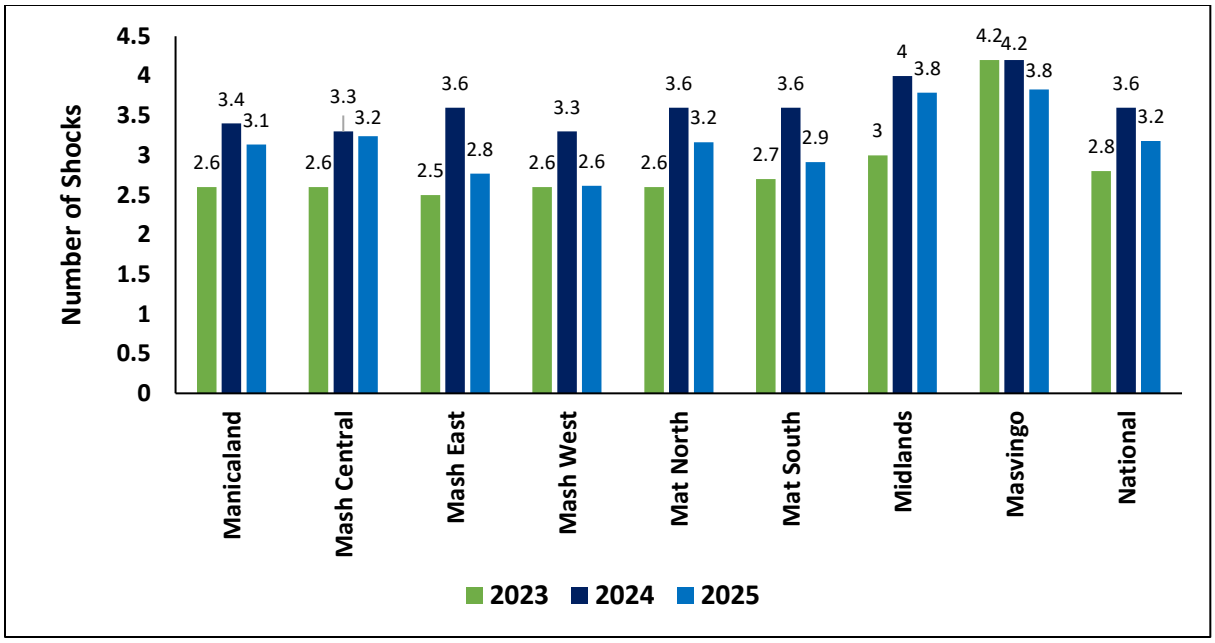

Figure 6. Number of shocks and stressors experienced by households

4.2.4 Livelihood outcomes

The results presented in **Table 7** show that the average monthly household income was USD 136.21 (SD = 157.35), reflecting a wide range (USD 0–750) and highlighting significant income disparities. The Household Dietary Diversity Score (HDDS) averaged 5.44 (SD = 2.05), suggesting moderate dietary variety. The Food Consumption Score (FCS) had a mean of 41.57 (SD = 16.48), which, while above the critical threshold of 35, indicates that many households may have borderline or poor consumption levels. The Household Hunger Scale (HHS) averaged 0.561 (SD = 1.053), with some households reporting high levels of hunger (maximum score = 6).

Table 7. Descriptive statistics for outcomes

Outcomes	Mean	Standard deviation	Minimum	Maximum
Monthly Income USD	136.205	157.35	0	750
HDDS	5.438	2.050	0	12
FCS	41.567	16.477	0	112
HHS	0.561	1.053	0	6

Cereal Insecurity Trend Analysis: 2020–2025

Figure 7 shows a highly volatile trend in the proportion of cereal-insecure rural households in Zimbabwe over the five-year period. This fluctuation reflects the persistent vulnerability of rural livelihoods to climate variability. In 2020, cereal insecurity affected 56% of rural households, marking a crisis period driven by prolonged drought, poor harvests and economic challenges. However, a sharp decline to 27% in 2021 indicates a year of relative recovery, mainly due to

improved rainfall, better harvests and expanded social assistance coverage. The trend reversed in 2022, rising to 38%, suggesting renewed pressures on cereal availability, mainly linked to dry spells. The following year, 2023, again showed an improvement, dropping to 26%, indicating some resilience and favourable conditions that temporarily eased household access to staple cereals. However, 2024 recorded a sharp spike, with 57% of households reporting cereal insecurity, the highest in the five-year period. This increase points to severe shocks, such as drought. It is encouraging that 2025 marked a major recovery, with cereal insecurity decreasing to 15%, the lowest recorded over the review period. This suggests a combination of favourable weather, increased production and improved targeted resilience or food assistance interventions.

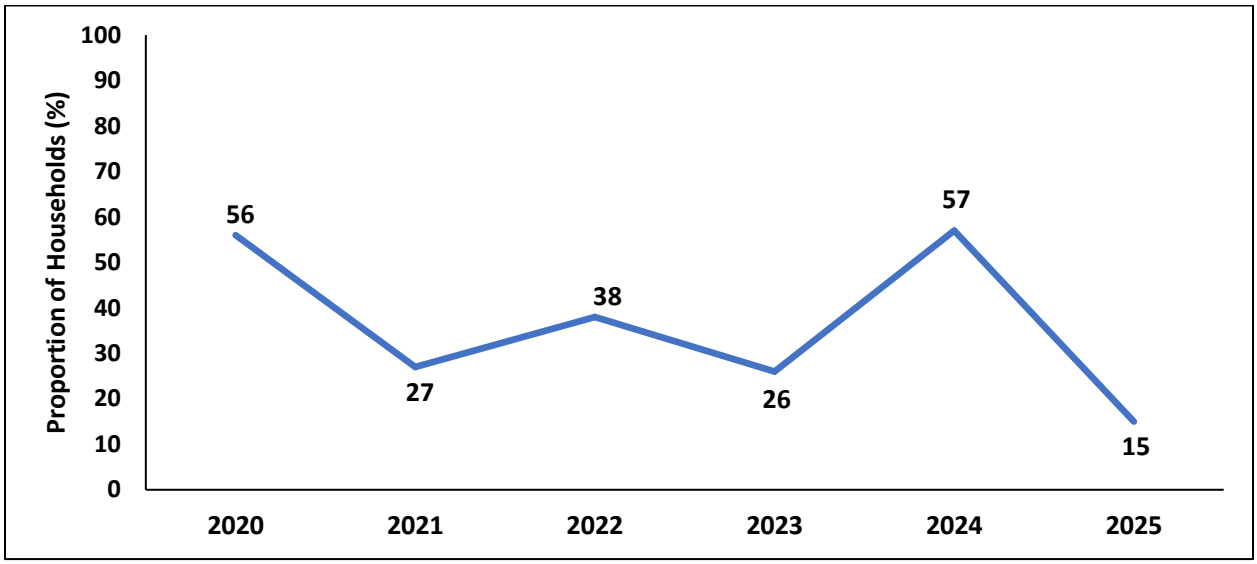

Figure 7. Cereal insecurity trends 2020 - 2025

4.2.5 Section Discussion

The findings presented in this section regarding rural livelihoods align closely with recent empirical literature on food security, climate vulnerability and development in Zimbabwe. The moderate household dietary diversity score (HDDS = 5.4) is consistent with findings from Kairiza et al. (2025), who found that targeted nutrition education, especially through village health workers, significantly improves dietary diversity in rural settings, particularly in female-headed households. The result that 62.9% of households reported dry spells as a shock also mirrors findings by Mango et al. (2025), who demonstrated that climatic shocks in Eastern Zimbabwe have severely undermined agricultural yields and triggered livelihood disruptions, emphasising the urgent need for water harvesting, drought-tolerant crops and diversification.

The widespread reliance on casual labour (44.8%) and low access to formal financial services (8.9%) reported in this section corroborate findings by Ndlovu and Mpofu (2024), who highlight

structural barriers to rural livelihood diversification, including limited access to credit and weak infrastructure.

According to the Second Round Crop, Livestock and Fisheries Assessment (CLAFA-2) Assessment conducted between March 28 and April 7, 2025, Zimbabwe recorded a bumper harvest during the 2024/25 agricultural season due to a combination of favourable climatic and agronomic conditions. A key driver was the relatively high rainfall received across most parts of the country from December 2024 through early March 2025. This followed an initial dry spell and helped rejuvenate crops during critical growth stages, particularly in traditionally dry provinces such as Masvingo and Matabeleland. Additionally, there was a significant increase in the area planted to maize and traditional grains, reflecting both farmer confidence and the effective mobilisation of inputs. This expansion contributed to the overall production volumes. The 2024/25 season also benefited from a strong recovery from the drought experienced in the previous year (2023/24), which was induced by El Niño conditions. In summary, the bumper harvest was driven by improved rainfall patterns, expanded planting area, strong crop recovery from the previous season's drought and timely distribution of agricultural inputs. The Government of Zimbabwe is commended for these remarkable efforts in improving agricultural production.

In conclusion, the cereal insecurity trend from 2020 to 2025 highlights the fragile and shock-sensitive nature of rural food systems in Zimbabwe. While there were years of improvement, these gains are frequently reversed due to climatic and systemic shocks. The significant decline in 2025 is a positive development but sustaining it will require consistent investment in climate-smart agriculture, early warning and response systems, improved input access and strong rural safety nets. Strategic planning and programming must move beyond reactive responses and focus on building long-term resilience to break the cycle of food insecurity among Zimbabwe's rural population.

4.3 Inferential (Regression) Analysis for Livelihoods Outcomes

The inferential analysis presented in this section explores the associations between household characteristics and key livelihood outcomes, namely dietary diversity, hunger, food consumption, access to water and sanitation, clean fuel and income. The results provide insight into the underlying structural determinants of vulnerability and resilience in rural Zimbabwe.

4.3.1 Inferential analysis for consumption patterns

Consumption Patterns (HDDS, HHS, FCS)

The findings in **Table 8** reveal significant relationships between household characteristics and consumption indicators. Higher education levels consistently predicted better outcomes. For

example, having a graduate/post-graduate educational qualification was associated with significantly higher Household Dietary Diversity Scores (HDDS: coef = 1.110, $p < 0.01$), lower Household Hunger Scores (HHS: coef = -0.293, $p < 0.01$) and higher Food Consumption Scores (FCS: coef = 11.893, $p < 0.01$). Female-headed households had lower HDDS (coef = -0.107, $p < 0.05$) and FCS (coef = -1.083, $p < 0.01$), suggesting potential gender-linked disparities in food access and dietary quality.

Table 8. Inferential analysis for consumption patterns

Variables	Household Dietary Diversity Score		Household Hunger Score		Food Consumption Score	
	Coef	Se	Coef	Se	Coef	Se
Household head						
Household head age	-0.002	(0.001)**	0.001	(0.001)	-0.001	(0.009)
Female-headed household	-0.107	(0.046)**	-0.003	(0.025)	-1.083	(0.388)***
Education						
Primary level	0.143	(0.054)***	-0.111	(0.034)***	1.467	(0.429)***
ZJC level	0.269	(0.062)***	-0.134	(0.038)***	2.512	(0.485)***
O' level	0.447	(0.059)***	-0.233	(0.036)***	4.336	(0.466)***
A' level	0.641	(0.141)***	-0.311	(0.072)***	7.603	(1.218)***
Diploma/Certificate after primary	0.805	(0.161)***	-0.376	(0.070)***	9.676	(1.780)***
Diploma/Certificate after secondary	0.903	(0.175)***	-0.451	(0.053)***	10.550	(1.487)***
Graduate/Post-Graduate	1.110	(0.195)***	-0.293	(0.078)***	11.893	(1.975)***
Marital Status						
Married living apart	0.034	(0.052)	-0.019	(0.028)	0.098	(0.438)
Divorced/separated	0.018	(0.064)	0.078	(0.038)**	0.828	(0.530)
Widow/widower	0.119	(0.057)**	0.029	(0.031)	0.266	(0.471)
Cohabiting	-0.114	(0.247)	0.080	(0.118)	-1.150	(1.979)
Never married	0.368	(0.101)***	-0.030	(0.055)	3.816	(0.875)***
Religion						
Protestant	0.004	(0.076)	0.034	(0.038)	-0.313	(0.657)
Pentecostal	-0.053	(0.071)	-0.011	(0.035)	-0.672	(0.600)
Apostolic Sect	-0.315	(0.063)***	0.064	(0.032)**	-2.840	(0.532)***
Zion	-0.256	(0.072)***	0.062	(0.037)*	-2.893	(0.602)***
Other Christian	0.001	(0.082)	0.020	(0.042)	-0.855	(0.692)
Islam	-0.179	(0.261)	0.003	(0.147)	-0.545	(2.180)
Traditional	-0.366	(0.118)***	0.092	(0.061)	-3.446	(0.882)***
Other religion	-0.135	(0.131)	-0.027	(0.063)	-1.100	(1.139)
No religion	-0.176	(0.068)**	0.066	(0.035)*	-1.829	(0.580)***
Household characteristics						
Household size	-0.028	(0.009)***	0.037	(0.005)***	-0.360	(0.073)***
Household head disability	-0.014	(0.058)	0.051	(0.032)	0.429	(0.470)
Household head chronic condition	0.063	(0.039)	-0.016	(0.022)	-0.184	(0.331)
Asset index	0.158	(0.005)***	-0.061	(0.002)***	1.335	(0.040)***
Province						
Mashonaland Central	-0.905	(0.055)***	0.121	(0.029)***	-0.494	(0.445)
Mashonaland East	-0.007	(0.056)	-0.061	(0.026)**	2.996	(0.440)***
Mashonaland West	-1.185	(0.060)***	0.203	(0.034)***	-2.829	(0.440)***

Matabeleland North	-1.651	(0.058)***	0.034	(0.030)	-4.390	(0.473)***
Matabeleland South	-1.370	(0.058)***	0.107	(0.032)***	-4.801	(0.483)***
Midlands	-1.498	(0.058)***	0.024	(0.030)	-3.798	(0.435)***
Masvingo	-0.641	(0.058)***	0.147	(0.031)***	1.079	(0.462)**
Constant	5.432	(0.115)***	0.825	(0.063)***	35.052	(0.930)***
Observations	17,805		17,895		17,813	
R-squared	0.179		0.059		0.137	

The results further indicate that religious affiliation also influenced consumption. Members of the Apostolic Sect, Zion and Traditional religions had significantly lower HDDS and FCS scores, along with slightly higher hunger scores, which may reflect cultural restrictions or limited participation in public health interventions. Household size negatively influenced HDDS and FCS but was positively associated with HHS, indicating that larger households may face greater food access challenges. Moreover, the asset index was a strong positive predictor of better consumption outcomes across all models. Households in Matabeleland North and South, Mashonaland West and Midlands had significantly lower HDDS and FCS scores and higher hunger levels compared to the reference province (Manicaland).

4.3.2 Inferential analysis for clean energy

The uptake of clean cooking fuel was very low and significantly influenced by education and socio-demographics (**Table 9**). Higher education levels, particularly post-secondary and graduate degrees were positively associated with clean fuel use (e.g., graduate/post-graduate coef = 0.225, $p < 0.01$). Cohabiting individuals and those living in Mash East or Masvingo provinces also had slightly higher probabilities. However, belonging to Apostolic, Zion, or Traditional religious groups was negatively associated with clean energy use and larger household sizes and disability among household heads were also associated with reduced access. Notably, the asset index was negatively associated (coef = -0.003, $p < 0.01$) with use of clean energy, possibly reflecting complexities in measuring wealth and clean energy adoption, where even asset-rich households may lack access to clean fuels due to market or infrastructure gaps.

Table 9. Inferential analysis for clean energy

Variables	Clean Fuel	
	coef	se
Household head		
Household head age	-0.000	(0.000)***
Female-headed household	-0.003	(0.005)
Education		
Primary level	0.001	(0.004)
ZJC level	0.009	(0.005)*
O' level	0.041	(0.005)***
A' level	0.138	(0.024)***

Diploma/Certificate after primary	0.061	(0.027)**
Diploma/Certificate after secondary	0.165	(0.030)***
Graduate/Post-Graduate	0.225	(0.043)***
Marital Status		
Married living apart	-0.002	(0.006)
Divorced/separated	0.000	(0.008)
Widow/widower	-0.009	(0.006)
Cohabiting	0.165	(0.057)***
Never married	0.022	(0.014)
Religion		
Protestant	0.008	(0.009)
Pentecostal	0.010	(0.008)
Apostolic Sect	-0.022	(0.007)***
Zion	-0.018	(0.008)**
Other Christian	0.025	(0.010)**
Islam	0.024	(0.033)
Traditional	-0.041	(0.009)***
Household characteristics		
Household size	-0.007	(0.001)***
Household head disability	-0.011	(0.005)**
Household head chronic condition	0.006	(0.004)
Asset index	-0.003	(0.001)***
Province		
Mashonaland Central	0.004	(0.006)
Mashonaland East	0.036	(0.007)***
Mashonaland West	0.020	(0.007)***
Matabeleland North	0.009	(0.006)
Matabeleland South	-0.000	(0.006)
Midlands	-0.011	(0.006)**
Masvingo	0.020	(0.006)***
Constant	0.091	(0.012)***
Observations	17,895	
R-squared	0.048	

4.3.3 Inferential analysis for income

The results presented in **Table 10** indicate that monthly income was significantly associated with most household variables. Female-headed households earned substantially less (coef = -0.267, $p < 0.01$) and age of household head was negatively associated with income (coef = -0.007, $p < 0.01$), possibly reflecting reduced productivity among older heads. Educational attainment strongly predicted higher income, for example, graduates earned over USD 1.11 more per capita per month compared to those with no education (coef = 1.116, $p < 0.01$). Household size (coef = 0.022), presence of chronic illness (coef = 0.097) and asset index (coef = 0.167) were all positively associated with income, while disability among household heads was negatively associated (coef = -0.293, $p < 0.01$). Provincial variation was evident as compared to the reference province

(Manicaland), residents in Matabeleland South, Midlands and Masvingo had significantly lower incomes, whereas Mashonaland West showed modestly higher earnings.

Table 10. Inferential analysis for income

Background Characteristics	Monthly Income USD	
	coef	se
Household head		
Household head age	-0.007	(0.001)***
Female-headed household	-0.267	(0.037)***
Education		
Primary level	0.031	(0.043)
ZJC level	0.122	(0.049)**
O' level	0.329	(0.046)***
A' level	0.598	(0.104)***
Diploma/Certificate after primary	0.869	(0.147)***
Diploma/Certificate after secondary	0.898	(0.124)***
Graduate/Post-Graduate	1.116	(0.161)***
Marital Status		
Married living apart	0.207	(0.042)***
Divorced/separated	0.080	(0.052)
Widow/widower	0.146	(0.046)***
Cohabiting	0.424	(0.151)***
Never married	0.257	(0.080)***
Religion		
Protestant	0.093	(0.058)
Pentecostal	0.089	(0.055)
Apostolic Sect	-0.083	(0.048)*
Zion	-0.087	(0.056)
Other Christian	0.005	(0.065)
Islam	-0.200	(0.216)
Traditional	-0.281	(0.095)***
Other religion	-0.064	(0.118)
No religion	0.063	(0.053)
Household characteristics		
Household size	0.022	(0.007)***
Household head disability	-0.293	(0.047)***
Household head chronic condition	0.097	(0.032)***
Asset index	0.167	(0.004)***
Province		
Mashonaland Central	0.042	(0.043)
Mashonaland East	-0.194	(0.042)***
Mashonaland West	0.117	(0.047)**
Matabeleland North	-0.080	(0.042)*
Matabeleland South	-0.431	(0.049)***
Midlands	-0.222	(0.041)***

Masvingo	-0.098	(0.042)**
Constant	3.495	(0.088)***
Observations	17,895	
R-squared	0.172	

4.3.4 Section Discussion

These inferential results confirm and deepen the descriptive findings. Structural factors such as education, gender, religion and assets play a critical role in shaping livelihoods and well-being in rural Zimbabwe. Education emerges as the most consistent and powerful predictor of positive outcomes across all models, enhancing dietary diversity, food security, income and even clean energy use. For instance, higher education, especially post-secondary and tertiary, significantly increased the HDDS, improved the FCS, reduced the HHS and enhanced access to clean cooking fuel. This aligns with empirical evidence from Makate and Nyamuranga (2023), who found that increased schooling significantly improves dietary diversity among rural Zimbabwean women. The positive correlation between education and dietary quality also reflects broader global trends linking education to healthier consumption patterns (Islam & Sim, 2021).

Female-headed households, which comprised 36% of the sample, , reported lower HDDS and FCS, higher HHS, reduced use of clean energy and lower income. This supports findings from other countries which revealed that female-headed households are more food and nutrition insecure and utilise consumption-based rather than resilience-oriented coping strategies (Nkwana & and Mazenda; Kairiza & Kembo, 2019; Fuller & and Lain, 2020; Islam & Sim, 2021; Haque *et al.*, 2024). Households with heads belonging to Apostolic, Zionist, or Traditional religious groups exhibited significantly lower dietary diversity, consumption scores and access to clean energy. This finding corroborates other studies on how religious and cultural norms influence health and nutrition behaviour (Opara *et al.*, 2024; Swihart *et al.*, 2025), with Apostolic sects often displaying lower uptake of child health interventions.

The asset index was consistently a strong positive predictor across all outcome models, including HDDS, FCS, HHS, clean energy usage and income, reinforcing the notion that wealth is a critical buffer against shocks and a facilitator of improved livelihoods. Additionally, education and assets stood out in the clean fuel model, underscoring the importance of financial capacity and knowledge for households to adopt improved energy sources. This is consistent with findings from other scientific studies, including those by Haque *et al.* (2024) and Murendo *et al.* (2023), which demonstrated that nutrition education and farm diversification increase household diversity by approximately 9%, actions correlated with higher asset accumulation and behavior change among educated households. Regional disparities were also pronounced. Provinces like Matabeleland North. Matabeleland South, Mashonaland West and Midlands showed lower scores across food, sanitation and income metrics.

In summary, the inferential analysis confirms multidimensional inequality rooted in education, gender, religion, wealth and geographical location. This robust evidence supports recommendations for integrated, equity-sensitive programming, which may include investing in rural education, especially for women; promoting asset-building and financial inclusion; targeting gender-specific support to female-headed and poorer households; engaging with religious communities to improve healthy behaviour uptake; and tailoring provincial interventions to address persistent local disparities.

4.4 Inferential (Regression) Analysis for Livelihoods Sources

The inferential analysis from Tables 8–10 presents multivariate regression outputs for different livelihood strategies among rural households in Zimbabwe, analysing the predictors of engagement in agricultural, transfer-related, labour-based, small-scale economic and informal "deals" livelihoods.

4.4.1 Inferential analysis for agriculture-related livelihoods

The results presented in **Table 11** show that the likelihood of rural households engaging in agriculture-related livelihoods, namely food crop production, vegetable production, cash cropping and livestock rearing, varied significantly by demographic, socio-economic and geographic factors. Age of the household head was positively associated with all agricultural activities except cash cropping. Specifically, a one-year increase in age was associated with a 0.1 percentage point increase in the likelihood of food crop production (coef = 0.001, $p < 0.001$) and vegetable production (coef = 0.000, $p < 0.05$). Furthermore, age was also positively associated with livestock production (coef = 0.001, $p < 0.001$). Female-headed households were significantly more likely to engage in food crop production (coef = 0.043, $p < 0.001$), vegetable sales (coef = 0.042, $p < 0.001$) and cash cropping (coef = 0.014, $p < 0.01$), although they did not differ significantly from male-headed households in livestock rearing (coef = 0.005, *ns*).

Table 11. Inferential analysis for agriculture-related livelihoods

Variables	Food Crop Production/Sales		Vegetables Production/Resale		Cash Crop Production		Livestock Production/Sales	
	coef	*se*	*coef*	*se*	*coef*	*se*	*coef*	*se*
Household head								
Household head age	0.001	(0.000)***	0.000	(0.000)*	-0.000	(0.000)**	0.001	(0.000)***
Female-headed household	0.043	(0.010)***	0.042	(0.009)***	0.014	(0.007)**	0.005	(0.006)
Education								
Primary level	0.043	(0.012)***	0.033	(0.011)***	-0.006	(0.008)	0.004	(0.008)
ZJC level	0.035	(0.013)***	0.026	(0.012)**	-0.006	(0.009)	-0.012	(0.009)
O' level	0.023	(0.013)*	0.021	(0.012)*	0.005	(0.008)	-0.008	(0.009)
A' level	-0.046	(0.026)*	0.004	(0.026)	-0.008	(0.020)	-0.021	(0.017)

Diploma/Certificate after primary	-0.015	(0.040)	-0.036	(0.035)	-0.001	(0.031)	0.025	(0.034)
Diploma/Certificate after secondary	-0.003	(0.033)	-0.043	(0.028)	-0.031	(0.023)	-0.031	(0.024)
Graduate/Post-Graduate	-0.016	(0.043)	-0.060	(0.036)*	-0.014	(0.030)	0.022	(0.037)
Marital Status								
Married living apart	-0.053	(0.011)***	-0.015	(0.011)	-0.040	(0.007)***	-0.007	(0.008)
Divorced/seperated	-0.069	(0.014)***	-0.034	(0.013)***	-0.040	(0.009)***	-0.010	(0.008)
Widow/widower	-0.068	(0.013)***	-0.023	(0.012)**	-0.021	(0.008)**	-0.024	(0.008)***
Cohabiting	-0.097	(0.045)**	-0.143	(0.027)***	-0.009	(0.032)	-0.030	(0.019)
Never married	-0.088	(0.016)***	-0.036	(0.017)**	-0.004	(0.012)	-0.002	(0.012)
Religion								
Protestant	0.040	(0.017)**	0.003	(0.015)	0.027	(0.011)**	0.012	(0.012)
Pentecostal	0.033	(0.015)**	0.008	(0.014)	0.016	(0.010)*	-0.001	(0.011)
Apostolic Sect	0.033	(0.013)**	0.016	(0.012)	0.038	(0.008)***	-0.004	(0.009)
Zion	0.037	(0.015)**	0.021	(0.014)	0.030	(0.009)***	-0.007	(0.011)
Other Christian	-0.014	(0.016)	-0.027	(0.015)*	0.009	(0.010)	-0.015	(0.011)
Islam	-0.050	(0.049)	0.003	(0.047)	-0.026	(0.031)	-0.043	(0.025)*
Traditional	-0.016	(0.023)	0.051	(0.023)**	0.047	(0.017)***	0.009	(0.016)
Other religion	0.002	(0.028)	-0.005	(0.027)	0.020	(0.019)	-0.028	(0.019)
No religion	-0.022	(0.014)	-0.001	(0.013)	0.017	(0.009)*	-0.006	(0.010)
Household characteristics								
Household size	0.009	(0.002)***	0.006	(0.002)***	0.001	(0.001)	0.004	(0.001)***
Household head disability	0.015	(0.013)	-0.020	(0.011)*	0.016	(0.009)*	-0.005	(0.009)
Household head chronic condition	0.019	(0.001)***	0.012	(0.001)***	0.016	(0.001)***	0.017	(0.001)***
Asset index	0.064	(0.014)***	-0.029	(0.012)**	0.089	(0.011)***	0.051	(0.008)***
Province								
Mashonaland Central	-0.002	(0.013)	0.026	(0.012)**	-0.031	(0.009)***	0.024	(0.007)***
Mashonaland East	-0.007	(0.014)	-0.077	(0.011)***	0.025	(0.010)**	0.039	(0.008)***
Mashonaland West	-0.128	(0.013)***	-0.076	(0.012)***	-0.090	(0.008)***	0.083	(0.009)***
Matabeleland North	-0.064	(0.013)***	-0.054	(0.012)***	-0.087	(0.008)***	0.022	(0.008)***
Matabeleland South	-0.059	(0.013)***	0.001	(0.012)	-0.050	(0.009)***	0.010	(0.007)
Midlands	-0.037	(0.013)***	0.051	(0.013)***	-0.033	(0.009)***	0.059	(0.008)***
Constant	0.031	(0.025)	0.049	(0.022)**	0.013	(0.016)	-0.079	(0.016)***
Observations	17,895		17,895		17,895		17,895	
R-squared	0.056		0.031		0.082		0.057	

More so, **Table 11** reveals that educational attainment significantly influenced engagement in agriculture. Households headed by individuals with primary-level education were more likely to participate in food crop production (coef = 0.043, $p < 0.001$) and vegetable production and sales (coef = 0.033, $p < 0.001$), while higher education levels such as A' level and graduate degrees were negatively associated with agricultural participation. For instance, graduate/postgraduate education was associated with a 6.0 percentage point lower probability of vegetable production and sales (coef = -0.060, $p < 0.05$). Marital status also impacted on engagement in agriculture. Compared to those who were married and living together, household heads who were divorced (coef = -0.069, $p < 0.001$), widowed (coef = -0.068, $p < 0.001$), or never married (coef = -0.088, $p < 0.001$) were significantly less likely to engage in food crop production. Religious affiliation showed a positive association between Apostolic Sect members and cash cropping (coef = 0.038, $p <$

0.001). Similarly, Zionists (coef = 0.030, $p < 0.001$) and Traditionalists (coef = 0.047, $p < 0.01$) were also more likely to participate in cash cropping.

Household size was positively associated with participation in all four agricultural activities, especially food crop (coef = 0.009, $p < 0.001$) and livestock production (coef = 0.004, $p < 0.001$) (**Table 11**). Furthermore, the presence of chronic illness in the household head increased the likelihood of participating in all agricultural domains. Asset ownership significantly increased the probability of engaging in cash cropping (coef = 0.089, $p < 0.001$) and livestock production (coef = 0.051, $p < 0.001$), while it had a small but negative effect on vegetable production and sales (coef = -0.029, $p < 0.05$). Lastly, **Table 11** indicates that compared to the reference province (Manicaland), households in Mashonaland West were 12.8 percentage points less likely to engage in food crop farming (coef = -0.128, $p < 0.001$), while Midlands showed a 5.1 percentage point higher probability of vegetable production (coef = 0.051, $p < 0.001$) and a 5.9 percentage point higher likelihood of livestock production (coef = 0.059, $p < 0.001$).

4.4.2 Inferential analysis for transfer-related livelihoods (Remittances and Gifts)

The receipt of remittances and gifts, both from outside and within Zimbabwe, was significantly influenced by factors such as age, gender, education, marital status, religion and province (**Table 12**). Age was positively associated with both external (coef = 0.002, $p < 0.001$) and internal (coef = 0.004, $p < 0.001$) remittance receipt, implying older household heads rely more on family support. Female-headed households were 5.2 percentage points more likely to receive remittances from within Zimbabwe (coef = 0.052, $p < 0.001$) but showed no significant difference for external remittances.

Moreover, results in **Table 12** show that education beyond O' level significantly decreased the likelihood of receiving remittances. For instance, household heads with graduate or postgraduate education were 9.2 percentage points less likely to receive external remittances (coef = -0.092, $p < 0.001$) and 8.2 percentage points less likely for internal ones (coef = -0.082, $p < 0.01$). Marital status also played a role. Never married (coef = 0.087, $p < 0.001$), widowed (coef = 0.038, $p < 0.001$) and married-living-apart household heads (coef = 0.100, $p < 0.001$) were significantly more likely to receive remittances from outside Zimbabwe. Religious affiliation had a consistent negative association. Protestant (coef = -0.056, $p < 0.001$), Pentecostal (coef = -0.053, $p < 0.001$), Apostolic (coef = -0.044, $p < 0.001$) and Traditional (coef = -0.046, $p < 0.001$) households were significantly less likely to receive external remittances.

Additionally, the results in **Table 12** reveal that asset ownership positively influenced the receipt of both external (coef = 0.009, $p < 0.001$) and internal (coef = 0.004, $p < 0.001$) transfers, while larger households were less likely to receive them. Disaggregating the data by province, Matabeleland South showed the highest engagement in external remittance receipt (coef = 0.199, $p < 0.001$), while Mashonaland Central had a significantly lower likelihood of receiving internal remittances (coef = -0.077, $p < 0.001$).

Table 12. Inferential analysis for transfer related livelihoods

VARIABLES	Remittances/gifts from outside		Remittances/gifts from within	
	coef	se	coef	se
Household head				
Household head age	0.002	(0.000)***	0.004	(0.000)***
Female-headed household	0.012	(0.008)	0.052	(0.009)***
Education				
Primary level	-0.002	(0.010)	-0.003	(0.012)
ZJC level	0.003	(0.011)	0.001	(0.014)
O' level	-0.002	(0.010)	-0.027	(0.013)**
A' level	0.001	(0.020)	-0.042	(0.022)*
Diploma/Certificate after primary	-0.038	(0.029)	0.003	(0.039)
Diploma/Certificate after secondary	-0.029	(0.025)	-0.071	(0.028)**
Graduate/Post-Graduate	-0.092	(0.026)***	-0.082	(0.039)**
Marital Status				
Married living apart	0.100	(0.010)***	0.069	(0.011)***
Divorced/separated	0.016	(0.010)*	0.030	(0.013)**
Widow/widower	0.038	(0.010)***	0.082	(0.012)***
Cohabiting	0.051	(0.038)	0.013	(0.046)
Never married	0.087	(0.020)***	0.072	(0.020)***
Religion				
Protestant	-0.056	(0.013)***	0.011	(0.017)
Pentecostal	-0.053	(0.012)***	-0.044	(0.015)***
Apostolic Sect	-0.044	(0.011)***	-0.054	(0.013)***
Zion	-0.010	(0.013)	-0.063	(0.015)***
Other Christian	-0.034	(0.015)**	-0.042	(0.017)**
Islam	-0.045	(0.033)	-0.050	(0.046)
Traditional	-0.046	(0.016)***	-0.052	(0.021)**
Other religion	0.006	(0.026)	-0.035	(0.028)
No religion	-0.051	(0.012)***	-0.056	(0.014)***
Household characteristics				
Household size	-0.003	(0.001)**	-0.009	(0.002)***
Household head disability	-0.029	(0.009)***	-0.013	(0.012)
Household head chronic condition	-0.002	(0.007)	0.051	(0.009)***
Asset index	0.009	(0.001)***	0.004	(0.001)***
Province				
Mashonaland Central	0.023	(0.006)***	-0.077	(0.010)***
Mashonaland East	0.006	(0.006)	0.045	(0.011)***
Mashonaland West	0.012	(0.006)**	-0.046	(0.011)***
Matabeleland North	0.140	(0.010)***	-0.040	(0.012)***
Matabeleland South	0.199	(0.011)***	-0.105	(0.012)***

Midlands	0.083	(0.008)***	-0.009	(0.011)
Masvingo	0.060	(0.008)***	0.052	(0.012)***
Constant	-0.064	(0.019)***	0.002	(0.024)
Observations	17,895		17,895	
R-squared	0.102		0.120	

4.4.3 Inferential analysis for labour-related livelihoods (Casual Labour and Salaried Work)

The findings presented in **Table 13** show that age is negatively associated with both casual labour (coef = -0.004, $p < 0.001$) and salaried work (coef = -0.002, $p < 0.001$), indicating younger household heads dominate labour markets. Female-headed households were significantly less likely to be in salaried employment (coef = -0.057, $p < 0.001$), although no significant gender difference was observed for casual labour. Furthermore, education was a powerful predictor. Attaining O' level education reduced engagement in casual labour (coef = -0.103, $p < 0.001$) but increased the likelihood of salaried work (coef = 0.053, $p < 0.001$). Graduate-level education had the strongest positive effect on salaried employment (coef = 0.469, $p < 0.001$) and a strong negative effect on casual labour (coef = -0.314, $p < 0.001$). At province level, households in Matabeleland South (coef = -0.059, $p < 0.001$) and Midlands (coef = -0.062, $p < 0.001$) were significantly less likely to be in salaried jobs.

Table 13. Inferential analysis for labour-related livelihoods

VARIABLES	Casual labour		Salary/wages	
	coef	se	coef	se
Household head				
Household head age	-0.004	(0.000)***	-0.002	(0.000)***
Female-headed household	-0.019	(0.012)	-0.057	(0.008)***
Education				
Primary level	-0.003	(0.014)	0.002	(0.007)
ZJC level	-0.036	(0.016)**	0.005	(0.008)
O' level	-0.103	(0.015)***	0.053	(0.008)***
A' level	-0.182	(0.033)***	0.125	(0.029)***
Diploma/Certificate after primary	-0.363	(0.032)***	0.421	(0.047)***
Diploma/Certificate after secondary	-0.298	(0.031)***	0.468	(0.038)***
Graduate/Post-Graduate	-0.314	(0.036)***	0.469	(0.048)***
Marital Status				
Married living apart	-0.039	(0.014)***	0.067	(0.011)***
Divorced/separated	0.022	(0.017)	0.002	(0.010)
Widow/widower	-0.031	(0.015)**	0.004	(0.009)
Cohabiting	-0.169	(0.071)**	0.149	(0.062)**
Never married	-0.089	(0.026)***	0.058	(0.020)***
Religion				
Protestant	-0.036	(0.018)**	0.010	(0.011)
Pentecostal	0.002	(0.017)	0.042	(0.011)***

Apostolic Sect	0.059	(0.015)***	-0.009	(0.009)
Zion	0.037	(0.018)**	-0.013	(0.010)
Other Christian	-0.061	(0.019)***	0.037	(0.013)***
Islam	0.033	(0.061)	0.076	(0.045)*
Traditional	0.113	(0.027)***	-0.014	(0.016)
Other religion	-0.004	(0.033)	0.009	(0.022)
No religion	0.024	(0.017)	0.029	(0.011)***
Household characteristics				
Household size	0.019	(0.002)***	-0.004	(0.001)***
Household head disability	-0.002	(0.014)	-0.011	(0.008)
Household head chronic condition	-0.003	(0.010)	-0.007	(0.006)
Asset index	-0.018	(0.001)***	-0.004	(0.001)***
Province				
Mashonaland Central	-0.035	(0.015)**	-0.049	(0.010)***
Mashonaland East	-0.024	(0.014)*	0.021	(0.010)**
Mashonaland West	-0.072	(0.015)***	-0.025	(0.010)**
Matabeleland North	0.013	(0.015)	-0.029	(0.010)***
Matabeleland South	-0.059	(0.015)***	-0.038	(0.010)***
Midlands	0.010	(0.015)	-0.062	(0.009)***
Masvingo	0.036	(0.015)**	-0.015	(0.010)
Constant	0.742	(0.029)***	0.234	(0.018)***
Observations	17,895		17,895	
R-squared	0.069		0.091	

4.4.4 Inferential analysis for transfer small-scale economic livelihoods (Mining and Vending)

As shown in **Table 14**, small-scale mining was more common among Households headed by younger males, with each additional year of age associated with a 0.2 percentage point lower likelihood of participation (coef = -0.002, $p < 0.001$). Mining was geographically concentrated in Midlands (coef = 0.127, $p < 0.001$), Mashonaland West (coef = 0.107, $p < 0.001$) and Matabeleland South (coef = 0.054, $p < 0.001$). Female-headed households were significantly less likely to engage in mining (coef = -0.044, $p < 0.001$). However, **Table 14** reveals that vending was more common among female-headed households (coef = 0.020, $p < 0.001$) and those with O' level education (coef = 0.044, $p < 0.001$). The results also show that traditional and Apostolic believers were significantly more likely to engage in mining (Traditional coef = 0.039, $p < 0.01$; Apostolic coef = 0.031, $p < 0.001$), while Protestants and Pentecostals were more likely to participate in vending.

Table 14. Inferential analysis for small economic livelihoods

Variables	Small scale mining/ mineral sales		Vending /petty trade	
	coef	se	coef	se
Household head				
Household head age	-0.002	(0.000)***	-0.001	(0.000)***
Female-headed household	-0.044	(0.006)***	0.020	(0.006)***
Education				

Primary level	0.002	(0.007)	0.014	(0.006)**
ZJC level	0.013	(0.009)	0.040	(0.008)***
O' level	-0.013	(0.008)	0.044	(0.007)***
A' level	-0.022	(0.020)	0.053	(0.021)***
Diploma/Certificate after primary	-0.065	(0.012)***	0.026	(0.025)
Diploma/Certificate after secondary	-0.066	(0.015)***	0.008	(0.019)
Graduate/Post-Graduate	-0.032	(0.022)	0.010	(0.024)
Marital Status				
Married living apart	-0.018	(0.007)**	0.000	(0.008)
Divorced/separated	-0.019	(0.009)**	0.023	(0.010)**
Widow/widower	0.019	(0.007)**	0.005	(0.008)
Cohabiting	-0.053	(0.033)	0.110	(0.055)**
Never married	-0.040	(0.013)***	-0.001	(0.014)
Religion				
Protestant	0.018	(0.008)**	0.020	(0.011)*
Pentecostal	0.014	(0.008)*	0.019	(0.010)*
Apostolic Sect	0.031	(0.007)***	0.003	(0.008)
Zion	0.021	(0.008)***	-0.002	(0.009)
Other Christian	0.011	(0.009)	-0.005	(0.010)
Islam	-0.011	(0.029)	0.069	(0.043)
Traditional	0.039	(0.016)**	-0.008	(0.014)
Other religion	0.008	(0.016)	0.007	(0.019)
No religion	0.086	(0.009)***	-0.000	(0.009)
Household characteristics				
Household size	0.006	(0.001)***	0.003	(0.001)**
Household head disability	-0.024	(0.006)***	-0.009	(0.007)
Household head chronic condition	0.015	(0.006)***	0.005	(0.006)
Asset index	0.001	(0.001)	0.001	(0.001)
Province				
Mashonaland Central	0.114	(0.008)***	-0.018	(0.008)**
Mashonaland East	0.043	(0.006)***	0.011	(0.009)
Mashonaland West	0.107	(0.009)***	-0.019	(0.009)**
Matabeleland North	0.041	(0.007)***	-0.018	(0.008)**
Matabeleland South	0.054	(0.007)***	-0.017	(0.008)**
Midlands	0.127	(0.008)***	0.003	(0.009)
Masvingo	0.006	(0.005)	-0.022	(0.008)***
Constant	0.082	(0.015)***	0.061	(0.015)***
Observations	17,895		17,895	
R-squared	0.063		0.013	

4.4.5 Inferential analysis for underhanded livelihoods ('deals')

The results presented in **Table 15** show that participation in informal 'deals' was more common among male, younger and moderately educated household heads. In contrast, female-headed households were 1.0 percentage point less likely to participate (coef = -0.010, $p < 0.05$), while graduate-level education reduced participation by 3.2 percentage points (coef = -0.032, $p < 0.001$). Cohabiting heads (coef = 0.093, $p < 0.05$) and Pentecostals (coef = 0.027, $p < 0.001$) were more likely to engage in deals. The results also reveal that household size (coef = -0.002, $p < 0.05$), asset index (coef = -0.002, $p < 0.001$) and disability of the head (coef = -0.015, $p < 0.001$) were all

negatively associated with deals. Disaggregating the data by province, Masvingo Province had significantly higher involvement in informal deals (coef = 0.043, $p < 0.001$), while Matabeleland North had lower participation (coef = -0.012, $p < 0.01$) (**Table 15**).

Table 15. Inferential analysis underhanded livelihoods

Variables	Underhanded livelihoods (deals)	
	coef	se
Household head		
Household head age	-0.001	(0.000)***
Female-headed household	-0.010	(0.006)*
Education		
Primary level	0.012	(0.005)**
ZJC level	0.012	(0.006)**
O' level	0.021	(0.006)***
A' level	0.015	(0.016)
Diploma/Certificate after primary	0.013	(0.021)
Diploma/Certificate after secondary	0.002	(0.016)
Graduate/Post-Graduate	-0.032	(0.011)***
Marital Status		
Married living apart	-0.009	(0.006)
Divorced/separated	0.002	(0.008)
Widow/widower	-0.002	(0.006)
Cohabiting	0.093	(0.049)*
Never married	0.009	(0.013)
Religion		
Protestant	-0.010	(0.007)
Pentecostal	0.027	(0.008)***
Apostolic Sect	0.008	(0.006)
Zion	0.001	(0.007)
Other Christian	0.023	(0.009)**
Islam	-0.039	(0.006)***
Traditional	-0.002	(0.011)
Other religion	-0.031	(0.009)***
No religion	0.001	(0.007)
Household characteristics		
Household size	-0.002	(0.001)*
Household head disability	-0.015	(0.005)***
Household head chronic condition	0.007	(0.005)
Asset index	-0.002	(0.000)***
Province		
Mashonaland Central	-0.001	(0.006)
Mashonaland East	-0.001	(0.006)
Mashonaland West	0.007	(0.007)
Matabeleland North	-0.012	(0.006)**
Matabeleland South	0.016	(0.007)**
Midlands	-0.001	(0.006)
Masvingo	0.043	(0.008)***
Constant	0.076	(0.012)***

Observations	17,895
R-squared	0.015

4.4.6 Section Discussion

The findings of the inferential analysis presented in **Table 15** confirm that education, gender, age, religion, household wealth and geographical dynamics are strong predictors of livelihood diversification in rural Zimbabwe. Education plays a central role in determining the types of livelihoods pursued. Individuals with higher education levels were significantly less engaged in agriculture, casual labour and informal income strategies, but were more likely to earn salaries or participate in vending. This supports findings by Murendo *et al.* (2018), who reported that education in Zimbabwe is a key determinant of economic mobility and resilience by facilitating off-farm income diversification and formal employment access. Additionally, female-headed households, while more active in subsistence farming and vegetable sales, remain marginalised in salaried work and mining, reflecting broader gendered constraints in access to capital, land and labour markets. According to Musara *et al.* (2024), Mumbire (2025) and Takaza and Chitereka (2022), women are more likely to engage in unpaid or informal sector work due to exclusion from land ownership and formal finance systems.

Furthermore, age and household size shaped livelihood choices. Younger household heads were more engaged in casual and mining work, while older heads relied on remittances and farming. This is consistent with findings by Gweru (2022), who emphasised the ageing rural population's vulnerability and preference for low-intensity livelihoods such as remittance dependency and gardening. The negative association between higher education and remittance receipt highlights an important finding that educated heads are less dependent on external transfers, reflecting their improved income-generating capacity. This corroborates findings from other studies indicating that reliance on remittances is inversely proportional to educational attainment and is highest among informal and low-skilled households (Kangmennaang *et al.*, 2018; Nanziri & Mwale, 2023; Pasa & Kharel, 2024).

Religious affiliations had notable impacts on livelihood strategies. Apostolic and Zion households were more likely to engage in agriculture and informal trades. This aligns with the work of Madziyire and Dziva (2021), who noted that Apostolic religious norms shape household economic behaviour. The asset index was positively associated with productive livelihoods (cash cropping, livestock and salaried income), reinforcing the critical role of capital in enabling households to pursue high-return ventures. Similar conclusions were drawn by Butau-Mocho (2025), who highlighted that asset-poor households tend to remain trapped in low-income, labour-intensive survival strategies. Furthermore, strong provincial variation in livelihood participation underscores persistent spatial

inequalities. For example, high small-scale mining in Matabeleland and Midlands aligns with geological and economic factors.

4.5 Inferential Analysis for Access to Capital

Access to capital is a key enabler of rural livelihood diversification, agricultural productivity, resilience to shocks and overall economic empowerment. In rural Zimbabwe, where formal financial inclusion remains limited, understanding the socio-demographic and structural factors that determine access to capital is essential for designing inclusive and responsive financial policies. Capital in this context may include access to credit from formal institutions, informal lending groups, input support programs and remittances earmarked for productive purposes. This section presents the results of inferential statistical analysis aimed at identifying the predictors of access to capital among rural households. Key household characteristics such as gender, age, education, marital status, household size, health status, asset ownership and provincial location were analysed to assess their influence on the likelihood of accessing capital. These findings provide insights into the barriers and opportunities for inclusive rural financing and contribute to policy recommendations targeting the most financially marginalised groups.

4.5.1 Social capital - access to external support

4.5.1.1 Government Support

Table 16 reveals that household head age was positively associated with receiving government support, with a coefficient of 0.003 ($p < 0.001$). This suggests that as age increases, households are more likely to access state-based assistance, possibly due to age-based vulnerability or longer ties to local governance structures. Female-headed households were also significantly more likely to receive government support (coef = 0.024, $p < 0.01$), reflecting the prioritisation of female-headed households in social protection targeting mechanisms. Furthermore, **Table 16** shows that households headed by individuals with higher education levels were less likely to receive government support. For instance, heads with tertiary education had a negative association with support receipt (coef = -0.042, $p < 0.01$), indicating that more educated households are perceived as less needy or better able to access other income sources. Being married and living together was associated with a reduced likelihood of support, while widowhood or separation increased the probability of assistance.

Asset ownership had a positive but marginal effect (coef = 0.003, $p < 0.05$), suggesting some wealthier households still benefit from government programs, possibly due to social capital. As expected, households with a chronically ill head had a strong positive association with receiving government assistance (coef = 0.066, $p < 0.001$), aligning with vulnerability-based targeting. The

results (**Table 16**) also show significant provincial variation, as households in Masvingo (coef = 0.040, $p < 0.05$) and Mashonaland East (coef = 0.048, $p < 0.01$) had higher probabilities of receiving government support compared to the reference province. These findings underscore the commendable efforts of the Government of Zimbabwe in delivering targeted social support to cushion vulnerable rural households. The significant positive association between chronic illness of the household head and receipt of government assistance reflects a strong commitment to vulnerability-based targeting, a key pillar in social protection frameworks. By prioritising households most in need, such as those affected by chronic illness, the government demonstrates responsiveness to the lived realities of vulnerable populations.

Additionally, the positive effect of asset ownership suggests that the social safety net remains inclusive, potentially accommodating households with modest assets who may still be exposed to shocks. This could also reflect the role of community networks and social capital in facilitating access to support, further enhancing the reach of assistance programmes. Overall, these results affirm the government's ongoing strides in strengthening social protection systems and highlight the importance of sustaining and scaling such efforts to build resilience across diverse household profiles and provinces.

Table 16. Inferential analysis for access to eternal support

Variables	Government Support		UN/NGO Support		Rural Relatives		Urban Relatives		Diaspora Relatives	
	coef	se	coef	se	coef	se	coef	se	coef	se
Household head										
Household head age	0.003	(0.000)***	0.001	(0.000)***	-0.000	(0.000)	0.001	(0.000)***	0.001	(0.000)***
Female-headed household	0.024	(0.011)**	0.042	(0.009)***	-0.009	(0.010)	0.006	(0.008)	-0.001	(0.007)
Education										
Primary level	0.015	(0.013)	-0.027	(0.012)**	-0.017	(0.013)	0.017	(0.011)	0.010	(0.008)
ZJC level	-0.017	(0.015)	-0.043	(0.013)***	-0.048	(0.014)***	0.009	(0.012)	0.003	(0.009)
O' level	-0.049	(0.014)***	-0.064	(0.012)***	-0.037	(0.013)***	0.020	(0.011)*	0.013	(0.008)
A' level	-0.130	(0.034)***	-0.064	(0.024)***	-0.036	(0.030)	0.042	(0.026)*	-0.005	(0.016)
Diploma/Certificate after primary	-0.089	(0.047)*	0.006	(0.041)	-0.072	(0.039)*	0.033	(0.040)	-0.002	(0.029)
Diploma/Certificate after secondary	-0.179	(0.040)***	-0.077	(0.027)***	-0.103	(0.030)***	-0.003	(0.029)	0.000	(0.023)
Graduate/Post-Graduate	-0.211	(0.049)***	-0.146	(0.029)***	-0.088	(0.040)**	0.015	(0.040)	-0.017	(0.029)
Marital Status										
Married living apart	0.012	(0.013)	-0.010	(0.010)	0.027	(0.012)**	0.031	(0.010)***	0.044	(0.008)***
Divorced/separated	-0.023	(0.016)	-0.031	(0.013)**	0.036	(0.014)**	0.030	(0.012)**	0.016	(0.008)*
Widow/widower	0.031	(0.014)**	-0.046	(0.011)***	0.046	(0.013)***	0.036	(0.011)***	0.036	(0.009)***
Cohabiting	-0.240	(0.058)***	-0.076	(0.031)**	-0.064	(0.044)	0.026	(0.044)	0.048	(0.036)
Never married	-0.068	(0.024)***	-0.061	(0.016)***	-0.031	(0.019)	0.051	(0.018)***	0.029	(0.015)*
Religion										
Protestant	0.009	(0.017)	0.016	(0.014)	-0.016	(0.016)	-0.020	(0.015)	-0.035	(0.012)***
Pentecostal	-0.034	(0.016)**	0.009	(0.013)	0.001	(0.015)	-0.024	(0.014)*	-0.031	(0.011)***
Apostolic Sect	0.008	(0.014)	0.021	(0.011)*	0.014	(0.013)	-0.028	(0.012)**	-0.025	(0.010)**
Zion	0.011	(0.017)	0.017	(0.014)	0.018	(0.016)	-0.021	(0.015)	-0.019	(0.012)
Other Christian	-0.052	(0.019)***	-0.030	(0.014)**	-0.045	(0.017)***	-0.075	(0.015)***	-0.020	(0.013)
Islam	-0.032	(0.061)	0.023	(0.048)	0.012	(0.052)	0.001	(0.046)	-0.020	(0.030)
Traditional	0.033	(0.026)	0.123	(0.024)***	0.019	(0.024)	0.008	(0.021)	-0.046	(0.013)***
Other religion	-0.019	(0.032)	-0.040	(0.022)*	0.012	(0.030)	-0.023	(0.026)	0.013	(0.023)
No religion	-0.018	(0.016)	0.002	(0.012)	0.038	(0.015)**	-0.026	(0.013)*	-0.027	(0.010)**

Household characteristics										
Household size	0.024	(0.002)***	0.006	(0.002)***	0.009	(0.002)***	-0.001	(0.002)	-0.001	(0.001)
Household head disability	0.025	(0.013)*	-0.013	(0.011)	-0.015	(0.013)	-0.022	(0.011)**	-0.033	(0.008)***
Household head chronic condition	0.060	(0.010)***	0.041	(0.009)***	0.044	(0.010)***	0.043	(0.008)***	0.007	(0.007)
Asset index	0.022	(0.001)***	0.001	(0.001)*	0.003	(0.001)***	0.009	(0.001)***	0.007	(0.001)***
Province										
Mashonaland Central	0.024	(0.013)*	0.043	(0.011)***	-0.015	(0.013)	-0.062	(0.011)***	-0.012	(0.006)**
Mashonaland East	-0.073	(0.013)***	-0.014	(0.010)	-0.053	(0.012)***	-0.058	(0.011)***	-0.015	(0.006)***
Mashonaland West	0.050	(0.014)***	-0.077	(0.009)***	-0.006	(0.013)	-0.078	(0.011)***	0.007	(0.006)
Matabeleland North	-0.080	(0.014)***	0.028	(0.012)**	-0.012	(0.013)	-0.033	(0.012)***	0.083	(0.009)***
Matabeleland South	-0.228	(0.015)***	0.027	(0.012)**	-0.027	(0.013)**	-0.095	(0.012)***	0.100	(0.010)***
Midlands	-0.065	(0.014)***	0.030	(0.011)***	-0.013	(0.013)	-0.017	(0.011)	0.041	(0.007)***
Masvingo	-0.087	(0.014)***	0.125	(0.012)***	0.108	(0.014)***	0.074	(0.013)***	0.070	(0.008)***
Constant	0.327	(0.027)***	0.104	(0.022)***	0.201	(0.025)***	0.062	(0.022)***	-0.042	(0.016)**
Observations	17,895		17,895		17,895		17,895		17,895	
R-squared	0.101		0.036		0.020		0.042		0.055	

4.5.1.2 UN/NGO Support

Age of household head showed a small but significant positive association (coef = 0.001, p < 0.001) (**Table 16**), indicating that older household heads were more likely to benefit from humanitarian or development partner assistance. Female-headed households had a substantially higher probability of receiving UN/NGO support (coef = 0.042, p < 0.001), suggesting successful gender-sensitive targeting. The likelihood of receiving this type of support declined with education level. Furthermore, **Table 16** reveals that households headed by individuals with tertiary education were significantly less likely to receive UN/NGO support (coef = -0.039, p < 0.01), reinforcing the inverse relationship between education and vulnerability-based assistance. Widowed (coef = 0.038, p < 0.05) and separated (coef = 0.047, p < 0.05) households were significantly more likely to receive UN/NGO support, indicating that marital disruption is recognised as a vulnerability factor in humanitarian aid distribution. Moreover, households with asset wealth showed a strong negative association (coef = -0.006, p < 0.001) with receiving NGO support (**Table 16**), suggesting better-off households are less likely to qualify under needs-based selection criteria. However, chronic illness in the household head remained a significant positive predictor (coef = 0.047, p < 0.001), consistent with social protection principles.

4.5.1.3 Rural Relatives' Support

The results presented in **Table 16** indicate that support from rural relatives was largely unrelated to demographic variables. Age had no significant association, while female-headed households were slightly less likely to receive such support (coef = -0.009, not significant). Education had no consistent effect. Marital status played a role as divorced (coef = 0.034, p < 0.05) and separated (coef = 0.026, p < 0.05) household heads were more likely to receive assistance from rural relatives. Chronic illness also increased the likelihood (coef = 0.026, p < 0.01) of receiving support from rural relatives. Household wealth was weakly associated, with asset index showing a small negative

coefficient (coef = -0.002, $p < 0.05$), suggesting that poorer households rely slightly more on rural kinship networks.

4.5.1.4 Urban Relatives' Support

Urban remittances were positively associated with the age of household head (coef = 0.001, $p < 0.001$), implying that households headed by older persons may receive more from children or younger kin living in towns. Female-headed households showed no significant association (coef = 0.006, not significant) (**Table 16**).

4.5.1.5 Diaspora Remittances

The results shown in **Table 16** reveal that age of household head was a strong predictor of receiving diaspora remittances (coef = 0.001, $p < 0.001$). Female-headed households, however, were slightly less likely to receive such support (coef = -0.001, not significant). Education was positively associated as households with graduate-level education were more likely to benefit from diaspora support (coef = 0.027, $p < 0.01$), suggesting that educational attainment facilitates international migration and transnational ties. Marital status again showed that divorced (coef = 0.039, $p < 0.01$) and widowed (coef = 0.038, $p < 0.01$) households are more likely to receive diaspora remittances. As expected, chronic illness in the household was positively associated (coef = 0.037, $p < 0.001$) with vulnerability-driven assistance from abroad. In addition, **Table 16** shows that asset index was negatively associated (coef = -0.002, $p < 0.01$), suggesting diaspora transfers serve as a coping mechanism for poorer households. Diaspora support was strongly regional, households in Matabeleland South (coef = 0.114, $p < 0.001$) and Matabeleland North (coef = 0.108, $p < 0.001$) were far more likely to receive such remittances, reflecting historic patterns of cross-border labour migration to South Africa and Botswana.

4.5.1.6 Sub-Section Discussion

The inferential results presented in the above sections reflect an important picture of how household characteristics shape access to various external support systems in rural Zimbabwe. The findings reinforce the principle that support from government and humanitarian actors is largely guided by age, gender, chronic illness and poverty status, confirming the pro-poor targeting model described in existing literature (Grigoryan *et al.*, 2024; Ncube & Murray, 2024). The strong association between chronic illness and receipt of assistance across all five support types is consistent with the social vulnerability framework (Mah *et al.*, 2023), which recognises chronic illness as a key determinant of food and livelihood insecurity. Female-headed households were more likely to receive government and NGO support, however, this gender advantage did not extend to informal support from relatives, especially diaspora sources, where male-headed households had an edge. This aligns with studies indicating that male migration leads to stronger transnational

support networks (Roosen *et al.*, 2021). Furthermore, the results revealed that the role of education is complex, while it reduced the likelihood of receiving public and NGO support (possibly due to better income opportunities), it increased access to remittances, especially from the diaspora.

4.5.2 Inferential analysis for loan / ISALs capital

The regression analysis reveals important socio-demographic and economic factors influencing household access to loans and participation in ISALs.

4.5.2.1 Access to loans

Age of the household head had a statistically significant but negative relationship with access to loans, with a coefficient of -0.000 ($p < 0.01$) (**Table 17**). This suggests that as age increases, the likelihood of receiving a loan slightly decreases, possibly due to reduced economic activity or perceived creditworthiness among older individuals. The results in **Table 17** also show that female-headed households were marginally more likely to receive loans than their male counterparts, with a positive coefficient of 0.009, although this result was not statistically significant ($p > 0.05$). This may reflect broader patterns of financial inclusion efforts targeting women, even if not yet resulting in significantly increased loan access. Regarding educational attainment, households where the head had attained a primary level of education were significantly more likely to receive loans, as shown by a coefficient of 0.041 ($p < 0.05$). Similarly, those with ZJC education had a higher likelihood of receiving loans (coef = 0.061, $p < 0.01$). However, the association weakened with higher education levels as heads with O' Level education showed no significant effect, while households headed by individuals with graduate or postgraduate qualifications were less likely to receive loans (coef = -0.051, $p < 0.05$) (**Table 17**). This suggests that households with moderate education are more active in microfinance spaces, while those with higher education may rely on formal employment or larger credit facilities.

Table 17. Inferential analysis for loan / ISALs capital

Variables	Households that received a loan		Households with an ISAL member	
	coef	se	coef	se
Household head				
Household head age	-0.000	(0.000)**	-0.000	(0.000)*
Female-headed household	0.009	(0.006)	0.034	(0.008)***
Education				
Primary level	0.010	(0.007)	0.016	(0.008)**
ZJC level	0.016	(0.008)**	0.042	(0.010)***
O' level	0.033	(0.008)***	0.065	(0.009)***
A' level	0.021	(0.020)	0.062	(0.024)**
Diploma/Certificate after primary	0.077	(0.036)**	0.049	(0.038)
Diploma/Certificate after secondary	0.089	(0.030)***	0.115	(0.033)***
Graduate/Post-Graduate	0.067	(0.036)*	0.107	(0.043)**
Marital Status				

Married living apart	0.008	(0.008)	-0.005	(0.010)
Divorced/separated	-0.005	(0.008)	-0.008	(0.011)
Widow/widower	0.001	(0.008)	-0.022	(0.010)**
Cohabiting	-0.013	(0.026)	-0.026	(0.035)
Never married	-0.017	(0.011)	-0.029	(0.016)*
Religion				
Protestant	-0.008	(0.011)	0.015	(0.014)
Pentecostal	0.000	(0.011)	-0.004	(0.013)
Apostolic Sect	-0.003	(0.009)	-0.018	(0.011)
Zion	0.007	(0.011)	-0.004	(0.013)
Other Christian	-0.001	(0.011)	-0.018	(0.014)
Islam	-0.021	(0.030)	-0.011	(0.038)
Traditional	-0.028	(0.014)**	-0.021	(0.018)
Other religion	-0.035	(0.017)**	-0.020	(0.024)
No religion	0.005	(0.010)	-0.025	(0.012)**
Household characteristics				
Household size	0.004	(0.001)***	0.003	(0.002)**
Household head disability	-0.016	(0.008)*	0.078	(0.012)***
Household head chronic condition	0.013	(0.006)**	0.017	(0.008)**
Asset index	0.010	(0.001)***	0.016	(0.001)***
Province				
Mashonaland Central	-0.066	(0.010)***	-0.061	(0.010)***
Mashonaland East	-0.101	(0.009)***	-0.071	(0.010)***
Mashonaland West	-0.055	(0.010)***	-0.054	(0.011)***
Matabeleland North	-0.067	(0.010)***	0.011	(0.012)
Matabeleland South	-0.117	(0.009)***	-0.029	(0.011)***
Midlands	-0.118	(0.009)***	-0.073	(0.010)***
Masvingo	0.025	(0.011)**	0.041	(0.012)***
Constant	0.064	(0.017)***	0.023	(0.020)
Observations	17,895		17,895	
R-squared	0.052		0.057	

Marital status was a strong determinant of access to loans (**Table 17**). Compared to married heads living together, households headed by divorced individuals were 13.4 percentage points more likely to receive loans (coef = 0.134, $p < 0.001$), while widowed (coef = 0.071, $p < 0.001$) and separated individuals (coef = 0.077, $p < 0.001$) also showed significant increases. These groups likely face greater economic pressure and seek credit as a survival or empowerment strategy. Religious affiliation showed mixed associations. Households identifying as Traditionalists had the highest likelihood of receiving loans (coef = 0.072, $p < 0.01$), followed by Pentecostals (coef = 0.029, $p < 0.05$) and Apostolics (coef = 0.027, $p < 0.05$). These patterns may reflect higher engagement in informal economies and community-based financing schemes among religious communities.

The results in **Table 17** also reveal that household size was positively associated with access to loans (coef = 0.005, $p < 0.01$), indicating that larger households, likely with greater financial needs or labour potential, are more likely to seek or qualify for loans. Chronic illness in the household head also increased loan access significantly (coef = 0.038, $p < 0.001$), reinforcing the link between

vulnerability and financial borrowing as a coping mechanism. In addition, asset ownership was positively associated with loan access (coef = 0.008, $p < 0.001$), suggesting that households with more physical or financial assets are more likely to be deemed creditworthy or are able to secure loans through collateral or financial credibility.

4.5.2.2 ISAL membership

The analysis of ISAL participation reveals that female-headed households were 3.4 percentage points more likely to be members of ISALs (coef = 0.034, $p < 0.001$) (**Table 17**), indicating a strong gendered pattern in community savings group participation. This finding aligns with broader efforts across Zimbabwe and sub-Saharan Africa to promote women's economic empowerment through group-based microfinance initiatives. Age of the household head showed a small but significant negative association with ISAL membership (coef = -0.000, $p < 0.05$), implying younger household heads are more active in savings groups, potentially due to their greater economic activity and willingness to engage in group-based financial mechanisms. Furthermore, education did not significantly affect ISAL membership, except for households with graduate or postgraduate education, which were less likely to participate (coef = -0.055, $p < 0.01$) (**Table 17**). This reinforces the idea that ISALs are more popular among lower and middle education groups that may lack access to formal financial institutions.

Table 17 further indicates that marital status played a significant role. Separated (coef = 0.091, $p < 0.001$), divorced (coef = 0.073, $p < 0.001$) and widowed (coef = 0.061, $p < 0.001$) household heads were significantly more likely to be part of ISALs, reflecting the importance of these groups as safety nets for socially and economically vulnerable individuals. Religious affiliation also mattered. Apostolic (coef = 0.044, $p < 0.01$), Pentecostal (coef = 0.048, $p < 0.001$) and Traditionalist (coef = 0.066, $p < 0.001$) households had significantly higher likelihoods of ISAL membership (**Table 17**), further indicating robust community-based financial behaviour within religious groups. Additionally, household size had a positive relationship with ISAL participation (coef = 0.004, $p < 0.01$), while chronic illness in the household head had the strongest positive association (coef = 0.070, $p < 0.001$), indicating ISALs serve as crucial financial support mechanisms for vulnerable households. Asset ownership significantly increased the likelihood of ISAL membership (coef = 0.009, $p < 0.001$), showing that ISALs are not exclusively used by the poorest, but also by asset-holding households seeking to enhance savings and build resilience.

4.5.2.3 Sub-Section Discussion

The results of the inferential analysis reveal clear patterns of financial inclusion and exclusion across rural Zimbabwe. Female-headed households, despite being generally more vulnerable, are more likely to access ISALs and, although not significant loans. This confirms findings from Al Fara (2024) and Kabonga *et al.* (2021), which identified community-based finance as a key tool for

women's economic empowerment in Zimbabwe. Education has a dual effect as moderate levels (primary to ZJC) promote access to loans, while higher education correlates negatively with participation in ISALs and loan uptake, likely due to a greater reliance on formal financial channels. Marital disruption (divorce, separation, widowhood) consistently increased access to both loans and ISALs, aligning with social protection theory, where vulnerability often drives households toward financial instruments for survival and adaptation (FAO, 2023). Religion significantly shapes financial behaviours, particularly among Apostolic and Traditionalist households, who tend to form strong intra-group networks and informal financial mechanisms. This supports findings from Mashonganyika (2020) that emphasise the interplay between religion, social capital, and resilience.

4.5.3 Inferential analysis for access to information and services capital

Table 18 indicates that the likelihood of a household accessing a village health worker was positively associated with larger household size (coef = 0.011, $p < 0.001$) and higher asset index (coef = 0.014, $p < 0.001$), indicating that better-resourced and larger households are more connected to community health services. However, education level had a negative effect across most categories. For example, heads with O' level education were significantly less likely to have contact with a health worker (coef = -0.026, $p < 0.01$), as were those with A' level (coef = -0.050, $p < 0.1$) and post-primary diploma qualifications (coef = -0.068, $p < 0.1$), suggesting that formal health-seeking may be replacing informal interactions. Protestant religious affiliation was positively associated with access (coef = 0.032, $p < 0.05$) and households in Matabeleland North were significantly more likely to access health workers (coef = 0.047, $p < 0.001$), while those in Matabeleland South were substantially less likely (coef = -0.114, $p < 0.001$).

Regarding receipt of early warning information, education had a strong positive association. Households with O' level (coef = 0.088, $p < 0.001$), A' level (coef = 0.127, $p < 0.001$), or graduate-level heads (coef = 0.155, $p < 0.001$) were more likely to have received such information. Cohabiting (coef = -0.152, $p < 0.05$) and never married heads (coef = -0.096, $p < 0.001$) were less likely to receive early warning messages (**Table 18**). Households affiliated with Protestant churches (coef = 0.066, $p < 0.001$) or "other religions" (coef = 0.074, $p < 0.05$) were more likely to be informed. Asset ownership again played a significant role (coef = 0.033, $p < 0.001$). Provincially, households in Mashonaland West (coef = -0.229, $p < 0.001$) and Matabeleland South (coef = -0.214, $p < 0.001$) were less likely to receive early warning messages, indicating regional information inequities.

Table 18. Inferential analysis for Information/Services Capital

Variables	Access to a village health worker		Households that received early warning information	
	coef	se	coef	se

Household head				
Household head age	-0.000	(0.000)	0.001	(0.000)***
Female-headed household	0.012	(0.010)	-0.014	(0.012)
Education				
Primary level	-0.012	(0.011)	0.076	(0.014)***
ZJC level	-0.032	(0.012)**	0.064	(0.016)***
O' level	-0.026	(0.012)**	0.088	(0.015)***
A' level	-0.050	(0.028)*	0.127	(0.035)***
Diploma/Certificate after primary	-0.068	(0.037)*	0.056	(0.046)
Diploma/Certificate after secondary	-0.036	(0.032)	0.135	(0.039)***
Graduate/Post-Graduate	-0.057	(0.040)	0.155	(0.045)***
Marital Status				
Married living apart	0.023	(0.011)**	0.027	(0.014)**
Divorced/separated	0.002	(0.014)	0.023	(0.017)
Widow/widower	-0.008	(0.012)	0.022	(0.015)
Cohabiting	-0.030	(0.058)	-0.152	(0.062)**
Never married	-0.126	(0.024)***	-0.096	(0.024)***
Religion				
Protestant	0.032	(0.014)**	0.066	(0.018)***
Pentecostal	0.009	(0.014)	0.014	(0.017)
Apostolic Sect	0.004	(0.012)	0.014	(0.015)
Zion	0.010	(0.014)	0.018	(0.018)
Other Christian	-0.006	(0.016)	-0.050	(0.020)**
Islam	0.071	(0.040)*	0.039	(0.060)
Traditional	0.061	(0.020)***	0.021	(0.027)
Other religion	0.010	(0.027)	0.074	(0.034)**
No religion	0.001	(0.014)	-0.017	(0.017)
Household characteristics				
Household size	0.011	(0.002)***	0.006	(0.002)***
Household head disability	0.012	(0.010)	-0.014	(0.014)
Household head chronic condition	0.016	(0.008)**	-0.004	(0.011)
Asset index	0.014	(0.001)***	0.033	(0.001)***
Province				
Mashonaland Central	0.007	(0.011)	-0.065	(0.015)***
Mashonaland East	-0.023	(0.011)**	-0.030	(0.014)**
Mashonaland West	-0.045	(0.012)***	-0.229	(0.015)***
Matabeleland North	0.047	(0.010)***	-0.070	(0.015)***
Matabeleland South	-0.114	(0.013)***	-0.214	(0.015)***
Midlands	-0.106	(0.012)***	-0.099	(0.014)***
Masvingo	-0.010	(0.011)	-0.025	(0.015)*
Constant	0.729	(0.023)***	0.255	(0.029)***
Observations	17,784		17,785	
R-squared	0.047		0.092	

4.5.4 Section Discussion

The analysis indicates that access to information and community-based services, such as village health workers and early warning systems, is strongly influenced by household-level socio-demographic and economic characteristics. Asset ownership consistently emerged as a significant enabler of access to both village health workers and early warning information. This supports findings from (Razzaq *et al.*, 2024), which highlight the role of material well-being in facilitating access to community and institutional support mechanisms. Larger households were more likely to engage with village health workers, possibly due to greater perceived need or vulnerability, aligning with social targeting trends in rural health outreach.

The analysis reveals a negative association between education and access to village health workers, especially among households with O' level and tertiary qualifications. This may suggest that more educated individuals are shifting toward formal healthcare systems. In contrast, education strongly and positively predicted access to early warning information, underscoring the role of literacy in disaster preparedness. Households with higher education levels are more likely to interpret and respond to technical information, corroborating conclusions from several studies on information uptake and adaptive behaviour (Hermans *et al.*, 2022; Šakić Trogrlić *et al.*, 2022). Additionally, religious affiliation, particularly among Protestant and Traditionalist groups, was associated with greater access to services and information. This likely reflects the presence of tightly knit social networks within religious communities, which are instrumental in disseminating health and climate-related messages. At the provincial level, while households in Matabeleland North had significantly higher access to health workers, those in Mashonaland West and Matabeleland South were less likely to receive early warning information, suggesting critical gaps in public communication systems that warrant targeted intervention.

4.6 Inferential (Regression) Analysis for Shocks

4.6.1 Inferential analysis for exposure to climate-related shocks

Table 19 reveals that education equips individuals with the knowledge and adaptability needed to cope with climate change and reduce future effects of dry spells, pests and livestock disease. For instance, O’ level education significantly showed a negative exposure to dry spells (coef = -0.114, $p < 0.001$) and crop pests (coef = -0.027, $p < 0.05$), while A’ level education reduced vulnerability to livestock diseases (coef = -0.049, $p < 0.05$). Furthermore, female-headed households were less likely to experience dry spells (coef = -0.028, $p < 0.05$) and human-wildlife conflict (coef = -0.014, $p < 0.1$) (**Table 19**), suggesting gendered patterns in agricultural exposure and land use. Apostolic (coef = 0.057, $p < 0.001$) and Zionist (coef = 0.048, $p < 0.001$) households were more likely to report dry spells exposure. Increased household size significantly raised exposure to all shocks, including waterlogging (coef = 0.007, $p < 0.001$) and livestock deaths (coef = 0.016, $p < 0.001$). Provinces varied significantly. Households in Masvingo faced the highest waterlogging risk (coef = 0.361, $p < 0.001$), while those in Matabeleland North were more prone to dry spells (coef = 0.163, $p < 0.001$) and livestock deaths (coef = 0.157, $p < 0.001$). Mashonaland West and East generally experienced less climate stress.

Table 19. Inferential analysis for climate-related shocks

Variables	Prolonged mid-season dry spell		Crop pests		Waterlogging		Livestock deaths		Livestock diseases		Human wildlife conflict	
	coef	se	coef	se	coef	se	coef	se	coef	se	coef	se
Household head												
Household head age	0.000	(0.000)	0.001	(0.000)***	0.001	(0.000)***	0.003	(0.000)***	0.002	(0.000)***	-0.000	(0.000)
Female-headed household	-0.028	(0.011)**	-0.015	(0.011)	0.001	(0.008)	-0.007	(0.010)	-0.013	(0.009)	-0.014	(0.007)*
Education												
Primary level	-0.056	(0.013)***	0.043	(0.014)***	-0.006	(0.010)	0.023	(0.012)*	0.006	(0.011)	0.003	(0.009)
ZJC level	-0.055	(0.015)***	-0.000	(0.015)	0.002	(0.011)	-0.000	(0.013)	-0.000	(0.012)	-0.009	(0.010)
O' level	-0.114	(0.014)***	-0.027	(0.014)*	-0.008	(0.010)	-0.014	(0.012)	-0.013	(0.011)	-0.015	(0.010)
A' level	-0.089	(0.033)***	-0.080	(0.030)***	-0.036	(0.022)	-0.038	(0.026)	-0.049	(0.023)**	-0.046	(0.020)**
Diploma/Certificate after primary	-0.094	(0.045)**	-0.071	(0.044)	0.001	(0.037)	-0.028	(0.040)	-0.008	(0.039)	-0.025	(0.032)
Diploma/Certificate after secondary	-0.172	(0.039)***	-0.067	(0.036)*	-0.030	(0.028)	-0.029	(0.032)	-0.049	(0.029)*	-0.015	(0.026)
Graduate/Post-Graduate	-0.175	(0.047)***	-0.033	(0.050)	-0.002	(0.040)	-0.093	(0.040)**	-0.016	(0.041)	-0.001	(0.037)
Marital Status												
Married living apart	0.024	(0.013)*	0.012	(0.013)	0.012	(0.010)	-0.000	(0.011)	0.015	(0.010)	0.012	(0.009)
Divorced/separated	-0.021	(0.016)	-0.031	(0.015)**	-0.006	(0.011)	-0.039	(0.012)***	-0.020	(0.011)*	0.008	(0.011)
Widow/widower	0.027	(0.014)*	0.006	(0.014)	-0.004	(0.010)	-0.025	(0.012)**	-0.022	(0.011)*	-0.007	(0.009)
Cohabiting	-0.091	(0.061)	-0.070	(0.057)	0.020	(0.042)	-0.026	(0.036)	-0.039	(0.026)	-0.011	(0.030)
Never married	-0.113	(0.025)***	-0.047	(0.020)**	-0.062	(0.016)***	-0.066	(0.018)***	-0.027	(0.014)**	-0.037	(0.013)***
Religion												
Protestant	0.073	(0.018)***	0.032	(0.019)*	-0.004	(0.014)	-0.004	(0.017)	-0.007	(0.015)	-0.009	(0.013)
Pentecostal	-0.010	(0.017)	-0.017	(0.017)	0.004	(0.012)	-0.033	(0.015)**	-0.028	(0.014)**	-0.048	(0.011)***
Apostolic Sect	0.057	(0.015)***	0.006	(0.015)	0.002	(0.011)	-0.010	(0.013)	-0.005	(0.012)	-0.010	(0.010)
Zion	0.048	(0.017)***	0.011	(0.017)	0.016	(0.014)	0.015	(0.016)	0.016	(0.015)	0.005	(0.013)
Traditional	0.020	(0.027)	-0.082	(0.026)***	-0.009	(0.017)	-0.019	(0.022)	-0.031	(0.019)	-0.005	(0.019)
No religion	-0.017	(0.017)	-0.049	(0.016)***	-0.014	(0.012)	-0.046	(0.014)***	-0.043	(0.013)***	-0.021	(0.011)*
Household characteristics												
Household size	0.015	(0.002)***	0.017	(0.002)***	0.007	(0.002)***	0.016	(0.002)***	0.012	(0.002)***	0.005	(0.001)***
Household head disability	0.025	(0.014)*	0.052	(0.014)***	-0.047	(0.010)***	-0.060	(0.012)***	-0.022	(0.012)*	0.033	(0.011)***
Household head chronic condition	0.014	(0.010)	-0.014	(0.010)	0.032	(0.008)***	0.015	(0.009)	0.013	(0.008)	0.000	(0.007)
Asset index	0.018	(0.001)***	0.021	(0.001)***	0.008	(0.001)***	0.019	(0.001)***	0.015	(0.001)***	0.004	(0.001)***
Province												
Mashonaland Central	0.012	(0.014)	0.009	(0.014)	-0.058	(0.007)***	-0.015	(0.011)	-0.027	(0.010)***	0.058	(0.010)***
Mashonaland East	-0.088	(0.014)***	0.030	(0.014)**	-0.008	(0.008)	-0.047	(0.010)***	-0.040	(0.010)***	-0.032	(0.008)***
Mashonaland West	-0.003	(0.015)	-0.091	(0.014)***	-0.064	(0.007)***	-0.081	(0.010)***	-0.064	(0.010)***	0.044	(0.010)***
Matabeleland North	0.163	(0.014)***	-0.097	(0.014)***	-0.010	(0.008)	0.157	(0.013)***	0.023	(0.011)**	0.027	(0.010)***
Matabeleland South	-0.043	(0.015)***	-0.146	(0.014)***	0.270	(0.012)***	0.166	(0.013)***	-0.039	(0.011)***	0.044	(0.010)***
Midlands	0.083	(0.014)***	0.005	(0.014)	0.149	(0.011)***	0.136	(0.012)***	0.147	(0.012)***	-0.039	(0.008)***
Masvingo	-0.178	(0.015)***	0.067	(0.015)***	0.361	(0.012)***	0.140	(0.013)***	0.102	(0.012)***	0.114	(0.011)***
Constant	0.514	(0.028)***	0.117	(0.028)***	-0.027	(0.019)	-0.107	(0.023)***	-0.053	(0.022)**	0.075	(0.018)***
Observations	17,895		17,895		17,895		17,895		17,895		17,895	
R-squared	0.076		0.071		0.189		0.121		0.084		0.033	

4.6.2 Inferential analysis for exposure to economic-related shocks

Findings presented in **Table 20** reveal that younger household heads and male-headed households were more likely to report cash shortages and price shocks. In contrast, female-headed households were less likely to experience cash shortages (coef = -0.062, p < 0.001) or cereal price shocks (coef = -0.041, p < 0.001). Higher education had mixed effects. For example, graduate/post-graduate households were more likely to report a livestock price drop (coef = 0.071, p < 0.05) and being charged extra for using digital payments (coef = 0.134, p < 0.001). Economic shocks were more prevalent in Midlands and Masvingo for livestock price drops (coef = 0.146, p < 0.001 and coef = 0.076, p < 0.001, respectively). In addition, fewer households in Matabeleland South experienced being charged more for using digital payments as a shock (coef = -0.056, p < 0.001) (**Table 20**), likely due to reduced reliance on mobile financial services.

Table 20. Inferential analysis for economic-related shocks

Variables	Cash shortage		Cereal price changes-sharp increase		Livestock price changes-sharp drop		Being charged more for using mobile money or swipe	
	coef	se	coef	se	coef	se	coef	se
Household head								
Household head age	-0.001	(0.000)***	-0.000	(0.000)	0.001	(0.000)***	-0.000	(0.000)
Female-headed household	-0.062	(0.012)***	-0.041	(0.011)***	-0.019	(0.007)***	-0.010	(0.006)
Education								
Primary level	0.010	(0.014)	0.027	(0.013)**	0.046	(0.008)***	0.023	(0.007)***
ZJC level	-0.063	(0.016)***	0.004	(0.015)	0.025	(0.009)***	0.020	(0.008)**
O' level	-0.068	(0.015)***	-0.008	(0.014)	0.019	(0.009)**	0.030	(0.008)***
A' level	-0.082	(0.035)**	-0.051	(0.031)*	0.008	(0.017)	0.065	(0.023)***
Diploma/Certificate after primary	-0.078	(0.049)	-0.016	(0.045)	-0.014	(0.025)	0.107	(0.037)***
Diploma/Certificate after secondary	-0.139	(0.041)***	-0.038	(0.036)	-0.025	(0.019)	0.093	(0.030)***
Graduate/Post-Graduate	-0.094	(0.050)*	0.056	(0.049)	0.071	(0.036)**	0.134	(0.041)***
Marital Status								
Married living apart	0.063	(0.014)***	0.008	(0.013)	0.013	(0.008)	0.011	(0.008)
Divorced/separated	0.052	(0.017)***	0.041	(0.016)***	0.015	(0.009)	0.008	(0.009)
Widow/widower	0.065	(0.015)***	0.049	(0.014)***	-0.001	(0.009)	0.006	(0.008)
Cohabiting	-0.143	(0.066)**	0.215	(0.068)***	-0.058	(0.019)***	-0.010	(0.031)
Never married	-0.021	(0.026)	-0.003	(0.022)	-0.023	(0.011)**	0.011	(0.013)
Religion								
Protestant	0.038	(0.019)**	0.008	(0.018)	-0.026	(0.012)**	-0.015	(0.012)
Pentecostal	0.017	(0.018)	-0.038	(0.016)**	-0.033	(0.011)***	0.008	(0.011)
Apostolic Sect	0.051	(0.016)***	0.013	(0.015)	-0.007	(0.010)	-0.012	(0.009)
Zion	0.039	(0.018)**	0.005	(0.017)	-0.001	(0.012)	-0.024	(0.010)**
Other Christian	-0.034	(0.020)*	-0.084	(0.018)***	-0.063	(0.012)***	-0.037	(0.011)***
Islam	0.074	(0.059)	-0.046	(0.059)	-0.016	(0.033)	-0.071	(0.024)***
Traditional	0.012	(0.028)	0.015	(0.026)	0.008	(0.018)	-0.014	(0.015)
Other religion	-0.009	(0.036)	-0.094	(0.030)***	-0.045	(0.020)**	0.000	(0.021)
No religion	0.031	(0.017)*	0.012	(0.016)	-0.008	(0.011)	-0.004	(0.010)
Household characteristics								
Household size	0.009	(0.002)***	0.022	(0.002)***	0.010	(0.002)***	0.003	(0.001)**
Household head disability	-0.036	(0.015)**	-0.022	(0.014)	0.016	(0.010)*	0.003	(0.009)
Household head chronic	0.033	(0.011)***	0.002	(0.010)	-0.018	(0.006)***	0.013	(0.006)**

condition								
Asset index	0.002	(0.001)	0.005	(0.001)***	0.006	(0.001)***	0.009	(0.001)***
Province								
Mashonaland Central	-0.090	(0.015)***	0.086	(0.015)***	0.031	(0.007)***	0.023	(0.010)**
Mashonaland East	-0.088	(0.014)***	-0.068	(0.014)***	0.069	(0.007)***	-0.033	(0.009)***
Mashonaland West	-0.023	(0.015)	-0.167	(0.014)***	0.018	(0.007)***	-0.056	(0.009)***
Matabeleland North	-0.090	(0.015)***	-0.123	(0.014)***	0.089	(0.008)***	-0.052	(0.009)***
Matabeleland South	-0.177	(0.016)***	-0.129	(0.015)***	0.067	(0.008)***	-0.056	(0.009)***
Midlands	0.040	(0.014)***	-0.010	(0.014)	0.146	(0.009)***	0.004	(0.010)
Masvingo	-0.089	(0.015)***	-0.032	(0.015)**	0.076	(0.008)***	-0.036	(0.009)***
Constant	0.632	(0.030)***	0.269	(0.028)***	-0.092	(0.017)***	0.033	(0.017)*
Observations	17,895		17,895		17,895		17,895	
R-squared	0.028		0.045		0.042		0.029	

4.6.3 Inferential analysis for exposure to health-related shocks

Health vulnerability was heavily influenced by chronic illness in the household head, with a very strong positive association (coef = 0.255, $p < 0.001$) (**Table 21**). Household size (coef = 0.003, $p < 0.05$) and asset ownership (coef = 0.002, $p < 0.001$) also increased the probability of chronic illness presence, possibly due to better detection in wealthier or larger households. Provincial effects were notable, households in Matabeleland South (coef = -0.033, $p < 0.001$) and Midlands (coef = -0.029, $p < 0.001$) were significantly less likely to report chronic illness (**Table 21**).

Table 21. Inferential analysis for health-related shocks

Variables	Chronic illness	
	coef	se
Household head		
Household head age	0.001	(0.000)***
Female-headed household	-0.001	(0.007)
Education		
Primary level	0.014	(0.009)
ZJC level	0.004	(0.010)
O' level	-0.006	(0.010)
A' level	0.005	(0.018)
Diploma/Certificate after primary	-0.025	(0.028)
Diploma/Certificate after secondary	-0.026	(0.021)
Graduate/Post-Graduate	-0.017	(0.030)
Marital Status		
Married living apart	-0.008	(0.007)
Divorced/separated	0.015	(0.010)
Widow/widower	-0.013	(0.010)
Cohabiting	0.012	(0.034)
Never married	0.002	(0.012)
Religion		
Protestant	-0.011	(0.012)
Pentecostal	-0.001	(0.011)
Apostolic Sect	-0.010	(0.010)
Zion	-0.004	(0.012)
Other Christian	-0.012	(0.013)

Islam	0.024	(0.042)
Traditional	-0.026	(0.016)
Other religion	-0.002	(0.022)
No religion	-0.006	(0.011)
Household characteristics		
Household size	0.003	(0.001)*
Household head disability	-0.002	(0.010)
Household head chronic condition	0.255	(0.010)***
Asset index	0.002	(0.001)***
Province		
Mashonaland Central	-0.004	(0.009)
Mashonaland East	-0.008	(0.009)
Mashonaland West	-0.006	(0.009)
Matabeleland North	-0.016	(0.010)*
Matabeleland South	-0.033	(0.010)***
Midlands	-0.029	(0.008)***
Masvingo	-0.001	(0.009)
Constant	-0.008	(0.018)
Observations	17,895	
R-squared	0.114	

4.6.4 Section Discussion

The analysis of climate, economic and health shocks revealed a complex web of vulnerability shaped by education, gender, health status, household composition and geographic location. Education generally equips individuals with the knowledge and adaptability needed to cope with climate change and reduce future exposure to dry spells, pests and livestock diseases. These findings corroborate those of (Moyo *et al.*, 2025), (Jamshidi *et al.*, 2019) and (Ranucci *et al.*, 2025) which found that education enhances anticipatory and adaptive capacities through improved awareness, better agricultural practices and access to coping mechanisms. Higher education also reduced vulnerability to economic shocks like cash shortages and cereal price volatility. Gender also played a significant role as female-headed households were consistently less likely to experience climate and economic shocks, particularly dry spells, cash shortages and price fluctuations. This may reflect different livelihood strategies or smaller landholdings, which limit exposure but potentially constrain productivity. This result aligns with findings that women in Zimbabwe tend to adopt lower-risk livelihood options and are more engaged in informal economies, where price shocks may be buffered by community-level arrangements (Chirau, 2014; Derera *et al.*, 2020; Woyo *et al.*, 2025).

The results also revealed that households with chronically ill heads were significantly more likely to report health shocks, reinforcing the burden of illness as both a cause and consequence of vulnerability. The chronic illness effect also spilled into economic exposure, as these households may incur higher medical costs or face constrained labour capacity. Larger household size was consistently associated with higher exposure to all types of shocks, possibly due to greater food,

water and income needs, which increase risk across sectors. Disaggregating the data by province, Matabeleland North and Masvingo emerged as hotspots for dry spells, livestock death and waterlogging, while the Mashonaland provinces generally reported lower exposure levels. This mirrors climatic and agroecological realities, as highlighted by the ZIMSTAT (2023) Poverty Atlas and FAO (2023) vulnerability assessments and points to the need for geographically specific resilience programming. The results also revealed that religious affiliation may shape perceptions or actual exposure to shocks. Apostolic and Zionist households were more likely to report dry spell exposure, which could reflect both livelihood orientation (e.g., dependence on dryland farming) and possibly fatalistic attitudes toward disaster risk.

4.7 Association Between Household-Level Indicators and Child Nutritional Outcomes

This analysis examines the correlations between key household characteristics and child nutritional outcomes, specifically stunting, thinness, obesity and underweight, based on commonly used food security and socio-economic indicators. The correlation coefficients, although generally weak, provide valuable insights into the direction and potential implications of these relationships. As shown in **Table 22**, FCS, a composite indicator of dietary frequency and diversity, demonstrated weak negative correlations with stunting (-0.028), thinness (-0.0031) and underweight (-0.0088), suggesting that households with more regular and diverse food intake tend to have children with slightly better nutritional outcomes. The small positive correlation with obesity (0.003) was negligible, indicating no substantial risk of overnutrition associated with higher FCS. Similarly, the **HDDS**, which captures the number of food groups consumed in the household over a reference period, was weak and negatively associated with all four nutrition indicators, that is, stunting (-0.0199), thinness (-0.0029), obesity (-0.0061) and underweight (-0.0019). These findings reinforce existing literature (Khamis *et al.*, 2019; Marinda *et al.*, 2023; Motadi *et al.*, 2023) that links dietary diversity to improved nutritional status, particularly in reducing chronic forms of undernutrition such as stunting.

Table 22. Association between household-level indicators and child nutritional outcomes

Variable	Stunting	Thinness	Obesity	Underweight
Food Consumption Score (FCS)	-0.028	-0.0031	0.003	-0.0088
Household Dietary Diversity Score (HDDS)	-0.0199	-0.0029	-0.0061	-0.0019
Reduced Coping Strategies Index (RCSI)	0.0312	0.0046	0.0186	0.0329
Household Hunger Scale (HHS)	0.0167	0.0147	0.0135	0.018
Monthly income	-0.0255	-0.0015	-0.0249	-0.025

The results presented in **Table 22** also show that both the RCSI and the HHS exhibited positive associations with all forms of malnutrition. For RCSI, correlations were observed with stunting (0.0312), thinness (0.0046), obesity (0.0186) and underweight (0.0329). More so, HHS showed positive correlations with stunting (0.0167), thinness (0.0147), obesity (0.0135) and underweight (0.018). These findings suggest that food-insecure households, those forced to adopt coping mechanisms or experiencing hunger, are more likely to have children with poor nutritional outcomes, including both under- and overnutrition. This dual burden may stem from irregular access to food, low diet quality and increased physiological stress.

Monthly household income showed weak negative correlations with stunting (-0.0255), obesity (-0.0249) and underweight (-0.025), indicating that greater household financial capacity is associated with lower levels of malnutrition. The relationship with thinness (-0.0015) was minimal, suggesting income may play a stronger role in preventing chronic and general undernutrition than acute wasting. In summary, while the observed correlations are small in magnitude, they are consistent with theoretical expectations. Indicators of food security and economic well-being, such as higher FCS, HDDS and income, are associated with reduced risk of malnutrition, while markers of food insecurity (RCSI and HHS) are associated with higher risk. These results underscore the importance of integrated, multi-dimensional approaches to improving child nutrition in Zimbabwe, focusing on both improving dietary quality and household resilience to food insecurity.

4.8 Integrated Analysis of the 2025 Rural Livelihoods Assessment: Linking Quantitative Findings with Community Perspectives

The 2025 Rural Livelihoods Assessment (RLA) presents a nationally representative quantitative analysis of household-level livelihood patterns, asset access and shock exposure across Zimbabwe's rural provinces. To complement and contextualise this evidence, a parallel qualitative study was conducted through 592 Focus Group Discussions (FGDs) and 89 Key Informant Interviews (KIIs) across all rural districts, capturing the lived experiences and coping strategies of communities. By integrating these data sources using the Sustainable Livelihoods Framework (SLF), we can better understand the underlying drivers of vulnerability and resilience and inform inclusive, targeted policy and programming under Zimbabwe's NDS2 and Vision 2030.

Vulnerability context: climate, economic and health shocks

The quantitative data highlights the impact of climatic, notably dry spells, livestock diseases, crop pests and cash shortages. These shocks were statistically linked to reduced income (coef = -0.067, $p < 0.05$), reduced dietary diversity (coef = -0.524, $p < 0.1$) and increased hunger (coef = 0.056, $p < 0.01$). This finding was corroborated by the qualitative studies, which confirmed that households

are exposed to a cycle of environmental exposure, harvest loss and nutritional stress. In Guruve and Mt Darwin, households noted the dual impact of crop failure and price increases, stating that ***"even if there is food at the market, we cannot afford it."*** These lived realities affirm the statistical finding that price increase reduces food consumption (coef = -0.703, $p < 0.05$) and compromises dietary adequacy.

Human capital: education, health and livelihood knowledge

Quantitative results show that capital, especially through salaried employment and livestock ownership, was positively associated with improved dietary diversity (coef = 0.611 and 0.402 respectively, $p < 0.01$) and lower hunger prevalence. Additionally, casual labour was associated with increased food insecurity. Findings from the qualitative study revealed that formal employment remains limited, but where it exists (e.g., in mining towns or border towns), families report better nutrition and stability. In districts like Buhera and Tsholotsho, school dropout rates, particularly among girls remain high due to early marriage and other reasons such as time consuming household chores.

Social capital: remittances, local networks and informal support

Based on the quantitative data analysis, diaspora remittances significantly enhanced income (coef = 0.518), dietary diversity (coef = 0.561) and food consumption (coef = 4.733), all at $p < 0.01$. Local remittances and social networks showed moderate but mixed influence. Based on qualitative results, rural communities confirmed that many rural households depend on financial transfers from relatives in South Africa or urban towns to meet basic needs. Strength of local social capital was also evident. ISAL groups were frequently cited as a lifeline for accessing lump-sum funds for school fees, groceries, or emergencies. In Mazowe and Murehwa, churches and funeral societies were described as playing a vital role during shocks. However, some youths expressed feeling excluded from these structures, highlighting a gap in intergenerational inclusion that needs policy attention.

Natural capital: land, water, livestock and agroecology

Livestock rearing was associated with positive outcomes across income, dietary diversity and food consumption. Crop production, however, often failed to lift incomes, reflecting a subsistence orientation (income coef = -0.158, $p < 0.01$). Findings from FGDs with communities revealed strong reliance on fruit and vegetable production (bananas, avocados, tomatoes), often sold in local markets. However, land degradation, low rainfall and lack of irrigation infrastructure severely limited productive capacity. Multiple districts described livestock diseases (e.g., foot and mouth, tick-borne diseases) as persistent and damaging. ***"We fear losing our goats more than anything else,"*** said a participant in Mberengwa, illustrating the role of livestock as both an economic and social asset.

Physical capital: infrastructure, water, energy and markets

Community discussions affirmed that poor roads and bridges and unreliable electricity limit both productivity and service access. In Chipinge, Binga and Mbire, findings from the FGDs indicated that poor transport infrastructure isolated communities during the rainy season, cutting them off from clinics, schools and markets. In Kariba and Sanyati, fishing communities noted improvements in solar access through NGO projects but lamented high maintenance costs.

Financial capital: savings, loans and economic empowerment

Based on quantitative data, financial capital access was positively associated with income, dietary diversity and food consumption. Diaspora support and loan uptake from ISALs or microcredit institutions boosted outcomes. On the other hand, women's groups reiterated that ISALs were the most accessible and trusted financial mechanism. Youths reported exclusion from ISALs due to lack of initial savings. In some rural communities, households resorted to predatory lenders, highlighting the need for stronger regulation and support for inclusive finance. Entrepreneurial activities such as poultry rearing, vending and mobile money businesses were common but constrained by capital, input costs and market volatility. Qualitative voices underscored the need for linking microfinance with business development support to promote transformative resilience.

Livelihood strategies and outcomes: diversification and food security

Quantitative data revealed that livelihood diversification, especially through salaried jobs, petty trade, remittances and livestock rearing, led to better outcomes in food security, service access and income. Casual labour, by contrast, was linked to poor outcomes. These findings corroborate those from the qualitative study. The importance of diversified income strategies emerged strongly in all provinces. In Mashonaland West and Midlands, rural households commonly combined crop-livestock production, artisanal mining, vending and informal transport services. In contrast, subsistence-only households in arid areas like Gwanda, Mbire and Mutoko reported low food production, limited income and high reliance on food aid. Women-led households and those without remittance support were the most vulnerable, confirming quantitative findings. This comprehensive evidence base offers a roadmap for building resilient, dignified and productive rural communities aligned with NDS2, Vision 2030 and the SDGs.

4.9 Treatment Effects

This section presents the results of treatment effect analysis on household welfare outcomes across three domains: livelihoods, access to capital and exposure to shocks. The key welfare indicators analysed include household income (USD), Household Dietary Diversity Score (HDDS), Food Consumption Score (FCS), Household Hunger Scale (HHS) and access to basic services such as water, sanitation and clean energy. The analysis draws on coefficient estimates and

significance levels to highlight which livelihood strategies, support mechanisms, or shocks are most strongly associated with improved or reduced household wellbeing.

4.9.1 Livelihood strategies

Livelihood strategies demonstrated significant and varied impacts on household welfare (**Table 23**). Notably, livestock production and sales emerged as one of the most beneficial sources of livelihood. Households engaged in livestock activities experienced significant improvements in income (coef = 0.181, $p < 0.05$), dietary diversity (HDDS, coef = 0.402, $p < 0.01$) and food consumption (FCS, coef = 4.512, $p < 0.01$), while also reporting reduced hunger (coef = -0.118, $p < 0.01$). These findings underscore the multidimensional benefits of livestock-based livelihoods. Furthermore, salaried employment exhibited consistently strong and positive effects across multiple indicators. It was associated with substantial gains in income (coef = 0.904, $p < 0.01$), HDDS (coef = 0.611, $p < 0.01$) and FCS (coef = 5.938, $p < 0.01$), along with improved access to clean energy (coef = 0.086, $p < 0.01$). However, salaried employment corresponded with a rise in reported household hunger (coef = -0.232, $p < 0.01$). Remittances from outside the community were also highly impactful. They significantly increased income (coef = 0.286, $p < 0.01$), HDDS (coef = 0.260, $p < 0.01$) and FCS (coef = 1.905, $p < 0.01$) and modestly reduced hunger (coef = 0.092, $p < 0.1$), confirming the resilience-enhancing role of external family and diaspora support. Vending and petty trade had highly favourable outcomes. These activities significantly improved income (coef = 0.347, $p < 0.01$), dietary diversity (coef = 0.339, $p < 0.01$) and food consumption (coef = 2.027, $p < 0.01$) and also led to better access to sanitation (coef = 0.051, $p < 0.01$), demonstrating their importance in rural economies.

Table 23 also reveals that cash crop production was another positively associated strategy, with a significant increase in household income (coef = 0.296, $p < 0.01$), although its effect on other welfare indicators was not statistically significant. Small-scale mining also contributed positively to income and HDDS, though these came with trade-offs in terms of reduced access to water and sanitation. Food crop production, while linked to reduced income (coef = -0.158, $p < 0.01$), contributed positively to household food security. It significantly improved the Food Consumption Score (coef = 0.794, $p < 0.05$) and reduced hunger (coef = 0.104, $p < 0.01$), highlighting its subsistence value. In contrast, casual labour was associated with highly adverse outcomes across nearly all indicators, indicating the vulnerability of households reliant on this form of income.

Table 23. Treatment effects for livelihood strategies

Livelihood strategies	Income USD		HDDS		FCS		HHS		Basic water		Basic sanitation		Clean energy	
	coef	se	coef	se	coef	se	coef	se	coef	se	coef	se	coef	se
Food crop production/sales	-0.158	(0.034)***	-0.043	(0.047)	0.794	(0.348)**	0.104	(0.026)***	-0.036	(0.005)***	-0.001	(0.011)	-0.028	(0.004)***
Vegetables production/ sales	-0.119	(0.039)***	0.073	(0.047)	-0.735	(0.364)**	-0.112	(0.025)***	0.001	(0.006)	0.043	(0.012)***	-0.029	(0.004)***
Cash crop production	0.296	(0.082)***	0.066	(0.119)	1.286	(0.854)	0.035	(0.059)	0.009	(0.017)	0.021	(0.018)	0.004	(0.015)
Livestock production/sales	0.181	(0.072)**	0.402	(0.077)***	4.512	(0.730)***	-0.118	(0.037)***	0.009	(0.014)	0.035	(0.019)*	0.002	(0.017)
Remittances/gifts from outside	0.286	(0.062)***	0.260	(0.099)***	1.905	(0.732)***	0.092	(0.051)*	-0.006	(0.011)	0.042	(0.025)*	0.008	(0.012)
Remittances/gifts from within	-0.029	(0.037)	0.023	(0.053)	-0.489	(0.438)	-0.018	(0.031)	-0.001	(0.007)	0.011	(0.013)	-0.028	(0.004)***
Casual labour	-0.294	(0.028)***	-0.439	(0.035)***	-4.574	(0.280)***	0.177	(0.019)***	-0.040	(0.005)***	-0.069	(0.009)***	-0.043	(0.004)***
Salaries/wages	0.904	(0.038)***	0.611	(0.075)***	5.938	(0.552)***	-0.232	(0.038)***	0.057	(0.011)***	0.016	(0.017)	0.086	(0.009)***
Small scale mining	0.493	(0.091)***	0.272	(0.078)***	0.412	(0.656)	0.029	(0.039)	-0.026	(0.016)*	-0.055	(0.025)**	0.007	(0.017)
Vending/petty trade	0.347	(0.051)***	0.339	(0.067)***	2.027	(0.529)***	-0.124	(0.032)***	-0.006	(0.008)	0.051	(0.016)***	0.008	(0.007)
Observations	17,895		17,805		17,813		17,805		17,805		17,895		17,895	

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

4.9.2 Access to Capital

Table 24 indicates that access to capital showed strong and significant associations with improved household wellbeing, particularly where it came from formal sources or productive networks. Diaspora support was the most beneficial, significantly increasing income (coef = 0.518, $p < 0.01$), HDDS (coef = 0.561, $p < 0.01$) and FCS (coef = 4.733, $p < 0.01$) and contributing to improved clean energy access (coef = 0.030, $p < 0.05$). Loans also proved to be a productive source of capital. Households with access to loans reported significantly higher income (coef = 0.366, $p < 0.01$), HDDS (coef = 0.406, $p < 0.01$) and FCS (coef = 1.866, $p < 0.01$), with modest improvements in access to water (coef = 0.028, $p < 0.05$), reflecting the potential of financial inclusion in building resilience.

Table 24 further reveals that support from urban relatives was another effective source of capital, positively influencing income (coef = 0.231, $p < 0.01$), HDDS (coef = 0.347, $p < 0.01$) and FCS (coef = 1.030, $p < 0.01$), confirming the importance of urban-rural remittance flows. Access to village health workers significantly improved all welfare outcomes: income (coef = 0.417, $p < 0.01$), HDDS (coef = 0.414, $p < 0.01$), FCS (coef = 3.325, $p < 0.01$) and reduced hunger (coef = -0.181, $p < 0.01$). This indicates the critical role of health system linkages in supporting livelihoods and food security.

Equally, access to early warning information yielded significant positive impacts, improving income (coef = 0.246, $p < 0.01$), HDDS (coef = 0.400, $p < 0.01$) and FCS (coef = 1.353, $p < 0.01$), while reducing hunger (coef = -0.182, $p < 0.01$). These findings reinforce the importance of timely and actionable information in enabling household preparedness and adaptive responses. Although support from rural relatives improved income (coef = 0.104, $p < 0.01$) and HDDS (coef = 0.080, $p < 0.05$), it was associated with a reduction in FCS and access to basic services. In contrast, government and UN/NGO support had limited or negative effects on income, HDDS, FCS and access to basic services, suggesting that such assistance may be inadequately targeted or insufficient in scale.

Table 24. Treatment effects for access to capital

Type of capital	Monthly income USD		HDDS		FCS		HHS		Basic water		Basic sanitation		Clean fuel	
	coef	se	coef	se	coef	se	coef	se	coef	se	coef	se	coef	se
Government support	-0.019	(0.032)	-0.066	(0.038)*	-1.320	(0.314)***	-0.014	(0.020)	-0.026	(0.006)***	0.007	(0.010)	-0.044	(0.005)***
UN/NGO support	-0.167	(0.043)***	-0.163	(0.052)***	-0.565	(0.411)	-0.082	(0.028)***	-0.029	(0.006)***	-0.017	(0.012)	-0.029	(0.004)***
Rural relatives support	0.104	(0.031)***	0.080	(0.040)**	-1.698	(0.306)***	0.044	(0.022)**	-0.016	(0.005)***	-0.068	(0.010)***	-0.016	(0.004)***
Urban relatives support	0.231	(0.036)***	0.347	(0.049)***	1.030	(0.395)***	-0.017	(0.029)	0.011	(0.007)	-0.010	(0.013)	-0.011	(0.005)**
Diaspora support	0.518	(0.058)***	0.561	(0.088)***	4.733	(0.686)***	-0.153	(0.040)***	-0.009	(0.011)	0.017	(0.023)	0.030	(0.012)**
Access to loans	0.366	(0.056)***	0.406	(0.075)***	1.866	(0.586)***	-0.044	(0.041)	0.028	(0.012)**	0.007	(0.020)	0.005	(0.009)
Access to a village health worker	0.417	(0.051)***	0.414	(0.060)***	3.325	(0.478)***	-0.181	(0.026)***	-0.005	(0.007)	0.012	(0.018)	0.009	(0.007)
Access to a village health worker	0.041	(0.040)	0.285	(0.048)***	0.255	(0.409)	-0.103	(0.027)***	-0.007	(0.007)	-0.006	(0.012)	-0.024	(0.006)***
Access to early warning information	0.246	(0.028)***	0.400	(0.036)***	1.353	(0.287)***	-0.182	(0.018)***	-0.009	(0.005)*	0.004	(0.009)	-0.007	(0.004)*
Observations	17,895		17,895		17,895		17,895		17,895		17,895		17,895	

4.7.3 Shocks

Exposure to shocks mostly led to reductions in welfare, although some shocks were associated with positive coping outcomes (**Table 25**). Livestock disease, for instance, was associated with a significant increase in FCS (coef = 2.021, $p < 0.01$). Similarly, waterlogging was linked to higher FCS (coef = 2.058, $p < 0.1$) and reduced hunger, though it negatively affected clean energy access.

In addition, **Table 25** indicates that households charged more for mobile money services reported significantly higher income (coef = 0.461, $p < 0.01$), HDDS (coef = 0.574, $p < 0.01$) and FCS (coef = 3.549, $p < 0.01$), suggesting that these households are more financially active or better connected to remittance and trade networks. Moreover, livestock price increases also contributed positively to FCS (coef = 1.668, $p < 0.01$), although they were accompanied by a decline in water access. These examples highlight the complex and sometimes beneficial effects of certain markets or environmental changes.

Dry spells, crop pests, cash shortages, cereal price increases and chronic illness were all associated with reductions in income, dietary diversity and access to basic services, while increasing household hunger. Cash shortages had broad negative effects across all welfare indicators. These results underscore the importance of developing shock-responsive safety nets and building absorptive capacity in vulnerable households, while also recognising that some shocks may catalyze short-term adaptive responses under certain conditions.

Table 25. Treatment effects for shocks

Type of Shocks	Income USD		HDDS		FCS		HHS		Basic water		Basic sanitation		Clean energy	
	coef	se	coef	se	coef	se	coef	se	coef	se	coef	se	coef	se
Dry spells	-0.067	(0.030)**	0.002	(0.038)	-0.524	(0.312)*	0.056	(0.019)***	-0.019	(0.005)***	-0.008	(0.009)	-0.044	(0.004)***
Crop pests	-0.106	(0.032)***	0.070	(0.036)*	-0.347	(0.299)	0.027	(0.023)	-0.009	(0.005)*	-0.030	(0.009)***	-0.037	(0.003)***
waterlogging	0.022	(0.082)	0.103	(0.093)	2.058	(1.199)*	0.094	(0.052)*	-0.013	(0.011)	-0.007	(0.022)	-0.023	(0.009)***
Livestock deaths	-0.034	(0.038)	0.009	(0.058)	0.718	(0.493)	0.084	(0.037)**	-0.022	(0.006)***	0.030	(0.014)**	-0.031	(0.006)***
Livestock diseases	0.036	(0.043)	0.220	(0.065)***	2.021	(0.469)***	0.130	(0.037)***	-0.030	(0.006)***	0.034	(0.015)**	-0.036	(0.005)***
Wildlife	-0.056	(0.052)	-0.103	(0.067)	-0.185	(0.543)	0.128	(0.034)***	-0.013	(0.008)*	-0.015	(0.017)	-0.034	(0.004)***
Cash shortage	-0.087	(0.028)***	-0.080	(0.036)**	-1.294	(0.290)***	0.049	(0.019)***	-0.017	(0.005)***	-0.025	(0.009)***	-0.023	(0.004)***
Cereal price	-0.049	(0.030)	-0.023	(0.037)	-0.703	(0.302)**	0.083	(0.021)***	-0.024	(0.005)***	-0.043	(0.009)***	-0.010	(0.004)**
Livestock price	0.018	(0.052)	0.125	(0.073)*	1.668	(0.568)***	0.155	(0.042)***	-0.024	(0.010)**	-0.022	(0.018)	-0.010	(0.010)
Charged more for using mobile money	0.461	(0.048)***	0.574	(0.073)***	3.549	(0.568)***	0.046	(0.039)	-0.008	(0.008)	-0.028	(0.017)*	0.039	(0.010)***
Chronic illness	0.076	(0.061)	0.009	(0.073)	0.150	(0.572)	0.083	(0.039)**	-0.014	(0.009)	-0.034	(0.019)*	-0.000	(0.009)
Observations	17,895		17,895		17,895		17,895		17,895		17,895			

4.9.3 Section Discussion

The treatment effects analysis indicated the differentiated and multidimensional impacts of livelihoods, access to capital and exposure to shocks on household welfare outcomes in rural areas. The findings reaffirm existing empirical evidence that certain livelihood strategies and capital access mechanisms can significantly enhance household resilience, while others expose households to deeper vulnerability.

Livelihoods and welfare outcomes

Among all livelihood options, livestock production consistently emerged as a high-impact strategy, significantly improving income, dietary diversity and food consumption, while reducing hunger. This aligns with growing evidence that livestock systems play a critical role in rural livelihoods by providing both income and nutrient-dense food sources, particularly in semi-arid and drought-prone regions (FAO, 2018; Randolph et al., 2021). Livestock also acts as a form of insurance and a buffer against climatic shocks, further strengthening household resilience (Leroy et al., 2020).

Salaried employment, vending and petty trade were also positively associated with welfare improvements. These income sources provide regular or diversified income, which supports better access to food, clean energy and sanitation. The significance of off-farm income as a driver of rural well-being is well documented, with studies in sub-Saharan Africa indicating that households with diversified income streams are more food secure and less sensitive to price and climate fluctuations (Dillon et al., 2019; Owoo & Boakye-Yiadom, 2020). Vending and informal trade have grown in importance as survival strategies in contexts of economic fragility, urbanization and limited formal employment (Tschirley et al., 2018).

Conversely, casual labour was strongly associated with adverse outcomes across all indicators. Households relying on casual work reported reduced income, poorer dietary quality and decreased access to essential services. This supports previous findings that casual labour is often a coping strategy of the most vulnerable and does not yield sustainable or transformative gains (Beegle et al., 2019). Moreover, the low and unpredictable earnings from such work exacerbate food insecurity and poverty traps (Mberu et al., 2022).

The results for food crop production confirm its subsistence role. While not income-enhancing, it significantly improved food consumption and reduced hunger. This aligns with literature emphasising the contribution of subsistence farming to dietary stability and self-sufficiency, (especially in contexts where markets are inaccessible or food prices are volatile (Carletto et al., 2017; Harris & Orr, 2019)).

Access to capital and household resilience

Access to capital, particularly from formal and structured sources, was a key determinant of household well-being. Diaspora remittances, loans and support from urban relatives had consistent positive effects on income, dietary outcomes and access to services. These findings corroborate literature on remittance-driven development, which shows that external remittances often serve as a major source of resilience, enabling investment in health, education and livelihood diversification (De Haas et al., 2019; Adams & Cuecuecha, 2020). Similarly, financial inclusion through microcredit and loan schemes has been shown to enhance adaptive capacity by smoothing consumption and facilitating productive investments (Banerjee et al., 2019; Demirgüç-Kunt et al., 2022).

Village health worker access and early warning systems were also positively associated with resilience. Health services improve nutrition through disease prevention and care, while early warning information supports anticipatory actions in the face of climatic threats. Both are recognised as "soft infrastructure" crucial for transformative resilience (Jones et al., 2021; Béné et al., 2020). Access to timely information has become particularly critical in the context of climate variability, where early preparedness can prevent asset loss and food insecurity.

Support from rural relatives and traditional humanitarian aid had mixed or even negative effects. This suggests that while such support may provide short-term relief, it may not be sufficient to generate transformative improvements in household resilience. Poor targeting, dependency, or the inability of donors themselves to provide consistent support are plausible explanations, as found in other African contexts (Maxwell et al., 2018; Slater et al., 2022).

Shocks and household vulnerability

Exposure to climatic and economic shocks generally undermined welfare outcomes, consistent with the broader literature on vulnerability and resilience. Dry spells, crop pests, livestock disease, cash shortages and rising food prices had substantial negative effects on income, food security and access to services. These findings align with research showing how recurrent and compounded shocks deplete household assets and limit recovery capacity (Fisher et al., 2019; Wossen et al., 2021).

Interestingly, some shocks such as livestock price increases and even mobile money transaction costs were positively associated with welfare. These counterintuitive results may reflect the fact that households exposed to such shocks are more financially integrated or market oriented. Financially active households may experience higher costs but also gain higher returns, confirming the importance of financial inclusion for resilience (Zins & Weill, 2018; Aker & Blumenstock, 2020).

Waterlogging and livestock disease were also associated with improvements in food consumption in the short term. However, these results should be interpreted cautiously as they may reflect short-lived coping strategies rather than sustainable resilience (Ceballos et al., 2022).

Implications for resilience programming

The findings suggest that resilience-building interventions should prioritise livestock production, promote diversified off-farm incomes and expand access to formal financial services, health systems and information. At the same time, there is a need to reassess the design and targeting of social assistance programmes to avoid fostering dependency without building capacity. Strengthening early warning systems, promoting financial inclusion and integrating rural-urban linkages through remittances and trade are critical to transforming rural livelihoods and reducing vulnerability to shocks.

5. CHAPTER 5 DISCUSSION AND RECOMMENDATIONS

The findings presented in Chapter 4 provide in-depth insights into how diverse livelihood strategies, access to capital and exposure to shocks shape household welfare outcomes in Zimbabwe's rural settings. At the centre of the analysis is the recognition that rural livelihoods are inherently dynamic and shaped by a combination of structural constraints, resource access, institutional support and vulnerability to climatic and economic shocks.

5.1 Overall Discussion

5.1.1 Rural livelihoods in Zimbabwe: beyond subsistence toward resilience

The data reveals that not all livelihoods contribute equally to household wellbeing. While food crop production remains a core activity for many rural households, its contribution to cash income is limited. Nevertheless, its significant positive effect on food consumption and hunger reduction underlines its importance in safeguarding subsistence and maintaining food security. This is consistent with evidence from smallholder farming systems across Southern Africa, where food production continues to be a vital buffer against hunger, especially during times of market volatility or climate-induced disruptions (Kapari *et al.*, 2023; Mutengwa *et al.*, 2023). Importantly, livestock-based livelihoods emerged as a cornerstone of resilient rural households. They were associated with significant improvements in income, dietary diversity, food consumption and hunger reduction. These results reinforce the notion of livestock as a "multifunctional asset" that provides food, income, insurance and manure for crop production (Danso-Abbeam *et al.*, 2024). Integrating livestock more systematically into resilience programming can thus provide both immediate and long-term benefits (Fava *et al.*, 2021).

Similarly, petty trade and vending, largely informal but thriving sectors, demonstrated robust associations with improved welfare indicators. These livelihood strategies, particularly accessible to women and youth, have become increasingly prominent in rural areas and growth points. Their contribution to both income and access to basic services underscores the need for policies that formalise and support the informal sector as a legitimate pathway to resilience. This finding gives confidence that the recently introduced Village Business Unit programme by the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development will be a game changer that will positively contribute to improved rural livelihoods in Zimbabwe. In contrast, the findings show that households depending on casual labour had much lower income, poor diets, limited access to water, sanitation and energy and faced more hunger. This highlights the reality of those engaged in casual employment having limited chances to improve their lives. Salaried employment, though associated with substantial gains in income and other welfare indicators, surprisingly correlated

with increased hunger. This paradox may be linked to the burden of income-sharing obligations or delayed wage payments, issues that complicate the assumption that formal employment alone guarantees food security.

5.1.2 Access to capital: a foundation for adaptive and transformative capacity

The role of capital access in shaping resilience was strongly evident in the findings. Support from diaspora and urban relatives significantly improved all key welfare outcomes, income, dietary quality and service access. These remittance flows act as vital buffers against shocks and as enablers of investment in health, education and productive assets. This supports a substantial body of evidence on the role of remittances as social safety nets, enhancing the resilience of rural households by facilitating investment in health, food and livelihoods (Monwanou & Akpa, 2025). Notably, diaspora remittances also improved access to clean energy, suggesting their broader transformative impact (Barkat *et al.*, 2023). The transformative potential of remittances is particularly critical in contexts where formal credit markets are underdeveloped or inaccessible (Agradi, 2023). Access to financial services such as loans also proved beneficial, reinforcing the argument for scaling up microfinance and inclusive banking services in rural Zimbabwe. When designed appropriately, such financial instruments enable households to smooth consumption, invest in productive ventures and manage risks more effectively (Song *et al.*, 2024; Alqatan *et al.*, 2025).

Community-based services, particularly village health workers and early warning systems, had clear welfare-enhancing effects. This finding validates resilience frameworks that emphasise the importance of functional systems and institutions and the role of local systems in facilitating early action and recovery. These services are low-cost yet high-impact interventions that should be scaled up as part of integrated resilience strategies. In contrast, government and NGO support were associated with negligible or even negative effects on dietary diversity and access to services. This may reflect issues of poor targeting, fragmentation, or the provision of non-transformative aid. These findings call for a reassessment of how social assistance is delivered, with an emphasis on linking short-term aid to longer-term resilience outcomes.

5.1.3 Shocks and household vulnerability

The analysis confirmed the widely documented vulnerability of rural households to climate-related and economic shocks. Dry spells, crop pests, livestock disease, cash shortages and cereal price increases had broad and negative effects on income, dietary intake, hunger and access to basic services. This highlights the compounding nature of shocks, which undermine household welfare through multiple pathways, crop failure, asset depletion, rising food costs and service disruption. Interestingly, some shocks such as livestock disease and waterlogging were linked with temporary increases in FCS. These may reflect short-term responses, such as slaughtering diseased animals

for consumption or short-lived flood-related benefits, but they are unlikely to be sustainable and may signal deeper systemic weaknesses in livestock health systems or land-use planning. However, some seemingly counterintuitive findings, such as positive associations between higher mobile money costs and welfare indicators, point to the complex reality of resilience. These findings may reflect the behaviour of more financially engaged households which absorb higher costs due to higher transactional volumes, suggesting that mobile money can be both a resilience enabler and a burden if not regulated effectively. Livestock price increases also resulted in improved food consumption, indicating that households with marketable livestock can benefit during price spikes, thereby using livestock as a store of wealth and a hedge against inflation. Such evidence supports the notion of building asset-based resilience.

5.1.4 Synthesis and implications

Overall, the treatment effects point to three critical pillars of household resilience: (1) diversified and high-return livelihood strategies (especially livestock and trade), (2) structured and reliable capital access (loans, diaspora remittances and urban linkages) and (3) robust public service and information systems (health, early warning). Casual and seasonal labour, unstructured rural support and poorly targeted aid offer limited or negative effects. For policy and programming, the results affirm the need to scale up investments in livestock systems, expand financial inclusion (particularly for women and youth), improve the targeting and quality of government assistance and build stronger early warning and extension systems. Emphasising transformative resilience, beyond coping, requires integrated interventions that span productive assets, market access and institutional reform.

5.2 Rural Livelihood Assessment 2025 Results in the Context of NDS1 and SDGs

The 2025 Rural Livelihoods Assessment presents a comprehensive and evidence-based overview of the evolving livelihood conditions in Zimbabwe's rural areas. As the country approaches the end of the National Development Strategy 1 (NDS1) period (2021–2025), the assessment offers timely insights into how rural households are navigating a complex landscape of climate shocks, economic uncertainty and limited service access. The findings serve as a robust empirical foundation for evaluating the extent to which Zimbabwe is progressing toward both national policy goals and global development commitments.

This section situates the 2025 RLA results within the broader frameworks of NDS1 and the Sustainable Development Goals (SDGs), providing a critical reflection on household livelihood outcomes, livelihood diversification, access to capital and resilience in the face of shocks. The analysis uses the Sustainable Livelihoods Framework (SLF) to explore the ways in which different forms of capital, human, social, natural, physical and financial, to or constrain rural development outcomes.

In particular, the results highlight measurable progress in areas such as remittance use, livestock-based incomes and access to health services, which align with NDS1 priorities on human capital development, rural transformation and inclusive growth. At the same time, persistent inequalities in access to energy and secure income, especially among households relying on casual labour, signal gaps in resilience-building and social protection.

By aligning 2025 RLA data with selected targets under NDS1 and relevant, this analysis provides a grounded, data-driven contribution to policy dialogue and programmatic prioritisation in Zimbabwe's rural development agenda.

i. Income and poverty reduction (NDS1 Pillar 1 & SDG 1, 8)

Income gains were most notable among households engaged in salaried employment (coef = 0.904), vending (coef = 0.347) and livestock production (coef = 0.181), affirming that formal and semi-formal livelihood strategies offer the most reliable pathways out of poverty. These outcomes align with NDS1's goal of fostering inclusive economic growth and SDG 1 on ending poverty and SDG 8 on decent work.

ii. Nutrition and food security (NDS1 Pillar 4 & SDGs 2, 3)

Improvements in HDDS and FCS, especially among households supported by livestock and salaried income, are key milestones for Zimbabwe's human capital development agenda. Households with access to village health workers and early warning information also demonstrated better hunger outcomes, reinforcing the importance of integrated service delivery in nutrition-sensitive interventions.

iii. WASH infrastructure (NDS1 Pillar 3 & SDG 6)

Gains in water, sanitation and energy access were largely tied to income-generating activities like vending and diaspora remittances, indicating that household investment capacity is vital to service access. However, households dependent on casual labour and aid experienced significant setbacks in WASH indicators, highlighting a need for public infrastructure investment.

iv. Clean energy and climate resilience (NDS1 Pillar 3 & 5; SDGs 7, 13)

Improved access to clean energy, among salaried, remittance-receiving and horticulture-based households, contributes to Zimbabwe's climate goals. In contrast, exposure to dry spells, pests and cash shocks significantly undermined resilience, reaffirming the urgent need for shock-responsive planning and climate-smart interventions.

v. Capital access and inclusion (NDS1 Pillar 7 & SDGs 1, 8, 9)

Financial inclusion through loans and remittances was positively associated with income, dietary diversity and FCS. These results confirm the need to scale up rural access to capital, especially for women and youth, to drive inclusive livelihood outcomes.

vi. Employment and youth livelihoods (NDS1 Pillars 1, 2 & SDGs 8, 5)

Employment patterns from the 2025 RLA show that wage labour, vending and small-scale mining offer better welfare outcomes than casual or subsistence work. This supports the push for formalisation, entrepreneurship training and labour market integration for rural youth and women.

The 2025 RLA results affirm that Zimbabwe is making commendable progress on several NDS1 pillars and SDG targets, particularly where diversified livelihoods, asset ownership and institutional access intersect. However, disparities persist for those relying on casual labour or subsistence agriculture. Strengthened policies on rural finance, WASH infrastructure, climate resilience and rural employment are essential to bridging these gaps.

5.3 Recommendations

i. Accelerate implementation of Rural Development 8.0 Concept for inclusive livelihood transformation

- Scale up the implementation of Rural Development 8.0 as a national strategy for rural economic transformation, with a focus on agricultural industrialisation, local value addition and rural enterprise development.
- Establish and expand school-based, village-level and youth-led business units as anchors for local economic growth and employment generation.
- Promote integrated rural industrial clusters that link agricultural production with small-scale manufacturing, warehousing and rural service centres.
- Support the capacitation of rural youth and women in entrepreneurship, agribusiness and financial literacy, leveraging Innovation Hubs, Agricultural Colleges and rural training centres.
- Facilitate access to affordable financing, land and technology for rural-based enterprises, through strengthened coordination between government agencies, financial institutions and development partners.

ii. Enhancing agricultural production

- Scale up irrigation and water harvesting infrastructure in semi-arid districts to reduce dependence on erratic rainfall and enhance year-round agricultural productivity. The Government of Zimbabwe is commended for its ongoing efforts to rehabilitate and expand irrigation schemes across the country, which are vital for building climate resilience and improving food and income security in vulnerable communities.
- Promote drought-tolerant and early maturing crop varieties, including traditional grains and legumes, through accessible seed systems and farmer-led demonstrations. A key challenge that needs urgent attention is the limited availability of certified seeds for traditional grains on the market, which may impede uptake and scaling up of these climate-resilient crops.

- Improve access to timely and affordable inputs, especially for smallholder farmers, through targeted input schemes, public-private partnerships and inclusive agro-dealer networks.

iii. Catalysing a contextualised green revolution

- Continue to invest in climate-smart agriculture (CSA) by mainstreaming conservation agriculture (e.g., Pfumvudza/Intwasa), precision farming technologies and agroecological approaches tailored to each agroecological zone.
- Expand agroforestry and sustainable land management practices, especially in erosion-prone and deforested areas, to build long-term soil fertility and ecological health.
- Incentivise mechanisation and digital agriculture solutions, such as drone-based monitoring and mobile weather platforms and AI-powered advisory services especially among youth and commercialising smallholders.

iv. Strengthen asset accumulation and livelihood diversification

- Promote livestock development, especially small livestock, as a pathway to both income and improved dietary outcomes.
- Support rural entrepreneurship and value addition, particularly in horticulture, legumes, small livestock, wild foods and non-timber forest products, through skills development, incubation centres and financing models. The Village Business Units will go a long way in rural industrialisation and the Government of Zimbabwe is applauded for this innovation.
- Provide technical and financial support for climate-smart agriculture to increase returns from food and vegetable production.

v. Expand access to financial capital

- Strengthen rural financial inclusion mechanisms, including low-interest loans, mobile banking and savings groups.
- Strengthen access to inclusive financial services, including Village Savings and Loan associations (VSALs), youth- and women-friendly credit schemes and mobile banking to support micro-enterprises and non-farm businesses.
- Leverage remittances and diaspora capital for investment in rural enterprises by creating formal, secure and community-driven investment channels.
- Scale up access to shock-responsive credit for agricultural inputs, healthcare and education.

vi. Invest in human capital and local institutions

- Scale up community-based health and nutrition services, such as village health workers and child feeding programmes.
- Scale up investment in early warning systems and climate information services that are accessible, timely and localised.
- Continue to promote education and vocational training, with a focus on transferable skills relevant to rural economies.

vii. Reform external aid and social protection models

- Redesign government and NGO support to be more transformative and less dependency-inducing, with an emphasis on productive asset transfers rather than short-term handouts.
- Continue to integrate shock-sensitive social protection systems (e.g., cash-for-work, food-for-assets) that build long-term adaptive capacities.
- Encourage multi-stakeholder targeting approaches that improve the reach and relevance of social assistance programmes.

viii. Strengthen physical capital and infrastructure

- Prioritise rural water, sanitation and energy infrastructure, especially in vulnerable wards.
- Invest in rural road networks and marketplaces to enhance market access and mobility of goods and services.
- Promote renewable energy options to reduce reliance on unsustainable and inaccessible energy sources.

ix. Embed resilience thinking in development planning

- Align all interventions with the absorptive, adaptive and transformative capacities outlined in the SLF.
- Support local governance structures in participatory planning, resource allocation and accountability.
- Ensure that all rural development strategies contribute to Zimbabwe's NDS2, Vision 2030 and relevant Sustainable Development Goals (SDGs).

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This Technical Report, *Optimising Rural Livelihoods in Zimbabwe*, highlights both the resilience of rural communities and the need for sustainable transformation. Using evidence from the 2025 Rural Livelihoods Assessment, the book analyzes household realities and vulnerabilities, showing progress in food security and social protection, but noting ongoing poverty and gender challenges. The authors enunciate that resilience is built through diversified livelihoods, strong institutions, inclusive finance, and adaptive communities. Moving beyond analysis, the book calls for scaling up climate-smart agriculture, investing in people and infrastructure, and reimagining social protection to foster self-reliance.

Ultimately, this volume serves as a guide for policymakers, development partners, and local leaders to work together toward Zimbabwe's Vision 2030 and the Sustainable Development Goals, offering a blueprint for a resilient and prosperous rural future.

This technical report can also be found on the Food and Nutrition Council of Zimbabwe website (scan QR code).

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