

Investigating the Factors Affecting the Participation of Small Scale-Farmers in Agricultural Entrepreneurship in Zambia: A Case Study of Mpongwe Rural Communities, Copperbelt Province

Isaac Nanga^{1*}, Mukwalikuli Mundia¹, Mufalali Simasiku Mwiya¹

¹ Kwame Nkrumah University, Zambia

* Corresponding Author

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Abstract

Small-scale farmers play a significant role in supporting rural livelihoods and agricultural production in Zambia. However, despite increasing opportunities to engage in agriculture as a business, many farmers remain confined to subsistence farming, while limited research has examined how socio-economic, institutional, and infrastructural and market-related factors influence their participation in agricultural entrepreneurship at the community level. This study investigated the factors affecting the participation of small-scale farmers in agricultural entrepreneurship in Mpongwe District of Zambia's Copperbelt Province. Specifically, the study explored the influence of socio-economic, institutional, and infrastructural and market-related factors on farmers' participation. A qualitative case study design was employed, involving 25 respondents comprising 20 small-scale farmers and 5 key informants from three villages in Mpongwe District. Data were collected through semi-structured interviews and analysed thematically, guided by the Theory of Planned Behaviour. The findings revealed that household income, land size, education, age, and gender influenced farmers' participation, with limited financial capacity to purchase farming inputs emerging as the greatest constraint. Cooperative membership served as an important gateway to institutional support, while non-members had limited access to government input programmes, extension services, and agricultural credit. Poor rural roads, inadequate storage facilities, weak mobile network coverage, and limited market opportunities further constrained farmers' ability to operate profitably. The study concludes that socio-economic, institutional, and infrastructural and market-related factors are interconnected and collectively constrain small-scale farmers' participation in agricultural entrepreneurship in Mpongwe District. The study recommends strengthening cooperative outreach, improving timely input delivery, expanding extension services, increasing access to agricultural credit, and investing in rural roads, storage facilities, and communication infrastructure.

1. Introduction and Background of the Study

Agriculture and agribusiness remain fundamental to Zambia's economy and to the livelihoods of its rural population. Although the sector's direct contribution to Gross Domestic Product has become more volatile in recent years, shifting from roughly 20% a decade ago to between 3% and 7% amid macroeconomic pressures and climate shocks (World Bank, 2012; IAPRI, 2024), it continues to account for a significant share of export earnings and employs nearly 70% of the rural population. Small-scale farmers, who cultivate small plots, rely largely on family labour, and practice rain-fed agriculture, form the backbone of this sector and produce most of the country's food (Mulenga, Kabisa, & Chapoto, 2020). Yet despite Zambia's fertile land and favourable climate, many of these farmers operate at subsistence level, constrained by limited access to improved technologies, financial services, and formal markets (Mulenga et al., 2021).

The Zambia Statistics Agency's 2024 Integrated Agricultural Survey shows that more than 2.1 million households are engaged in crop production and over 1.3 million in livestock production, compared with only about 2,400 large-scale farmers, confirming the dominance of small-scale farmers in the sector even as most remain weakly integrated into markets and value chains (ZamStats, 2024). This study focused on Mpongwe District in the Copperbelt Province, an area where small-scale farmers coexist with substantial agribusiness investment, including Zambeef's US\$30 million hatchery and stockfeed mill. While cooperatives, contract farming, and value-chain integration present real opportunities in the district, participation among small-scale farmers remains limited by inadequate access to finance, weak extension services, poor infrastructure, and insufficient market information (Ngoma et al., 2020; Mwansa & Zulu, 2023). Existing research on Zambian agriculture has tended to focus on national-level policy questions, leaving a gap in understanding how socio-economic, institutional, and infrastructural factors interact to shape entrepreneurial participation at the community level (IDS, 2024).

Against this backdrop, the study set out to explore the factors affecting the participation of small-scale farmers in agricultural entrepreneurship in Mpongwe rural communities, guided by three specific objectives: to explore how socio-economic factors influence participation; to understand how institutional factors affect participation; and to examine the influence of infrastructural and market-related factors on farmers' engagement in entrepreneurial agricultural activities. By generating localised, farmer-level evidence, the study aims to inform policymakers, development practitioners, and private-sector actors seeking to promote sustainable rural development and support small-scale farmers' transition from subsistence to entrepreneurial agriculture.

2 Literature Review

2.1 Theoretical Framework

Theory of planned behaviour

The study is anchored on the Theory of Planned Behaviour (TPB), developed by Ajzen (1991), which explains behaviour as a function of behavioural intentions shaped by three components: attitudes toward the behaviour, subjective norms, and perceived behavioural control. Individuals are more likely to engage in an activity when they hold a positive attitude toward it, perceive support from important social groups, and believe they possess the resources and ability required to perform it. Applied to agricultural entrepreneurship, farmers' attitudes are shaped by socio-economic factors such as education, income, farming experience, age, gender, and asset ownership; subjective norms are shaped by social capital, peer networks, and community influence; and perceived behavioural control is shaped by institutional and infrastructural conditions, including access to finance, extension services, roads, storage, and communication networks. The theory therefore provides an appropriate lens for understanding how socio-economic, institutional, and infrastructural factors jointly shape small-scale farmers' intentions and actual participation in agricultural entrepreneurship.

2.2 Empirical Review

Agricultural entrepreneurship among small-scale farmers is influenced by a combination of socio-economic, institutional, infrastructural and market-related conditions. Evidence from rural development literature shows that participation in market-oriented farming, technology adoption, collective marketing and value addition is shaped by factors including education, income, asset ownership, age, gender, farming experience and social capital. These factors influence farmers' ability to innovate, manage risk, access information and participate effectively in structured markets (FAO, 2017; World Bank, 2019).

Education is consistently identified as an important factor influencing agricultural entrepreneurial participation. Farmers with higher levels of formal education are generally better positioned to process market information, evaluate new technologies and participate in organised marketing systems. Nhliziyo and Mushunje (2024), found that education significantly influenced participation in social capital networks that support adaptive and productive strategies. Similarly, Bontsa et al. (2023) found a positive association between education and digital technology adoption among smallholder farmers, suggesting that education strengthens farmers' entrepreneurial capabilities. However, education alone does not guarantee participation, as its influence depends on complementary access to resources and institutional support.

Household income and financial capacity also influence participation because entrepreneurial agriculture requires investment in improved inputs, technologies, equipment and marketing activities. Bontsa et al. (2023) found that farmers with higher household incomes were more likely to adopt digital technologies and participate in structured marketing systems. Saha et al. (2021) similarly showed that commercialisation may require households to surpass minimum capital thresholds, with asset-poor households tending to remain in low-return subsistence production. These findings suggest that liquidity constraints can limit farmers' willingness and ability to take risks and invest in entrepreneurial activities. However, financial capacity does not operate independently because farmers may remain constrained where market access and institutional support are weak.

Ownership of productive assets, particularly land and farming equipment, further influences participation. Land ownership can provide greater security and enable surplus production, while productive assets can improve farmers' ability to participate in collective marketing arrangements. Mundia et al. (2026) found that participation in collective marketing was significantly influenced by land size, farming experience and extension contact. Since collective marketing can improve bargaining power and reduce transaction costs, farmers with greater productive resources may be better positioned to operate as entrepreneurial actors. Nevertheless, smaller landholders can also participate where strong cooperative structures provide opportunities for collective action.

Age and farming experience present more complex relationships with agricultural entrepreneurship. Farming experience can improve technical knowledge and familiarity with production systems, thereby increasing farmers' capacity to engage in activities such as agro-processing and value addition. Mthombeni et al. (2022) found that experience influenced participation in agro-processing training, while Bontsa et al. (2023) found that younger farmers may demonstrate greater openness to digital technologies. This suggests that experience and innovation may operate differently across age groups, with participation shaped by the interaction between experience, education and institutional support.

Gender also influences agricultural entrepreneurial participation, although the evidence suggests that the effects are largely associated with differences in access to resources and decision-making opportunities. Nhliziyo and Mushunje (2024) found that gender significantly influenced participation in social capital networks, with disparities reflecting differences in access to productive assets and decision-making authority. This suggests that structural inequalities rather than gender alone can restrict women's entrepreneurial engagement. Improved access to institutional and social networks may therefore help narrow participation gaps.

Social capital and cooperative participation can further strengthen farmers' entrepreneurial engagement by improving access to information, training and markets. Nhliziyo and Mushunje (2024) found that participation in social networks improves access to information and opportunities, while Magakwe et al. (2025) showed that collective marketing participation is associated with group membership and extension interaction. These structures can reduce transaction costs and uncertainty, enabling farmers to move beyond subsistence production. However, resource-poor farmers may face barriers to entering such networks, potentially reinforcing existing inequalities.

In Zambia, smallholder commercialisation is similarly shaped by socio-economic conditions. The Zambia Statistics Agency (2024) reports that more than 60% of rural households depend on agriculture, while low literacy and limited financial capacity constrain participation in agribusiness. Adetoyinbo and Mithöfer (2025) found that farmers with higher aspirations and education levels in rural Zambia were more likely to adopt structured marketing strategies and relational contracts with buyers. In Mpongwe District, Chileshe and Munkombwe (2026) found that financial literacy significantly predicted

agribusiness sustainability, further demonstrating the importance of socio-economic capabilities in agricultural entrepreneurship.

Institutional conditions also play an important role in shaping agricultural entrepreneurship. Farmers' participation is influenced by access to extension services, financial support, cooperative structures and market linkages. Institutional support can improve farmers' knowledge, productivity and market integration, while weaknesses in institutional systems can restrict their ability to participate effectively in agricultural value chains (FAO, 2017).

Extension and advisory services are particularly important because they provide technical guidance, disseminate market information and connect farmers with structured marketing opportunities. Magakwe et al. (2025) found that extension contact significantly increased the likelihood of participation in collective marketing arrangements. However, the effectiveness of extension services is often weakened by inadequate staffing, insufficient training and limited logistical support. Consequently, extension contact does not automatically result in entrepreneurial transformation because its effectiveness depends on institutional capacity, frequency of interaction and alignment with market requirements.

Collective marketing institutions can also facilitate entrepreneurship by aggregating farmers' output, improving bargaining power and reducing transaction costs. Magakwe et al. (2025) found that participation in collective marketing structures was influenced by extension visits, storage facilities and access to marketing information. In Zambia, Mundia et al. (2025) similarly found that distance to markets, access to information, farm assets and output prices influenced participation in collective marketing among bean producers. However, collective structures are not automatically effective, as weak governance, poor institutional coordination and inadequate advisory support can undermine their benefits.

Government agricultural support programmes also influence smallholder participation. The Farmer Input Support Programme (FISP) and its electronic version improved access to agricultural inputs but also reinforced dependence on maize, thereby limiting diversification into other entrepreneurial crops (Kuteya et al., 2020). Extension services in Zambia remain similarly constrained by inadequate staffing and funding, reducing farmers' ability to adopt innovative practices. In Mpongwe, Kakovu and Chisengele (2026) found a weak relationship between education and adoption of climate-smart agriculture, highlighting the importance of institutional training and extension support in agricultural transformation.

Infrastructure and market conditions constitute another important dimension of agricultural entrepreneurship. Transaction costs associated with transportation, market information, storage and market access influence farmers' decisions to participate in agricultural markets. Poor rural infrastructure increases production and marketing costs, reduces farm-gate returns and discourages sustained participation in agricultural entrepreneurship (Iddrisu et al., 2025). In Zambia, Bwalya, Mugisha and Hyuha (2013) found that productive assets and improved access to market information and alternative marketing channels increased both the likelihood and intensity of maize market participation, while high transportation costs and poor market access discouraged commercialisation.

Similar evidence has been reported elsewhere in Africa. Kuteya et al. (2020) found that although e-FISP improved farmers' access to subsidised inputs, commercialisation remained constrained by poor rural infrastructure, weak market linkages and high transport costs. In Ghana, Iddrisu et al. (2025) found that transportation costs, distance to markets, market information and structured marketing channels significantly influenced market participation. Evidence from South Africa also shows that poor roads, inadequate communication systems, limited market information and long distances to markets constrain smallholder farmers' access to input and output markets (Ortmann & King, 2007; Makhura, 2001).

Evidence from East Africa and other developing-country contexts further demonstrates the importance of rural infrastructure. Ouma et al. (2010) found that road accessibility, travel time to markets, market information and land tenure security influenced market participation among banana farmers in Rwanda and Burundi. Similarly, Mekonnen and Alamirew (2017) found that improved rural roads increased crop commercialisation among Ethiopian smallholders by reducing transport costs and enabling access to larger markets. In India, Shamdasani (2021) found that improved rural road access increased agricultural commercialisation, input use and market participation, while J-PAL (2021) concluded that investments in transport infrastructure, storage and rural credit can reduce transaction costs and improve agricultural market efficiency.

Market coordination is also important for entrepreneurial participation. Chikuta, Sichoongwe and Nakanga (2024) found that fragmented market systems, weak coordination among market actors and limited access to structured marketing channels constrained Zambian smallholder farmers' ability to select profitable marketing options. Magakwe and Olorunfemi (2024) similarly concluded that cooperative marketing can improve market access, bargaining power and commercialisation when interventions are adapted to local socio-economic and infrastructural conditions. The World Bank (2021) further reported that FISP achieved only modest improvements in commercialisation because complementary investments in rural roads, storage and market infrastructure remained inadequate, while IFAD (2025) noted that farmers in districts such as Mpongwe continued to experience limited access to profitable markets because of poor infrastructure and weak bargaining power.

3 Research Methodology

Research Design

Research design is a set of instruction for the researcher to collect and analyse data in such a way as to determine whom and what to study (Creswell, 2007). A research design was also theorized as a framework for the entire research process, aimed at guiding the researcher in the direction of the study. Therefore, this study, being qualitative in nature, employed a case study design, which was considered appropriate for providing an in-depth understanding of small-scale farmers' participation in agricultural entrepreneurship.

Study Area

The study was conducted in Mpongwe rural communities of the Copperbelt Province, Zambia. The communities were selected because they represented typical small-scale farming areas where agriculture formed the primary source of livelihood, and farmers faced both opportunities and constraints in participating in entrepreneurial agricultural activities.

Population

The target population consisted of small scale farmers in Mpongwe District of the Copperbelt Province, as well as key informants such as cooperative leaders, extension officers, and local agricultural officials. These groups were selected because they are directly involved in agricultural activities. The study focused on this population to draw its conclusions, following the definition of target population provided by Creswell (2014).

Sampling Techniques and Sample Size

The study used purposive sampling to select participants. Farmers were deliberately chosen based on their active engagement in agricultural activities within the rural communities of Mpongwe District. According to C.R Kothari (2004), purposive sampling is suitable when the population is small and

specific characteristics need to be studied in depth. The sample size of this research consisted of 25 respondents, which were distributed as follows: 20 small scale farmers, 5 key informants (cooperative leaders, and local agricultural officials).

Data Collection Methods and Instrument

Data were collected through face-to-face semi-structured interviews with both categories of respondents, guided by an interview instrument comprising open-ended questions organised around demographic information and the three study objectives – socio-economic, institutional, and infrastructural and market-related factors. The semi-structured format allowed flexibility to probe deeper into participants' experiences while maintaining consistency across respondents, and the inclusion of both farmers and key informants enabled triangulation of perspectives.

Data Analysis Procedures

Interview notes and audio recordings were reviewed for completeness and transcribed into written form. The data were then coded by assigning labels to segments of text, after which similar responses were grouped into categories based on recurring concepts. These categories were organised into broader themes reflecting the study's three objectives, enabling a systematic thematic analysis of participants' experiences, views and perceptions.

Trustworthiness of the Study

To strengthen the credibility of the findings, interview questions were developed from a review of relevant literature and reviewed for clarity prior to data collection. Triangulation was achieved by interviewing both farmers and key informants drawn from different institutional positions, allowing findings to be corroborated across multiple perspectives. Confidentiality safeguards, including the use of village pseudonyms, further supported participants' willingness to share candid accounts.

Ethical Consideration

Ethical approval for the study was obtained prior to data collection. Participation was entirely voluntary, informed consent was obtained from all respondents, and participants retained the right to withdraw at any point without consequence. Confidentiality and anonymity were maintained throughout, and all data collected were used solely for academic purposes.

4 Results and Discussion

4.1 Demographic characteristics

Table 1: Demographic Characteristics of Farmer Respondents (N = 20)

Characteristic		Frequency
<i>Gender</i>		
Male	11	55
Female	9	45
<i>Age</i>		
Below 20 years	2	10
20 to 30 years	3	15
31 to 40 years	7	35
41 to 50 years	5	25
Above 50 years	3	15
<i>Highest Education Level</i>		
Primary education	7	35
Secondary education	8	40
Tertiary education	5	25
<i>Cooperative / Farmer Group Membership</i>		
Member	14	70
Non-member	6	30
<i>Primary Farming Activity</i>		
Crop-only farming	7	35
Vegetable/horticultural	6	30
Livestock-integrated farming	7	35
<i>Landholding Size</i>		
Less than 1 hectare	4	20
1–3 hectares	6	30
4 hectares or more	6	30
Not stated	4	20

The 20 farmer respondents were drawn from across the three Mpongwe communities and varied in gender, age, education, farming experience, cooperative membership, and type of farming activity, as summarised in Table 1. Male respondents made up slightly more than half of the sample (11 of 20, 55%), while female respondents accounted for 9 of 20 (45%), a near-even split that allowed the study to capture gendered differences in access to land, resources, and institutional support. Respondents spanned five age categories, with the largest group (7 respondents, 35%) falling within the 31–40 years bracket, followed by the 41–50 years bracket (5 respondents, 25%); two respondents were below 20 years and newly engaged in farming, while three were above 50 years with over two decades of farming experience.

Educational attainment was fairly evenly distributed: 7 respondents (35%) had only primary education, 8 (40%) had secondary education, and 5 (25%) had attained tertiary education, mostly certificates or diplomas in agriculture-related fields. Fourteen of the 20 respondents (70%) belonged to a cooperative or farmer group, while 6 (30%) did not, a distinction that, as discussed below, proved central to farmers' access to institutional support. Farming activities were grouped into three broad categories: crop-only farming (7 respondents), vegetable and horticultural production (6 respondents), and livestock-integrated farming combining crops with cattle, goats, poultry, piggery, or beekeeping (7 respondents). Landholding sizes ranged from under half a hectare to ten hectares: 4 respondents held less than 1 hectare, 6 held between 1 and 3 hectares, and 6 held 4 hectares or more, while the remaining 4 did not state a specific figure, mainly because they leased or borrowed land informally.

4.2 Socio-economic factors influencing the participation

Farmers entered agricultural entrepreneurship through distinct pathways. Some inherited farming as a family occupation; others entered after failing to secure formal employment; and a smaller group deliberately pursued farming after identifying a specific market opportunity, such as demand for poultry or piggy products. These findings support the position that participation in agricultural entrepreneurship is shaped by individual socio-economic circumstances rather than occurring at random (FAO, 2017), though the Mpongwe evidence suggests the pathway into farming continued to shape how respondents managed their enterprises: those who entered out of necessity tended to view farming as a means of household survival, while those who entered after identifying an opportunity treated it as an investment.

Education's influence was not uniform. One respondent with only primary education explained that he relied "a lot on what I have learned from experience over the years rather than from books," while another with a certificate in agriculture credited his training with helping his poultry "survive better than those of farmers who started without any training." This is broadly consistent with evidence that educated farmers process agricultural information and adopt improved practices more readily (Nhliziyo & Mushunje, 2024; Bontsa et al., 2023), yet several respondents with only primary education had nonetheless built profitable enterprises through accumulated practical experience, suggesting education complements rather than substitutes for experience, capital, and institutional support.

Household income and access to capital emerged as the most frequently cited constraint, affecting roughly half the farmer respondents. As one farmer put it:

"Money is the biggest challenge. After harvest I need cash quickly for school fees, so I am forced to sell my maize cheaply to buyers who come with cash instead of waiting for the Food Reserve Agency." — Farmer Respondent

This finding aligns with evidence that commercialisation requires sufficient financial capital to invest in production while managing market risk (Saha et al., 2021; Bontsa et al., 2023), and suggests that regardless of education or experience, working-capital shortages at critical points in the production cycle significantly limit entrepreneurial participation.

Land ownership and productive assets also shaped participation, with farmers holding larger landholdings, livestock, and equipment reporting greater production capacity, consistent with evidence that asset ownership improves participation in commercial and collective marketing (Magakwe et al., 2025). Gender and marital status interacted with these constraints in ways not always captured in the broader literature. A widowed respondent explained that she struggled "to raise money for hired labour during peak periods," delaying planting and reducing her harvest, while a cooperative chairperson observed that women in the cooperative "often face extra difficulty balancing household responsibilities with farming." Age produced similarly uneven effects: an older farmer noted that "at my age it is becoming harder to do the heavy work alone" despite having adequate land, while a younger, unmarried respondent reported that "some financial institutions do not take me seriously as a potential borrower," limiting his access to credit. Taken together, these findings reflect the attitudinal component of the Theory of Planned Behaviour: farmers with stronger education, experience, financial capacity, and resource access consistently expressed confidence in managing farming as a business, while resource-constrained respondents more often described farming primarily as a means of survival.

4.3 Institutional Factors Affecting the Participation

Cooperative membership emerged as the single strongest determinant of access to institutional support. Farmers accessed support through the government's Farmer Input Support Programme (FISP), cooperative-based channels such as shared equipment and bulk input discounts, extension advice, and, less commonly, formal loans. Notably, all six respondents who reported no institutional support of any kind were also the six respondents who did not belong to a cooperative or farmer group, underscoring cooperative membership as the principal gateway to support in Mpongwe. As one non-member explained:

"Because I am not part of any cooperative, I have not received any support from government programmes, and I buy all my own seed and tools." — Farmer Respondent

Among farmers who did access support, perceptions were generally positive, particularly for FISP inputs and technical advice, though respondents also noted delivery limitations: one farmer credited FISP with helping to "increase my yield compared to when I used to buy my own seed," while adding that "the maize seed variety given is not always suited to our soil." These findings echo evidence that farmer organisations improve access to inputs, extension, and collective marketing (Magakwe et al., 2025; Chikuta et al., 2024), while also suggesting that in Mpongwe, cooperative membership functions less as one support channel among several and more as the principal mechanism through which institutional opportunity is accessed at all, with non-members at risk of being structurally excluded.

Extension services were valued where accessed but constrained by inadequate staffing and infrequent visits, consistent with documented resourcing challenges in Zambia's extension system (Chavula et al., 2022). Access to formal finance was the most significant institutional barrier reported: farmers cited a lack of acceptable collateral and repayment terms poorly matched to agricultural cycles, as one respondent summarised:

"Getting a bank loan is still difficult because interest rates are high and the repayment period is too short for a farming cycle that depends on rainfall." — Farmer Respondent

An agricultural loans officer confirmed that financial literacy and formal collateral, such as title deeds, strongly shape farmers' ability to move from subsistence activity toward farming as a business. These findings closely mirror those of Chileshe and Munkombwe (2026), whose Mpongwe-based study similarly found financial literacy and access to appropriate financial services significant predictors of agribusiness sustainability, and support the wider consensus that limited access to affordable finance is among the principal barriers to smallholder commercialisation in developing countries (World Bank, 2024). Institutional and socio-economic disadvantage also proved mutually reinforcing: farmers with the least land, labour, and capital were also the most likely to sit outside cooperative structures, consistent with the Theory of Planned Behaviour's account of subjective norms and perceived behavioural control, whereby cooperative membership builds farmers' confidence and motivation through peer learning and institutional encouragement.

4.4 Infrastructural and Market related Factors Influencing the Participation

Poor rural road conditions, particularly during the rainy season, were the most frequently cited constraint across the sample, cutting across farming types and landholding sizes. One farmer described how muddy feeder roads deterred buyers and caused produce to spoil before collection:

"During the rainy season the road to the tarmac gets very muddy and vehicles get stuck, so buyers delay coming and sometimes my produce starts to rot before it is collected." – Farmer Respondent

A Community Development Officer corroborated this account, noting that the district's market infrastructure remained underdeveloped, with few designated market areas offering proper shelter or storage. Weak mobile network coverage compounded these difficulties, limiting farmers' ability to confirm prices or contact buyers in advance, while dependence on a small number of buyers, whether local middlemen or cattle traders, left farmers with limited bargaining power. A Livestock Extension Coordinator observed that the absence of formal livestock auction points forced farmers to accept unfavourable prices from a restricted pool of buyers.

These findings closely mirror those documented elsewhere in Zambia and the wider region: high transport costs and limited market access reduce both the likelihood and intensity of market participation among Zambian maize farmers (Bwalya et al., 2013), and comparable patterns linking distance to markets, transaction costs, and reduced commercialisation have been reported in Ghana (Iddrisu et al., 2025), South Africa (Ortmann & King, 2007; Makhura, 2001), and East Africa (Ouma et al., 2010). Inadequate storage similarly forced farmers to sell immediately after harvest, when prices were lowest, consistent with World Bank (2021) findings on the limits of Zambia's rural storage capacity and J-PAL's (2021) conclusion that storage investment stabilises prices and raises farmer incomes. Farmers' own proposed solutions converged on a small set of shared priorities, graded feeder roads, local storage or collection centres, and improved market-information systems, rather than a scattered list of individual requests, as one respondent summarised:

"If the feeder roads were graded and a proper storage shed was built near our village, we would not lose so much produce and we could bargain for better prices." – Farmer Respondent

These findings collectively demonstrate that infrastructural constraints blunt the effectiveness of institutional support: even where farmers benefited from extension services, cooperative membership, or FISP inputs, poor roads, weak communication, and limited storage prevented production gains from translating into reliable market income, echoing Kuteya et al.'s (2020) observation that input support alone cannot drive commercialisation without complementary infrastructure investment.

5 Conclusion and Recommendations

5.1 Conclusion

This study examined the factors affecting small-scale farmers' participation in agricultural entrepreneurship in Mpongwe rural communities, Copperbelt Province, Zambia. The findings show that socio-economic circumstances, particularly household income, land size, education, age, and gender, shape participation unevenly and in combination rather than individually, with financial capacity to purchase inputs the most binding constraint across nearly all respondents, and women, particularly widows, together with very young and older farmers, facing distinct additional constraints linked to labour, credit access, and physical capacity. Institutional support in Mpongwe is accessed largely through cooperative membership, which functions as a gateway to government input support, extension advice, and informal credit, leaving farmers outside cooperative structures consistently excluded. Poor rural roads, weak mobile network coverage, inadequate storage, and dependence on a small number of buyers were the dominant infrastructural and market-related barriers, reducing the effectiveness of institutional support by preventing farmers from converting production gains into reliable market income. Overall, the study demonstrates that successful participation in agricultural entrepreneurship depends on an enabling environment in which socio-economic capacity, effective institutional support, and adequate infrastructure complement one another, supporting the Theory of Planned Behaviour's account of how resources, social support, and perceived control jointly shape entrepreneurial behaviour.

5.2 Recommendations

Based on these findings, cooperative leaders and local government structures should actively recruit non-member farmers, particularly women, widows, and youth, into cooperatives or farmer groups, since membership was the principal gateway to institutional support in Mpongwe District. Government and cooperating partners should strengthen extension services through additional staffing so that non-members also receive reliable technical support. Financial institutions should offer loan products with flexible collateral and repayment terms aligned to agricultural cycles, improving credit access for currently overlooked farmers, including younger and unmarried applicants. Local authorities and development partners should prioritise grading feeder roads, especially those hardest hit in the rainy season, to cut transport costs and improve market access. Local government and telecom providers should extend mobile network coverage to help farmers access market information and buyers. Future research should apply a quantitative or mixed-methods approach with a larger, representative sample to weigh the relative importance of these factors and test their interactions more formally. Comparative studies across other Copperbelt districts, or between areas with and without major agribusiness investment, would help determine whether Mpongwe's patterns are context-specific or more broadly applicable.

Declaration of Competing Interests

The authors declare that they not aware of any competing financial interests or personal relationships that may have influenced the work described in this document..

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Ethical considerations

The study followed all ethical standards appropriate for this kind of research. Ethical clearance was obtained prior to data collection from the University Ethics Committee at Kwame Nkrumah University. Participation was voluntary and based on informed consent, and anonymity and confidentiality were maintained throughout the study.

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